Title X of the Housing and Community Development Act of 1992 significantly changed the national approach to evaluating and controlling lead-based paint hazards in residential housing to prevent childhood lead poisoning. Title X, also known as the Residential Lead-Based Paint Hazard Reduction Act of 1992, prescribes specific lead-based paint hazard evaluation and control activities for federally supported housing but does not impose requirements on purely privately owned housing (beyond the disclosure of lead-based paint hazards in real estate transfers and the use of certified hazard evaluation and abatement contractors). Congress directed the Secretary of the U.S. Department of Housing and Urban Development (HUD), in consultation with the Administrator of the U.S. Environmental Protection Agency (EPA), to establish the Task Force on Lead-Based Paint Hazard Reduction and Financing.

1.1 TASK FORCE MANDATE

The Task Force has a mandate to address sensitive issues related to lead hazards in private housing, including:

- Standards of hazard evaluation and control;
- Financing of hazard control activities; and
- Liability and insurance for rental property owners and hazard control contractors.

The Task Force’s mandate concerning private housing also extends to tenant-based assistance programs. Housing in this category is privately owned and managed, but the owners receive payments from the government that supplement the rent of low-income tenants.

HUD Secretary Henry Cisneros appointed 39 individuals to this Task Force representing the wide spectrum of organizations and institutions involved with lead-based paint in housing. These organizations and institutions have diverse interests, constituencies, opinions, and experiences. The Task Force has investigated the public health problem of poisoning caused by lead-based paint hazards in private housing and has considered a variety of strategies for controlling these hazards. The resulting Task Force recommendations to HUD, EPA, Congress, state and local governments, property owners, lenders, and insurers are presented in Parts II through V of this report.

1.2 CHILDHOOD LEAD POISONING

Childhood lead poisoning is a serious, but preventable, disease. At high levels, lead poisoning can cause coma, convulsions, and death. At lower levels, observed adverse health effects in young children include reduced intelligence, reading and learning disabilities, impaired hearing, and slowed growth.

Although lead ingestion is hazardous to all humans, children under six years of age and pregnant women (as surrogates for fetuses) are at highest risk because nervous systems are still developing until age six. As scientific evidence of lead’s adverse human health effects has mounted, the generally recognized level for lead toxicity in younger children has been steadily reduced from over 60 micrograms per deciliter of whole blood (µg/dL) in the early 1960s to the current threshold of concern of 10 µg/dL, which the Centers for Disease Control and Prevention (CDC) established in October 1991. Medical treatments for lead poisoning are limited. Chelation therapy (a drug treatment aimed at drawing lead out of a child’s body) is typically used only for children with very high blood levels...
(for example, above 40 µg/dL). Chelation therapy is not without drawbacks, including costs, side effects, and frequently the need for retreatment. It is not a substitute for environmental remediation and is contraindicated for children who remain in lead-contaminated environments. The prescription for children with lower blood lead levels is to reduce their exposure to lead. The Task Force strongly believes that medical treatment is secondary to prevention. Children should never be used as lead detectors.

Despite dramatic reductions in blood lead levels in the United States over the past 15 years, lead poisoning continues to be the significant environmental health risk for young children. Results from the first phase of the third National Health and Nutrition Examination Survey (NHANES III) show that the mean blood lead level of the overall population dropped 78 percent, from 12.8 to 2.8 µg/dL, over the period between 1976 - 1980 (NHANES II) and 1988 - 1991 (NHANES III). This decline is attributed to the restrictions on the use of lead in gasoline and the removal of lead from solder for food cans. Other public policies have also limited the introduction of new sources of lead into the environment by restricting the use of lead in paints and in pipes and solder for drinking water systems. By contrast, relatively little has been done to reduce hazards from surfaces already painted with lead-based paint and from lead that has accumulated in dust and soil. Despite the general decline in blood lead levels, an estimated 1.7 million children (8.9 percent of U.S. children from ages one to five) have blood lead levels at or above 10 µg/dL.

The problem of childhood lead poisoning is greatest for minority children in low-income central cities or urban suburbs. The problem of childhood lead poisoning is greatest for minority children in low-income central cities or urban suburbs. According to the NHANES III survey:

- Children aged one to five in lower income families are four times more likely than children in middle- or high-income families to have blood lead levels at or above 10 µg/dL;

- Twenty percent of African American children from ages one to five have blood lead levels at or above 10 µg/dL – almost four times the rate of White children; and

- Children living in central cities are three times more likely to have elevated blood lead levels than those outside of central cities. Populations with multiple risk factors have the highest prevalence rates: 37 percent of African American children living in central cities have blood lead levels at or above 10 µg/dL.
Although the number of children from ages one to five with blood lead levels at or above 10 µg/dL and at or above 20 µg/dL declined 90 and 96 percent, respectively, between the late 1970s and the early 1990s, lead-based paint and lead-contaminated dust and soil remain significant sources of childhood lead exposure for millions of children. Contrary to what was believed in the past, children do not have to eat paint chips to be poisoned. The primary pathway of childhood lead poisoning is the ingestion of lead-contaminated surface dust.

Lead-contaminated dust is formed as paint deteriorates or is disturbed by scraping, sanding, or burning. Lead-based paint on friction and impact surfaces, such as doors and windows, can also generate lead dust. Lead-contaminated dust enters children’s bodies through normal hand-to-mouth activity, such as when children put their hands, toys, or other objects in their mouths. Lead-contaminated bare soil can also poison children by being ingested, inhaled, or tracked indoors to contaminate interior dust. In addition, a small percentage of children are poisoned by eating lead-based paint chips or chewing protruding surfaces painted with lead-based paint. Eating lead-based paint chips can result in severe poisoning. Other sources of childhood lead exposure include lead in soil on playgrounds, in drinking water, emitted from municipal incinerators and smelters, and taken home from a parent’s workplace. While the elevated blood lead levels of many children do result from residential lead-based paint hazards, it is always possible that in an individual child’s case the lead came from another source.

1.3 LEAD-BASED PAINT HAZARDS IN HOUSING

According to estimates by HUD, approximately 57 million pre-1978 housing units contain some lead-based paint – over half of the nation’s entire housing stock. In general, the older the housing, the greater the amount of lead-based paint. Lead-based paint is found more often on exteriors than interiors, and more frequently on trim than walls and ceilings. Older units also tend to contain paint with higher concentrations of lead (up to 50 percent by dry weight), as well as more coats of paint. Complete removal of lead-based paint from all U.S. housing units would be a huge undertaking and would require an expenditure of several hundred billion dollars – a level of investment that vastly exceeds available resources. Therefore, the Task Force has focused its attention on strategies that can be implemented on a broad scale to protect children from lead-based paint hazards in the near term.

Title X redirected the national approach to lead-based paint by focusing attention on lead-based paint hazards – physical conditions that can result in human exposure to unsafe levels of lead. Estimates of the number of units that currently contain lead-based paint hazards can be developed from several sources to gain an understanding of the scope of the problem.

- In 1990, HUD estimated that 13.8 million housing units contained chipping and peeling lead-based paint, based on the results of its detailed evaluation of a sample of private U.S. housing units. The study also estimated that an additional 6.2 million housing units had elevated lead dust levels, although this estimate of units with lead dust hazards is less reliable. Of the 20 million units projected by HUD to contain lead-based paint hazards, 3.8 million were estimated to house a child under age seven.

**Lead-Based Paint Hazards in Housing**

- Approximately 57 million pre-1978 housing units contain some lead-based paint.
- An estimated 13.8 million housing units contain deteriorating lead-based paint.
- Roughly 6 million pre-1979 housing units are reported to be in poor physical condition.
- Approximately 400,000 pre-1979 housing units are economically distressed, in poor physical condition, and occupied by a child under age 6.
Data from the 1991 American Housing Survey (AHS) on the physical and economic condition of housing units can also be used to estimate the extent of lead-based paint hazards. Approximately 6.2 million pre-1979 units were reported by occupants to be in poor physical condition, which includes units with broken plaster, peeling paint, and holes in interior walls. On a different scale, as many as 17 million pre-1979 units are estimated to be economically distressed, a factor associated with deferred maintenance and therefore linked to the presence of lead-based paint hazards. Approximately 400,000 of these units that are in poor physical condition are occupied by a child under age six, and lack the resources to address hazardous conditions due to economic distress.

All of these data indicate that the problem of lead-based paint hazards in U.S. housing is extensive. The Task Force estimates that, in all likelihood, somewhere between 5 million and 15 million housing units contain lead-based paint hazards. At any given time, a fraction of these units are occupied by families with a young child or a pregnant woman, as only 18 percent of American families have a child under age six. However, because families with young children – particularly those in rental housing – tend to move frequently, far more units will be occupied by children under age six than shown by point-in-time estimates of these units. Therefore, the number of units that need to be made safe from lead-based paint hazards rests somewhere between the estimates of units with lead-based paint hazards that are occupied by young children and the total number of units that contain lead-based paint hazards.

The Task Force also wants to emphasize that while tens of millions of units contain lead-based paint that does not present an immediate hazard to human health, lead-based paint can deteriorate over time or create an immediate hazard if not controlled when it is disturbed. Therefore, the Task Force’s recommendations include recommendations for maintenance practices as well as lead-based paint hazard control measures to protect children from lead-based paint hazards in their homes.

1.4 BENEFITS OF PREVENTING POISONING

Childhood lead poisoning is both a personal tragedy and a costly public health problem. Preventing exposure to lead hazards will greatly benefit both individual children and families, as well as the nation as a whole. Benefits that can be quantified in monetary terms include reductions in medical and special education costs and improvements in productivity and earning power. Other benefits, such as lowering infant mortality, improving children’s stature, increasing their quality of life, and avoiding family emotional costs associated with caring for poisoned children, are extremely difficult to quantify even in nonmonetary terms. The importance of these benefits, however, is self-evident, especially when summed over millions of children.

The monetary benefits of reduced medical and special education costs and improved productivity have been quantified in terms of the estimated cost per child affected by elevated blood lead levels. These estimated costs per child (updated to 1994 dollars) are discussed below. The national aggregate annual benefits of avoiding such costs are also estimated below, based on the most recent NHANES III data on the number of children with elevated blood lead levels.

To calculate the annual benefit of preventing
childhood lead poisoning, the NHANES III data on the total number of children with elevated blood lead levels were used to estimate the number of children who develop elevated blood lead levels each year. The NHANES III data indicate that:

- 11.5 percent of children of ages one and two have blood lead levels at or above 10 µg/dL, while only 7.3 percent of children of ages three through five have blood lead levels this high; and
- 0.6 percent of children of ages one and two have blood lead levels at or above 25 µg/dL, while only 0.4 percent of children of ages three through five have blood lead levels this high.

These data show that children are most likely to develop lead poisoning at the age of one or two. This finding suggests that a large proportion of children older than two with elevated blood lead levels may have had even higher levels at ages one and two. It is also reasonable to extrapolate that a large proportion of children with elevated blood lead levels at age two may have also had elevated blood lead levels at age one. Therefore, a lower bound estimate of the number of children who develop elevated blood lead levels each year can be based on NHANES III data on the number of one-year-old children with elevated blood levels. The total population of one-year-old children in 1990 was 3.9 million. If 11.5 percent of these children have blood lead levels at or above 10 µg/dL, then approximately 450,000 one-year-old children become poisoned above 10 µg/dL each year. Similarly, if 0.6 percent of one-year-olds have blood lead levels at or above 25 µg/dL, then approximately 24,000 one-year-old children become poisoned above 25 µg/dL each year. These estimates are lower bounds because some children will develop elevated blood lead levels after the age of one, and because the 1990 Census undercounted urban minority populations.

There are numerous benefits to preventing childhood lead poisoning. Some of the major benefits include:

**Lower Medical Costs.** Children with high blood lead level concentrations need medical attention, including physician visits, laboratory testing, chelation therapy, neuropsychological testing, and follow-up testing. Such a process involves considerable medical and administrative costs. Reducing blood lead level concentrations will decrease the number of children requiring medical care and the required extent of care. For example, preventing a child’s blood lead level from rising to 25 µg/dL or higher would reduce medical costs by about $1,800 (1994 dollars) per child, on average. Thus, preventing all children from having blood lead levels at or above 25 µg/dL would save over $43 million per year, assuming that 24,000 children now become poisoned at or above 25 µg/dL per year and receive medical care. Additional health care savings would result from further blood lead level reductions for these children and the many more children with lower elevated blood lead levels.

**Decreased Special Education Costs.** Children with high blood lead levels are more likely than other children to suffer decreased school performance and require reading or speech therapy or psychological assistance. If it is assumed that 20 percent of children with blood lead levels at or above 25 µg/dL require special education, then preventing a child’s blood lead level from rising above 24 µg/dL saves, on average, approximately $4,000 (1994 dollars) in special education costs. Thus, preventing childhood blood lead levels from rising above 24 µg/dL would save roughly $96 million per year, assuming that 24,000 children per year become poisoned above 24 µg/dL.

**Improved Productivity.** While most children poisoned by lead-based paint hazards do not require special education or other assistance, their future economic productivity may decline due to impaired cognitive functions and reduced intelligence. In addition to lost productivity, there is a loss in quality of life for individuals who suffer IQ reductions due to lead poisoning. Lead poisoning also negatively affects wages and lifetime earnings through reduced educational attainment and by other effects, such as decreased attention span. Preventing an increase of one µg/dL in a child’s blood lead level saves $1,350 (1994 dollars) per child in increased future income.
Thus, for each one µg/dL reduction in blood lead levels for all 450,000 children who develop blood lead levels above nine µg/dL each year, hazard control efforts could increase their expected lifetime earnings by roughly $600 million per year.

**Other Benefits.** Preventing poisoning has other potential benefits, including:

- Preventing prenatal exposure to lead and reducing the incidence of associated miscarriages, low birth weights, short gestational age, and impaired cognitive functioning;
- Avoiding the parental and family time, expenses, and emotional costs involved in caring for poisoned children;
- Improving children’s stature, hearing, vitamin D metabolism, and blood production;
- Reducing juvenile delinquency and the burden on the educational system;
- Reducing personal injury claims and court cases; and
- Improving the health of the adult population, such as by preventing strokes, myocardial infarctions, and death.

In addition to the health benefits provided by reducing lead-based paint hazards, there are also benefits to the housing stock. As detailed later in this chapter, confusion over standards of care related to lead-based paint in rental housing is now threatening the viability of millions of affordable units. In most states, the tort system is not working efficiently on lead poisoning. Liability insurers are increasingly refusing to provide coverage for lead poisoning. Property owners are concerned about “going bare” without insurance, and lenders are increasingly anxious about financing the purchase or renovation of older housing. In addition to protecting children from poisoning, implementation of practical and protective standards of hazard control can prevent disinvestment – and even abandonment – of millions of older affordable housing units, a resource this nation cannot afford to lose.

### 1.5 TITLE X FRAMEWORK AND REQUIREMENTS

**FOR PRIVATE HOUSING**

Title X, the Residential Lead-Based Paint Hazard Reduction Act of 1992, is the latest national legislative response to the problem of lead poisoning. This law has refocused national attention and resources on reducing these hazards before a child is poisoned, rather than relying on poisoned children as the trigger for action. Because three-fourths of units built before 1978 contain some lead-based paint, Title X made two fundamental policy changes to make the national approach to lead-based paint in housing more workable.

- Title X focused on lead-based paint hazards, not on the mere presence of lead-based paint; and
- Title X addresses the problem through combination of short-term strategies (interim controls or in-place management) and long-term hazard abatement.

Title X assigns specific responsibilities and deadlines to EPA, HUD, and the Occupational Safety and Health Administration (OSHA) to help reduce lead-based paint hazards in private housing. These responsibilities and the role of state and local governments are described below. Title X also imposes specific lead-based paint requirements in federally supported housing, that is, federally owned units and units receiving federal project-based subsidies, as well as other work funded by HUD and pre-1978 units sold by the

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**Federal Agency Responsibilities Under Title X**

- Developing a hazard evaluation and control infrastructure
- Increasing awareness of lead-based paint hazards and controls
- Financing hazard evaluation and control
- Specifying lead-based paint hazard evaluation and control requirements in housing

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Nature and Scope of the Problem of Childhood Lead Poisoning
Farmers Home Administration, the Veterans Administration, and other federal agencies.

This section briefly describes the key responsibilities of federal agencies and state and local governments under Title X. State and local governments have a critical role to play in controlling lead-based paint hazards in private housing. They will have the primary responsibility for implementing Title X programs. Consequently, many of the Task Force recommendations discussed in the following chapters are ultimately directed to state and local governments.

Developing a Hazard Evaluation and Control Infrastructure

During the 1980s, no established standards for hazard evaluation and control existed. The conditions under which lead-based paint constituted a hazard had not been established, nor had dangerous levels of lead dust. Further, untrained workers sometimes used improper or uncontrolled hazard control techniques that aggravated lead-based paint hazards. In many instances, workers were not properly protected and measures were not taken to control, contain, and clean up lead-contaminated dust. Title X addresses these concerns by requiring EPA, HUD, and OSHA to promulgate regulations that will help develop a hazard evaluation and control infrastructure.

Work Practice Standards and HUD Guidelines.

Under the Toxic Substances Control Act (TSCA), as amended by Title X, EPA is developing regulations governing lead-based paint hazard evaluation and abatement activities in private and public housing, public and commercial buildings, and steel structures. These rules will include standards for conducting lead-based paint activities that take into account reliability, effectiveness, and safety. In addition, to reduce risks from renovation and remodeling activities that disturb lead-based paint, EPA has developed lead-based paint guidelines for these activities in pre-1978 housing. Title X also requires HUD to establish new guidelines for lead-based paint hazard evaluation and control activities in all federally supported projects. These guidelines provide detailed, technical information on the best practices for identifying lead-based paint hazards and controlling such hazards safely and effectively in different types of housing. While developed for federally-supported housing, these guidelines will help increase the quality, uniformity, and reliability of lead-based paint hazard evaluation and control services available to private property owners.

Training and Certification Requirements. EPA is promulgating regulations under Title X to ensure that individuals performing lead-based paint inspections, risk assessments, and abatements are properly trained and that contractors engaged in such activities are certified. In addition, training providers must be accredited and must meet minimum standards for:

- Training curriculum and hours;
- Hands-on training;
- Trainee competency and proficiency; and
- Training program quality control.

These training, certification, and accreditation programs will help to establish a large and well-trained workforce that can identify lead-based paint and effectively, reliably, and safely control lead-based paint hazards. EPA is also investigating the need to establish training and certification requirements for persons engaged in renovation and remodeling activities that research studies find to be hazardous.

Title X anticipates that states will develop their own training, certification, and accreditation programs, which must be approved by the EPA and at least as protective as federal standards. State programs can, however, be more stringent than these standards. EPA will implement the requirements in states that do not establish their own programs.

EPA is also developing training course curricula for risk assessors, inspectors, supervisors of abatement projects, abatement workers, and interim control and operations and maintenance workers. In addition, EPA is now funding a network of Regional Lead Training Centers to provide training services to contractors, housing officials, public regulators, and other interested parties.

Identification of Dangerous Levels of Lead. EPA is analyzing recent research studies in order to promul-
gate regulatory standards for lead hazards in dust, soil, and paint. In the interim, EPA has published guidance, based on the best data available, that establishes advisory levels for lead-contaminated dust and lead-contaminated soil. This guidance will assist property owners, the lead-based paint hazard evaluation and control industry, and public agencies in determining when lead-based paint hazard control measures should be taken as well as the success of such measures.

**Laboratory Accreditation Standards.** EPA has established the National Lead Laboratory Accreditation Program and has developed protocols, criteria, and performance standards for laboratories that analyze paint chips, dust, and soil samples for lead. This program is being implemented through a private sector accreditation program and is designed to ensure that reliable laboratory services are available to support lead-based paint hazard detection and control activities.

**Worker Protection Standards.** Under Title X, OSHA has promulgated interim final employee protection requirements for construction workers exposed to lead. If airborne lead concentrations exceed a set level, employers must initiate compliance activities, such as periodic blood testing, medical surveillance, training, and education. These regulations require exposure assessment or objective data analysis, hazard communication training, medical removal protection, and good housekeeping measures. Where air lead levels are expected to exceed 30 µg/m³, preemployment medical examinations and additional training are required. Where air lead levels are expected to exceed 50 µg/m³, respiratory devices, protective clothing, medical surveillance, and medical removal protection are required. These rules apply to workers involved in lead-based paint hazard evaluation and control activities as well as remodeling and renovation activities that may disturb lead-based paint in both private and public housing.

**Increasing Awareness of Lead-Based Paint Hazards and Controls**

Creating public awareness of lead-based paint hazards and controls is essential in preventing childhood lead poisoning. Under Title X, a number of educational activities are currently under way at the federal level, including activities of the National Lead Information Center’s hotline and clearinghouse, publications and pamphlets, and grant programs. Educational activities and responsibilities under Title X, as well as educational opportunities relating to lead-based paint in private housing, are discussed further in Chapter 10 of this report.

**Lead Hazard Information Pamphlet.** Under Title X, EPA is responsible for developing a lead hazard information pamphlet, entitled “Protect Your Family from Lead in Your Home.” The pamphlet describes the general hazards of lead-based paint, provides tips on lead poisoning prevention, discusses ways to eliminate lead-based paint hazards, and notifies people of their rights to information when buying or renting housing built before 1978. The pamphlet will be distributed before individuals purchase, rent, or renovate most pre-1978 units.

**Real Estate Notification and Disclosure.** Pursuant to proposed joint EPA and HUD regulations, before purchase or rental of private pre-1978 housing, the seller or lessor must:

- Give the prospective buyer or renter the EPA lead hazard information pamphlet; and
- Disclose to the buyer or renter the presence of any known lead-based paint or lead-based paint hazards in the property and provide any lead hazard evaluation report available to the seller or lessor.

Furthermore, prospective buyers are given up to ten days to conduct a risk assessment or inspection. Real estate notification and disclosure are expected to be effective in 1996 and should increase the information available to the public on the hazards of lead-based paint, both in general and in the specific housing units they occupy. There are no requirements for risk assessments, inspections, or lead hazard control in private housing.

**Renovation and Remodeling Notification Rules.**

Housing renovation and remodeling activities that disturb lead-based paint can create risks of lead exposure to both workers and occupants. EPA has proposed rules requiring renovation contractors to give lead hazard information pamphlets to property owners prior to commencing renovation projects that disturb lead-
based paint in pre-1978 housing. A final rule is expected by summer 1995.

Disclosure Requirements in Federally Supported Housing. Under Section 1012 of Title X, all purchasers and tenants of pre-1978 federally assisted housing must be given EPA’s lead hazard information pamphlet. Furthermore, occupants must be notified of the results of all risk assessments, inspections, or lead-based paint hazard control activities conducted.

State and Local Government Programs. State and local governments have a significant role to play in lead education. Being closer to local housing and health concerns, they are well positioned to conduct educational activities. They can narrowly target important audiences and carefully address the specific educational needs of the communities they serve. State and local governments are currently undertaking educational activities on lead-based paint. These innovative activities include assessing the knowledge base of communities to determine the kind of education needed; developing pamphlets on lead, distributing fliers in high-priority neighborhoods, giving presentations in community centers, and educating public health staff.

Financing Hazard Evaluation and Control
Lead-based paint hazard evaluation and control work can be expensive, and many homeowners will be unable to afford it without financing. Owners of economically distressed housing are, by definition, unable to control most lead-based paint hazards without financial assistance.

HUD Abatement Grants. HUD’s Office of Lead-Based Paint Abatement and Poisoning Prevention operates a competitive grants program for state and local governments. Recipients use the funds for lead hazard evaluation and control activities, family relocation during hazard controls, worker blood lead level monitoring, post-control clearance testing, and public education. Fifty-six cities, states, and counties have received grants up to $6 million each. In early 1995, HUD proposed that this program be consolidated into a new affordable housing grant program.

State and Local Financial Assistance Programs. A few state and local governments across the country are currently testing or operating programs that provide financing for lead-based paint hazard control. Some programs are funded through federal grants, others through dedicated state and local funding sources. These programs use a variety of financial incentives including low-interest loans, deferred loans, grants, and tax credits.

Specifying Lead-Based Paint Hazard Evaluation and Control Requirements in Housing
Title X requires certain lead-based paint hazard evaluation and control activities to be undertaken in federally supported housing. There are, however, no similar requirements for private housing.

Requirements for Federally Supported Housing.
Title X requirements address four categories of federally supported housing units: public housing units, units owned by the Federal Government as a result of defaulted loans or other federally owned property that is being sold to a private owner, properties receiving project-based federal assistance, and privately owned units that receive federal funds for rehabilitation and remodeling. Under Title X and existing federal lead-based paint requirements:

- Public housing units must be inspected, and all lead-based paint must be abated during modernization projects or if a child with an EBL occupies the unit.
- Federally owned units built before 1960 must be inspected before sale. In the case of units built between 1960 and 1978, lead-based paint inspections are called for with the results to be provided to potential buyers. Title X made these requirements pertaining to federally owned housing subject to the appropriation of funds. Since no funds have been appropriated, these requirements are not presently in effect.
- Properties receiving ongoing project-based federal assistance must undergo risk assessments and interim control measures, beginning with pre-1960 units.
- Federally funded rehabilitation projects receiving more than $5,000 must be inspected if the work
is likely to disturb painted surfaces, and lead-based paint hazards must be abated if the project receives more than $25,000 of federal funds per unit. Projects receiving less than $25,000 per unit in federal funds for rehabilitation are required to reduce lead-based paint hazards through measures such as abatement or interim controls.

HUD is now in the process of rewriting and consolidating its lead-based paint related regulations to implement Title X.

State and Local Housing Requirements. State and local governments are the primary regulators of housing conditions through building and housing codes, landlord-tenant laws, and other requirements. Title X requires state and local governments completing Consolidated Plans (formerly known as Comprehensive Housing Affordability Strategies) to integrate lead poisoning prevention into their existing housing agendas and ongoing programs. In addition, any changes in liability laws and insurance requirements concerning lead-based paint hazards will take place at the state level.

1.6 MAJOR CHALLENGES IN PREVENTING CHILDHOOD LEAD POISONING IN PRIVATE HOUSING

Cost of Hazard Evaluation and Control
Because of the pervasiveness of lead-based paint and lead-based paint hazards in the nation's private housing stock, efforts to control lead-based paint hazards will require a significant investment of private and public resources over an extended period of time. Given limited resources available to address this public health problem, particularly in the short term, permanent controls (full abatement) are not a financially realistic option for many property owners. In many situations, ongoing controls, such as paint stabilization, specialized cleaning, repairs, and continued monitoring and maintenance, can significantly reduce the risk of lead exposure at a relatively low cost. However, although these practices control lead hazards, they do not eliminate them. Although abatement of lead-based paint hazards entails higher short-run costs, it sometimes proves cost-effective by avoiding the costs of ongoing controls. In addition, the long-term efficacy of ongoing controls remains to be proven conclusively in different kinds of housing.

The cost of lead-based paint hazard evaluation depends on the size of the housing unit evaluated, its condition, and the extent of evaluation activities. Recent interviews with lead-based paint contractors and state officials familiar with lead-based paint hazard evaluation costs indicate that a lead-based paint inspection of single-family housing units ranges from $150 to $600 depending on unit size, including the cost of X-ray fluorescence (XRF) testing for all painted surfaces with a unique painting history and paint chip testing for surfaces with curved or ornate surfaces that cannot be tested with XRF instruments. A risk assessment for a single-family unit can range from $200 to $500 depending on the number of rooms. A hazard screen, an abbreviated risk assessment for units in good condition, costs from $150 to $300 per unit. These cost estimates include preparation, travel, on-site time, and report writing for certified paint inspectors and risk assessors.

Hazard evaluation costs for multifamily units are significantly lower than the costs for single-family units. Where only a sample of units in multifamily buildings needs to be evaluated, the average cost per unit can be less than 10 percent of the cost per single-
family unit. In other words, the cost of risk assessments or inspections may be $30 to $40 per unit. Even where each multifamily unit is evaluated, the costs may be only two-thirds of the cost for multifamily units for two reasons: (1) multifamily units tend to be smaller than single-family units; and (2) fixed costs for preparation and travel can be spread over many units in a multifamily building.

Lead-based paint hazard evaluation costs may also decline in the future. For example, lead-based paint contractors and state officials have noted that lab testing costs for dust and soil samples have declined from $50 to $30 per sample to as low as $7 per sample as both the volume of samples and competition among test labs have increased.

The cost of hazard control activities is also subject to considerable variation depending on the size of the unit, its condition, and the extent of hazards. Lead-based paint contractors and state officials estimate that the average cost of addressing lead-based paint concerns while conducting interior paint stabilization of single-family units is approximately $300 per unit interior stabilized and $1,000 per unit exterior stabilized. (On average, the presence of lead-based paint increases the cost of stabilizing deteriorating paint by about one-third. If lead-based paint is intact, however, there are no additional costs.) The costs in particular units vary substantially around the average cost.

Lead-based paint contractors and state officials estimate that the average cost of interior paint stabilization per multifamily unit is approximately two-thirds of the cost per single-family unit because multifamily units tend to be smaller than single-family units and the fixed costs for preparation and travel can be spread over many units in a multifamily building. The average cost of exterior paint stabilization per multifamily unit can be relatively low because the exterior cost per multifamily building is spread over all of the units in the building. Similarly, the cost of covering bare soil depends on the square footage of bare soil — and per unit costs decrease as the number of units increases.

The timing of lead-based paint hazard evaluation and control activities also affects their cost and safety. For example, these activities are less costly and safer when conducted in vacant housing units. They can also be much less costly when performed in conjunction with renovation or rehabilitation projects. Fortunately, knowledge about the best technologies for controlling hazards and the sources and pathways of most concern is rapidly improving. Nevertheless, further research is needed to develop and demonstrate effective, low-cost, and reliable hazard evaluation and control technologies and methods.

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**Housing Affordability and Economic Distress**

Affordability is a major housing problem in the United States. The 1991 American Housing Survey found that 18.6 percent (6.3 million) of renters and 7.3 percent (4.1 million) of owner-occupants spend 50 percent or more of their income on housing. Of these renters and owner-occupants, 14.5 percent and 8.2 percent, respectively, live in housing with moderate to severe physical problems.

The gap between what tenants and owners can afford to pay and what is needed to maintain housing in acceptable physical condition creates economic distress for many properties. Economically distressed properties are those where a rental property’s income or the income of a homeowner is insufficient to pay the costs of adequate maintenance, repairs, insurance, and taxes. A conservative estimate is that at least one-fifth of all housing units are economically distressed. The 1991 American Housing Survey found that 20.2 percent (6.8 million) of all renters and 23 percent (12.9 million) of all homeowners live in economically distressed units. In 1991, approximately 22 percent of pre-1978 rental units were occupied by families.
with a young child. This is more than triple the proportion of distressed owner-occupied pre-1978 units with a young child.

Lead-based paint hazards constitute a significant threat in many economically distressed housing units and pose a challenge to our national commitment to provide decent, safe, and affordable housing for all families. Because distressed units tend to be older and in poorer condition, these units are much more likely to contain lead-based paint hazards. These units, by definition, cannot carry the cost of addressing many lead-based paint hazards.

Without additional subsidies, rigid mandates for lead-based paint hazard control would threaten the economic viability of many low-income units and/or force rents to be increased to unaffordable levels. Thus, to fulfill the national commitment to decent, safe, and affordable housing, public subsidies will be needed to reduce serious lead-based paint hazards in the economically distressed portion of the housing stock.

Lack of Standards for Controlling Lead-Based Paint Hazards in Private Housing

There are currently no broadly recognized standards that specify a protective and practicable set of actions to protect occupants from lead hazards in housing. Although most states impose a general duty on rental property owners to provide housing safe from hazards, there is no general agreement on the specific steps needed to protect occupants from lead-based paint hazards. For example, while peeling paint is a violation under most housing codes, the codes generally do not mention lead-contaminated surface dust, an important pathway of poisoning.

Some state and local governments have no laws or regulations specifically addressing lead-based paint or lead-based paint hazards. Where such laws and regulations do exist, they vary widely from jurisdiction to jurisdiction, both in terms of how hazards are defined and what control actions are needed. Few are health protective, many are not preventive because they focus on the presence of a lead-poisoned child, and some outdated regulations even call for corrective measures that are now known to be dangerous. In addition, these existing laws are often not effectively enforced. At least one model code simply (and unrealistically) states that any lead-based paint constitutes a violation.

Ineffective Liability System

According to the U.S. General Accounting Office, cases involving liability for lead-based paint have failed to specify clear standards of hazard control for rental property owners. Customarily, standards of care for property owners have been established through the courts in an evolutionary, case-by-case process that builds on precedent. The tort system, which is the traditional route for trying to redress childhood lead poisoning, is designed primarily to compensate for harm done and only indirectly to foster prevention. Courts thus tend to be immersed in questions related to proof and measure of damages rather than broadly defining applicable prevention remedies.

Consequently, despite an increase in childhood lead poisoning liability claims, most state tort systems are not working effectively to prevent childhood lead poisoning. The vast majority of poisoned children receive no compensation or relief at all. Furthermore, the threat of liability does not appear to be motivating many rental property owners, particularly uninsured owners who are unlikely to be sued, to take actions to control lead hazards.

As the health care system tests more children for lead poisoning, the number of children identified as poisoned increases, as does the potential for tort litigation. This trend and occasional reports of million dollar lawsuits and “jackpot” awards have increased the concerns of rental property owners and their liability insurers. Without a clear set of hazard control standards, however, property owners lack specific guidance as to what they are reasonably expected to do to protect occupants from lead hazards and how to avoid future liability. While litigation has not been successful in establishing clear standards of hazard control in most states, the areas that have had the highest levels of litigation (Massachusetts and Maryland) have been at the forefront in adopting legislation and regulations
to make the standards of hazard control more explicit.

**Lack of Affordable Lead-Based Paint Liability Insurance**

Rental property owners and managers face increasing difficulty in obtaining insurance for lead poisoning liability claims. As a result of growing litigation and the fear of large awards, insurers have restricted or excluded lead poisoning coverage from their third-party liability policies, especially in areas with substantial numbers of claims. Where coverage continues to be available, it is often limited to newer, well-maintained housing. The lack of available insurance for rental housing units where serious lead hazards are likely to exist compounds the problem of ensuring compensation to injured children through the tort system. Damage claims may be filed against owners, but, without insurance, owners often lack the resources to compensate injured children or have insulated their assets to make them judgment proof.

The tight liability insurance market presents several additional problems:

- Responsible property owners with substantial equity in rental properties worry about having no insurance to cover lead poisoning liability suits. The loss of insurance may prompt such owners to sell or disinvest in older rental housing.
- By inhibiting investments in property maintenance and rehabilitation, the loss of liability insurance would impose a burden on the economies of many urban centers where older rental housing is often concentrated.
- In addition, the lack of coverage may encourage some owners to illegally refuse to rent to families with young children in order to avoid potential lawsuits.

Therefore, several challenges remain before the problem of childhood lead poisoning can be eliminated. The Task Force, through its recommendations in Chapters 3 through 10 of this report, identifies the most effective ways of meeting them given limited resources.

**1.7 KEY TERMS USED IN THIS REPORT**

This section explains key terms used in this report in order to help avoid confusion over terminology and to introduce the reader to the tools of lead hazard evaluation and control. Instead of an alphabetical listing, the terms are ordered below to build the reader’s understanding of the elements of lead hazard evaluation and control. In addition to explaining each term’s meaning, information is provided to give context and insight into its role in evaluating and controlling lead-based paint hazards. Unless noted otherwise, terms used in this report have the same meaning as established by Title X.

**Lead-based paint** is dried paint film that has a lead content equal or exceeding 1.0 mg/cm² by X-ray fluorescence (XRF) measurement or 0.5 percent (5,000 parts per million (ppm)) by weight. As explained below, not all lead-based paint presents a hazard to health.

**Lead-based paint hazard** is a condition that causes exposure to lead that would result in adverse human health effects. Title X defines the following as lead-based paint hazards: (1) deteriorated lead-based paint, (2) lead-contaminated dust, (3) lead-contaminated bare residential soil, and (4) lead-based paint (intact or nonintact) on friction, impact, and chewable surfaces. Intact lead-based paint on surfaces such as walls, ceilings, and baseboards is not considered a lead-based paint hazard.

**Lead-contaminated dust** is surface dust in residential dwellings that exceeds levels set by EPA as dangerous. In July 1994, EPA issued guidelines (not regulations) establishing the following advisory levels based on dust wipe sampling: 100 µg/ft² on floors, 500 µg/ft² on window sills, and 800 µg/ft² in window wells (troughs). Lead dust, which is a primary pathway of exposure to children through normal hand-to-mouth activity, can come from lead-based paint that is deteriorated, disturbed, or abraded or lead-contaminated soil tracked indoors. Lead dust is not visible to the naked eye and is difficult to clean up.

**Lead-contaminated soil** is bare residential soil...
that has lead concentrations exceeding levels set by EPA as dangerous. EPA's July 1994 guidelines (not regulations) established a range of soil lead thresholds and responses based on the likelihood of use by children. In the case of bare residential soil with lead levels above 5,000 ppm by weight, the guidelines recommend abatement. In areas with a high likelihood of exposure to children, interim controls are recommended at 400 ppm; in areas where contact by children is unlikely, 2,000 ppm is the recommended trigger for interim controls. Significantly, residential soil that has ground cover or other cover is not considered a hazard. The primary sources of lead in soil are deteriorating exterior lead-based paint and past emissions of leaded gasoline, and, in limited cases, industrial paint sources such as smelters.

**Lead-based paint inspection** is an on-site, surface-by-surface evaluation to determine the presence of lead-based paint. Lead-based paint inspections are performed by trained inspectors who are certified by states pursuant to EPA standards. Inspectors are trained to use XRF devices that analyze painted surfaces (without disturbing the paint) to measure the amount of lead in a given area. Readings that fall within a range of uncertainty are confirmed by laboratory analysis of a paint chip.

**Risk assessment** is an on-site evaluation of a unit or a multifamily property to determine the nature, severity, and location of lead-based paint hazards and to identify options for controlling any lead-based paint hazards found. A risk assessment always includes a visual examination for deteriorating paint and collection of surface dust samples for laboratory analysis and may include samples of bare soil. Risk assessments are performed by trained risk assessors who are certified by states pursuant to standards set by EPA. Being an inspector is a prerequisite to being a risk assessor. Unlike the generic use of this term in environmental science, it is important to understand that a lead-based paint risk assessment really amounts to an exposure assessment rather than quantifying the probability of adverse health effects.

**Hazard screen** is an abbreviated, and hence lower cost, risk assessment available for use in units in good physical condition. The hazard screen takes fewer dust samples and uses more stringent criteria than a full risk assessment. Failure of this screen triggers a full risk assessment.

**Reevaluation** refers to a follow-up risk assessment that checks on past hazard control measures and verifies that lead dust hazards do not exist.

**Lead hazard evaluation** is an umbrella term that encompasses lead-based paint inspection, risk assessment, combination inspection/risk assessment, lead hazard screen, or reevaluation.

**Abatement** means measures designed to permanently eliminate lead-based paint hazards (not necessarily treat all lead-based paint). Abatement strategies can include the replacement of a component painted with lead-based paint, the enclosure or encapsulation (with an approved encapsulant) of lead-based paint, the removal of lead-based paint from the building component, and the removal or permanent covering of lead-contaminated soil. Per Title X, abatement projects must be conducted by a trained contractor certified by states pursuant to EPA standards. Rigorous cleaning and passing dust tests are required at the conclusion of abatement projects. EPA regulations (proposed in September 1994) will define work practice standards for abatement. A mixture of abatement and interim/ongoing controls (see below) will be used to control lead-based paint hazards in many units.

**Interim/ongoing controls** are strategies such as specialized cleaning and paint stabilization used to manage lead-based paint in place to avoid exposure to lead-based paint hazards. In contrast to abatement's permanent elimination of lead-based paint hazards, interim/ongoing controls manage lead-based paint in place and require ongoing monitoring to ensure their effectiveness. The term interim controls has the same meaning as in Title X. Ongoing controls encompasses interim controls as well as Essential Maintenance Practices (see Exhibit 3-2) and Standard Treatments (see Exhibit 3-6). For many units, interim/ongoing controls will be used indefinitely.

**Lead hazard control** is an umbrella term that
refers to a range of measures taken to control or prevent lead-based paint hazards. In addition to controlling identified lead-based paint hazards through abatement and/or interim controls, this term is used by the Task Force to cover ongoing controls, such as Essential Maintenance Practices and Standard Treatments that control possible lead exposures, absent a risk assessment or lead-based paint inspection.

Specialized cleaning means using cleaning methods, products, and devices that are successful in cleaning up lead-contaminated dust, such as vacuum cleaners with appropriate filters and tri-sodium phosphate detergents or lead-specific detergents. Research is needed to see if other methods and products, such as common household cleansers and less expensive vacuums, can adequately clean up lead-contaminated dust.

Dust tests determine if the amount of lead in dust on a surface (such as a floor, window sill, or window trough) exceeds the thresholds set by EPA. Dust samples are usually taken by wiping a one square-foot area and having the amount of lead picked up by the wipe determined by a laboratory. Dust tests are performed as a part of risk assessments/lead hazard screens to determine if lead-based paint hazards exist as well as at the conclusion of lead hazard control work and during reevaluations to ensure adequate cleanup.

EBL child is a child aged one to five with a blood lead level that triggers an environmental investigation under the guidelines of CDC, currently one test at 20 µg/dL or above or two consecutive tests at or above 15 µg/dL. While response to the individual child is triggered by these levels, CDC has identified 10 µg/dL as the “level of concern,” and recommends that broad-based prevention strategies be aimed at this level.

Low income household refers to a household whose income is equal to or less than the income of a family earning 80 percent of the median income for that area of the country. HUD annually calculates this income threshold by family size for cities and counties throughout the country.

Economically distressed housing is privately-owned, unsubsidized housing where the property owner cannot afford to correct physical conditions that pose a threat to the health and safety of the occupants of the unit, such as lead-based paint hazards. These owners do not have sufficient cash flow to make repairs nor the ability to repay a market-rate loan covering the cost of the needed improvements. Economically distressed housing includes properties with a continuum of financial needs. Some property owners have such limited income and resources that improvements, such as lead-based paint hazard control, are financially infeasible without subsidies. In owner-occupied units, economic distress is present when the homeowner has insufficient income, savings, or equity to cover the cost of correcting conditions that pose a health or safety threat. In rental units, economic distress is present when a property owner lacks the rental income and equity to obtain a loan covering the cost to correct conditions that pose a health or safety threat, such as lead-based paint hazards; or when units are occupied by low-income tenants and the cost to correct unsafe conditions would require rent increases that exceed what the tenants can afford to pay for housing.

Economically viable housing is housing where the owner can afford to correct lead-based paint hazards or other physical problems from existing financial resources, such as market-rate financing, rent increases, or funds from savings or other resources. These property owners have a moderate to high ability to pay for lead hazard control. It should be noted that there are no sharp dividing lines between economically distressed and economically viable units. Rather, the housing stock should be viewed as a continuum containing units that are economically viable, economically distressed, and somewhere in between.

1.8 STRUCTURE OF THE REPORT

It is clear from the foregoing summary that lead-based paint hazard evaluation and control is complex, with many aspects that must be addressed under numerous varying conditions and in varying housing markets. The Task Force’s recommendations, therefore, cover a range of issues and actions. The Task Force urges that
its recommendations be read and considered as a whole, and that policymakers refrain from considering either single recommendations or the contents of any single chapter outside of the broader context of the entire report.

Part I of this report provides introduction, background, and overview. Chapter 1 describes the nature and scope of the problem of childhood lead poisoning and the serious challenges it presents in our housing stock. Chapter 2 sets forth the overarching principles and reinforcing strategies that guided the Task Force in developing specific recommendations.

Part II of the report addresses standards of lead hazard control for rental housing and their implementation. Chapter 3 explains the importance and content of the benchmark standards of lead-based paint maintenance and hazard control proposed for consideration and adoption, with appropriate modifications to reflect relevant housing markets and conditions. Chapter 4 presents the Task Force’s recommendations aimed at achieving broad implementation of the recommended benchmark standards, including special consideration due economically distressed units.

Part III of the report deals with resources and incentives: financing, insurance, and liability. Chapter 5 covers both opportunities to enhance private financing and actions that should be taken to provide the critical additional resources necessary to control lead hazards in distressed housing. Chapter 6 deals with the complex issues of liability and insurance for rental property owners and contractors.

Part IV explores strategies for lead hazard control in different housing types. Chapter 7 contains proposals for matching households with young children or pregnant women with hazard-controlled units. Chapter 8 describes the potential immediate impact of implementing these benchmark standards in HUD-and other publically-funded tenant-based assistance programs. Chapter 9 consolidates the Task Force discussion on owner-occupied housing.

Part V addresses meeting educational and research needs. Chapter 10 describes a series of measures that will greatly increase awareness of lead hazards and measures to reduce them. Chapter 11 delineates specific topics on which additional research is urgently needed.