HERE WE TAKE CARE OF OUR LEGACY OF LEAD

- **Wash your hands after gardening and playing**
- **Wash your harvest and peel root vegetables**
- **Leave dirty things outside (shoes, gardening tools, sports gear, toys, bikes)**
- **Mulch garden paths**
- **Grow only in soil you know is safe**
- **Water and keep your plants healthy**
- **Learn more about your soil and compost by getting it tested**

Collaborating to create healthy soils
Thank you for remediating our city!

What Can We Do About Lead (Pb) in Soil?

By The Legacy Lead Coalition

legacylead.net

Can we dig up and haul out contaminated soil?

Yes.

» While this is the most effective way to remove contaminated soil, it is expensive, logistically challenging, and places the contaminant burden somewhere else (likely in a landfill)

» Finding new soil to replace the excavated soil is also important

Can we add amendments to soil to make Pb less toxic (bioavailable)?

Yes, but this can be tricky.

» Amendments like phosphate and compost can make Pb less bioavailable, but it is difficult to test for these changes (i.e., it is expensive, and there is no one agreed upon test method)

» Phosphate can make other elements like arsenic more available to plants or humans

» Amendments can help improve soil texture and reduce dust

Can we remove Pb from soil? (Can plants help us do this, a.k.a phytoremediation?)

No, not safely.

» Pb binds tightly to soil particles

» Plants cannot 'extract' Pb from soil effectively

» Adding 'chelating' agents can make Pb more mobile (but then it leaches to ground-water, creating other issues)

Can we cover contaminated soil to limit exposure?

Yes!

» Contaminanted soil stays below, but maintaining new soil / plant cover keeps it in place

»Landscape fabric / geotextile can be used as a permeable barrier

» Even without a barrier, the majority of plant roots will not take up Pb from underlying soil

» As long as the new soil is not mixed with the old, exposure is limited

» Information about contaminated soil below should be passed on to future land users

» Monitoring for ongoing contaminant sources (i.e., dusts blown in by wind, or peeling paint) should be continued

References

Egendorf et al. (2018). Constructed soils for mitigating lead (Pb) exposure and promoting urban community gardening: The New York City Clean Soil Bank pilot study. Landscape and Urban Planning, 175, 184–194.

van der Ent et al. (2013). Hyperaccumulators of metal and metalloid trace elements: Facts and fiction. Plant and Soil, 362(1–2), 319–334.

Henry et al. (2015). Bioavailability-Based In Situ Remediation To Meet Future Lead (Pb) Standards in Urban Soils and Gardens. Environ Sci Technol, 49, 8948–8958.

Laidlaw et al. (2017). Case studies and evidence-based approaches to addressing urban soil lead contamination. Applied Geochemistry.

Mielke (2016). Nature and extent of metal-contaminated soils in urban environments (keynote talk). Environmental Geochemistry and Health, 38(4), 987–999.

Walsh et al. (2018). Sediment exchange to mitigate pollutant exposure in urban soil. Journal of Environmental Management, 214, 354–361.