

US EPA ARCHIVE DOCUMENT

APPENDIX A SAFER SOIL PILOT PROGRAM OF CAMBRIDGE, MASSACHUSETTS

ABOUT THE PROGRAM

The Lead-Safe Cambridge (LSC) program works to make the homes of income-qualified people in Cambridge, Massachusetts, lead safe through interior and external lead hazard control. It began the Safer Soil Pilot Program in 1997 to build on this effort by making the yards of participants in its interior de-leading program lead safe as well.

After soil sampling was initiated for the Safer Soil Pilot Program, LSC found that over 95 percent of the yards it investigated contained soil with lead levels above 400 parts per million. Currently, all homeowners participating in LSC are eligible for additional assistance under the Safer Soil Pilot Program. However, after September 2000, participation in the Safer Soil Pilot Program will be required, in keeping with new federal regulations.

Under the pilot program, soil samples are taken from select areas of a home and tested to determine their lead content. If elevated lead levels are found, a landscape planner works with the homeowner and/or tenants to develop an appropriate landscape remediation plan. The Safer Soil Program provides homeowners free soil sampling and grant support to reimburse them for the cost of implementing LSC-recommended soil remediation and landscaping plans. Specifically, the program offers:

- Free soil testing.
- Training on the dangers of lead exposure.
- Free technical advice on preventing lead exposure.
- Grant support of up to \$2,000 per unit and \$6,000 for three or more units toward the cost of approved materials used to make the yard leadsafe.

PARTNER ORGANIZATIONS

LSC receives funding for its Safer Soil Pilot Program from the U.S. Department of Housing and Urban Development. LSC collaborates with a number of local non-profit housing groups, including Just-A-Start and Homeowner's Rehab, as well as with the U.S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection.

OUTREACH BARRIERS AND STRATEGIES

Cambridge is a diverse community. Its residents come from many different cultural backgrounds—English is not always their primary language. Successful communication with homeowners and residents often requires close cooperation and coordination with their English-speaking relatives, as well as the help of multilingual LSC staff members.

Homeowners and tenants are recruited to participate in the program through newspaper ads, Web announcements, property owner workshops (such as Cambridge Homefair), and word of mouth.

As part of its soil education strategy, LSC distributes flyers to educate homeowners about the soil-lead problem and inform them about the program, disseminates fact sheets via the Internet

(<http://www.ci.cambridge.ma.us/~LeadSafe>), and presents lead-safety materials at public meetings throughout Cambridge. In addition, LSC offers two annual Safer Soil workshops, free and open to the public, at which people can learn why lead in soil is a problem, find out how to landscape a yard to make it safer, and get technical advice from a landscape planner. LSC also enlists the help of local garden centers, which sponsor the workshops and offer coupons to workshop participants.

SOIL SAMPLING AND ANALYSIS

After their units have been de-leaded under the LSC program, homeowners interested in participating in the Safer Soil Pilot Program sign an agreement with LSC to have their soil tested for lead. LSC takes soil samples from different use areas in each yard—such as driplines, play areas, gardens, walkways, and other bare areas—and sends them to a state laboratory in Jamaica Plain for analysis.

All samples are analyzed using the atomic absorption method (microwave digestion followed by flame atomic absorption spectroscopy). LSC relies on laboratory analysis, as opposed to onsite analysis using field portable x-ray fluorescence technology, because of cost and liability issues. A new XRF costs \$15,000 or more (see Section 6.2); because an XRF contains radioactive materials, only a trained technician can use it. Getting sample results back from the laboratory takes about 7 to 10 days, but this has not been a problem.

Once LSC receives the sample results, it reviews them and consolidates them in the form of hand-drawn plot diagrams. These are then presented to (and interpreted for) the homeowners and/or tenants. If the test results reveal that soil on a property exceeds EPA-recommended levels for lead, an LSC landscape planner works with the homeowner and/or tenants to design attractive, usable lead-safe urban yards, providing them with plans, product recommendations, and cost estimates. The landscape planner works with homeowners in the design and construction of these plans. LSC believes that close cooperation with homeowners helps to create a sense of ownership, community, and most importantly, safety for children. In addition, this cooperation makes for longer-term compliance and better maintenance.

REMEDIAL MEASURES AND YARD TREATMENTS

The Safer Soils Pilot Program favors a combination of techniques for remediating lead-contaminated soil around a residence. These include selectively paving contaminated areas, using softer paving materials (such as gravel with brick edging), and incorporating plants and shrubs in the yard. The program often recommends placing plants and shrubs around house driplines to reduce access to these areas while making the yard more attractive.

The program also works to reduce lead toxicity in the soil by rototilling organic matter (such as composted cow manure) and rock phosphate, which bind with lead, into affected areas. Once organic material has been introduced, the Safer Soil Pilot Program recommends taking the additional step of putting down landscape fabric over the contaminated area and covering the fabric with 3 to 4 inches of bark mulch or pea gravel to create a natural barrier. Sodding is another effective option, although its drawbacks include its high cost relative to other treatments and the need for routine watering in its early stages of establishment.

In areas where lead levels in the soil are found to be greater or equal to 5,000 ppm, LSC follows current EPA recommendations for remediating high-lead-content soil by covering the area with an impermeable surface (such as concrete or pavement) or, in extreme cases, removing the soil altogether. However, the Safer Soil program generally tries to avoid complete soil removal, in large part because of its cost and the difficulty of disposing of lead-contaminated soil.

Participants in the Safer Soil program are offered grants to help them pay for the materials they need to remediate their properties. The standard grant is \$2,000 per unit and up to \$6,000 for three or more de-lead units. In order to make full use of an available grant, the homeowner (or a landscape contractor) must implement the program's recommendations for the property. Work must be done according to the landscape planner's recommendations; soil must be kept damp in order to prevent unnecessary lead dust exposure. Homeowners can use landscape contractors to execute their Safer Soil landscape plans if they are unable to do the work themselves. If the homeowner chooses to use a landscape contractor, he or she takes the landscape plan and specifications developed by the landscape planner and obtains three estimates for the landscaping work. The landscape planner approves the selected contractor, who then begins work. Homeowners save all receipts for materials and labor and submit them to the landscape planner for reimbursement (up to the total grant amount) after work has been completed.

The Safer Soil program also offers homeowners and tenants guidance on preliminary steps they can take to mitigate children's exposure to lead-contaminated soil. These tips include:

- Establishing a play area away from areas once exposed to old paint, such as the house or a fence.
- Covering leaded dirt with clean gravel or grass (preferably sod).
- Buying or creating a sandbox to cover leaded soil (making sure that the bottom is sealed away from the soil).

RESULTS

To date, 27 yards have been landscaped through the Safer Soil Pilot Program, with 106 yards tested for lead. Landscaping plans and specifications have been developed for an additional 11 yards, and will be implemented in the near future.

AWARDS AND RECOGNITION

In 1999, LSC's Safer Soil Pilot Program was presented a National Merit Award from the American Society of Landscape Architects for its innovative approach to addressing lead in residential soil.

FOR MORE INFORMATION

Ann Stroobant
Landscape Planner
(617) 349-4652
astroobant@ci.cambridge.ma.us