

# ENACT

## THE BAY STREET AREA



## RAISED GARDEN BEDS PROJECT

Prepared by the Brown University Superfund Basic  
Research Program Community Outreach Core in  
partnership with the Environmental Neighborhood  
Awareness Committee of Tiverton, Rhode Island (ENACT)

### INTRODUCTION

Contamination of soil with heavy metals, such as lead, cadmium, mercury, and zinc, volatile organic compounds, arsenic, cyanide, and total petroleum hydrocarbons can pose serious human health risks, including increased risk of cancer, chronic and acute respiratory disease, as well as behavioral and cognitive impairments. Therefore, exposure to contaminated soils should be limited in order to reduce short and long term risk. One way we may be exposed to soil contaminants is through gardening, as soil sticks to tools, clothing, hands, and the fruits and vegetables we eat.

For residential communities located in contaminated areas, yards and gardens are areas of primary concern due to increased direct and indirect contact with soils. However, alternatives to traditional gardening, such as container gardening and raised garden beds, are possible, and may reduce plant contact with contaminants, allowing you to work safely in your fruit or vegetable garden, and making produce safe for you and your family's favorite summertime recipes.



### RAISED GARDEN BEDS & CONTAINER GARDENING

The use of raised garden beds or container gardening is an effective alternative to traditional gardening for reducing exposure to contaminated soil. These practices work by isolating one's garden from the contaminated soil by means of impermeable barriers. Container gardening utilizes

containers, such as pots or even old bath tubs, to keep clean soil used in gardening from contaminated soils that may be present in the rest of the yard. Raised garden beds are constructed by laying down concrete or plastic sheeting, building a wooden perimeter, and then adding clean soil within the holding unit, on top of the soil barrier.

### HOW TO BUILD A RAISED GARDEN BED

Below are step by step instructions for constructing a 4' x 8' raised bed, including estimated costs and recommended materials.

1. Clear a 4' x 8' plot of all vegetation. Be sure that the cleared land is as flat as possible to ease the construction of the bed perimeter later on.
2. Lay landscape fabric over the cleared area. This will prevent root penetration into the contaminated soil, while allowing for flow of air and water from the garden bed. A 4' x 8' sheet of fabric will cost approximately \$10.
3. Place 2 layers of 2 in x 4 in x 8 ft pieces of **untreated** lumber around the perimeter of the bed. The bed should be approximately 20 cm in height and will require 10 pieces of lumber at an estimated cost of \$4 a piece. Bricks or stones may also be used to create your bed perimeter.

4. Secure the lumber together. One recommended method is the use of braces, which can be purchased for approximately \$4 a piece. You will need 8.

5. Place clean fill in the bed, enriching with about 10% humus by volume. A 4' x 8' bed will require approximately .8 cubic yards of fill, at an estimated cost of \$37 per cubic yard.

6. Begin to garden in your new raised garden bed!!

TOTAL ESTIMATED COST: \$112



Note: Root vegetables and leafy greens have a higher tendency than fruiting and ornamental plants to take up contaminants. It is therefore recommended that root and leafy vegetables be grown strictly in raised garden beds. Furthermore, the following safe gardening practices should always be used when working in contaminated yards.

## SAFE GARDENING PRACTICES

Safe Gardening Practices should be followed when working in the yard in order to limit contact to contaminated soils. In general, they are simple measures but are among the most effective actions you can take to reduce exposure.

1. Wear gloves while working in the garden. If the activity is likely to generate a lot of dust, consider also wearing a mask.
2. Wash all produce with soap and water before consumption.
3. Do not compost plants grown in contaminated soil.
4. Use weed tarps or mulch along paths to reduce upturning of soil and dust.
5. Take off your shoes before entering your home.
6. Dampen dusty soils before gardening.



## FOR MORE INFORMATION

Here is a list of websites and other resources you may consult for more information:

### ***Southside Community Land Trust.***

Based in Providence, SCLT has worked for more than 25 years to “grow food in environmentally sustainable ways and create community food systems where locally produced, affordable, and healthy food is available to all.” They have information on how to test garden soil for lead. Visit their website at <http://www.southsideclt.org/>.

### ***University of Rhode Island Cooperative Education Extension Center.***

URI offers programs and resources on environmentally-sound home and garden practices, and food safety. Visit their website at <http://www.uri.edu/ce/ceec/index.html>.

### ***University of Maryland Cooperative Extension, Home and Garden Information Center.***

For general information, visit their website at <http://www.hgic.umd.edu/>, or for more information on container gardening, visit [http://www.hgic.umd.edu/ media/documents/HG600Containerveg Gardening.pdf](http://www.hgic.umd.edu/media/documents/HG600Containerveg Gardening.pdf).