

# COMMUNITY GARDEN AGREEMENT TEMPLATE

This COMMUNITY GARDEN AGREEMENT (“Agreement”) made this \_\_\_\_\_ day of \_\_\_\_\_, 2014, by and between THE CITY OF SAINT PAUL (“City”), and \_\_\_\_\_ (“District Council X”).

## IT IS MUTUALLY AGREED BETWEEN THE CITY AND DISTRICT COUNCIL X AS FOLLOWS:

**Purpose:** The City, through its Department of Public Works, grants to District Council X the right to install and maintain a **Community Vegetable and Flower Garden** (“Community Garden”) intended for residents of the City of Saint Paul at the [ENTER LOCATION HERE] (“Garden Site”). See Exhibit A, Map of Garden Site, which is incorporated herein by this reference.

**Term:** District Council X agrees to establish and run the proposed Community Garden for five (5) years, beginning [DATE]. This Agreement may be renegotiated every five (5) years after the initial five (5) year term. If the City provides District Council X written notice that the Garden Site is temporarily needed by the City for a public purpose (e.g., right-of-way changes, construction staging, recovery from natural disaster, etc.), the parties agree that the Agreement and its rights and obligations may be temporarily put on hold. District Council X shall then vacate the site within a reasonable period of time as set forth by the City. The term may be appropriately extended with resumption of the term beginning when District Council X is permitted back on the Garden Site.

The parties agree that this agreement is not intended to nor does it convey any real property interest the City may or may not hold in the Garden Site.

**Safety and Security:** District Council X agrees to the following safety and security rules. District Council X shall establish rules and procedures and guidelines for organization of the Community Garden (“UPDC Rules”) for those people it allows to use the site. Such UPDC Rules shall provide, at a minimum:

- If a gardener encounters a crime in progress or fire at the garden site, he/she should call 911 immediately. Crimes include, but are not limited to assault, harassment and/or vandalism.
- If a gardener sees what appears to be evidence of a crime that was committed prior to their arrival at the garden, he/she should contact the Saint Paul Police at (651) 291-1111.
- For any crime or incident, all gardeners should be made aware of the event and a General Incident Report Form should be filled out and sent to appropriate City staff - Department of Public Works. General Incident Report Forms will be provided to District Council X.
- Children under 16 are **not** permitted in the Community Garden without an adult companion. Children of gardeners may be on site for limited periods of time if either a parent or another adult plot holder is present.

**Site Maintenance and Garden Organization:** It is critical that the Community Garden be well-maintained, clean and free of trash or debris at all times, and well-organized. District Council X agrees to abide by the Guidelines for Site Maintenance and Garden Organization, which are set forth in and attached as Exhibit B and incorporated by

reference into this Agreement. District Council X will be responsible for ensuring that all gardeners and persons using the area abide by these guidelines.

**Soil Condition:** The City makes no guarantee regarding soil quality on the site. District Council X agrees to inform all present and potential gardeners that there is no City guarantee regarding soil quality. District Council X also agrees to abide by the Supplemental Information About Lead in Soils, which is set forth in and attached as Exhibit C and incorporated by reference into this Agreement. The City agrees to collect and test soil samples of the Garden Site if it was affected by city road or bridge construction. The consolidated sample result per University of Minnesota garden testing guidelines will be made available to District Council X for informational purposes only.

**Insurance:** District Council X shall procure and maintain commercial general liability insurance during the term of this Agreement, during any indemnification agreement term between District Council X and the City, and during the gardening season (estimated to be April 1 through October 31 of each year), including blanket contractual liability coverage, personal injury liability coverage and broad form property damage liability endorsement in the amount of \$500,000 per person, \$2,000,000 per occurrence and \$2,000,000 in the aggregate. Said insurance shall name the City, its elected and appointed officers, employees and agents as additional insureds, be primary with respect to the City's insurance or self-insurance and be written on an "occurrence" form policy basis.

Nothing in this section is intended to or shall be construed as a waiver by the City of any statutory limits or exception on liability. District Council X agrees to maintain the required insurance coverage during the growing seasons of this Agreement. A copy of the insurance certificate must be provided to the Department of Public Works, Administration Division prior to the signing of this Agreement. The City shall not be held responsible to District Council X or to any gardeners or other persons for any financial, property or personal damage or injury of any kind arising out of this Agreement.

**Force Majeure:** Should the Community Garden or any part thereof be damaged or destroyed by fire or natural elements, or if any other casualty or unforeseen occurrence, national or local emergency, or labor dispute renders the Community Garden unfit for use, or otherwise renders the performance of this Agreement by the City impossible, this Agreement may either be terminated at the discretion of the City, or may be suspended for the period during which the Community Garden shall have been rendered unfit and during which possession cannot be delivered to District Council X. The City shall not be held responsible to District Council X for any financial, property or personal damage or injury resulting therefrom.

**Additional Rules:**

- Provision of land for the Community Garden by the City is not intended to provide gardeners space to produce plants or produce for personal profit. The Community Garden is for the benefit of the community. Therefore produce from Community Garden plots **may not** be sold for personal profit. District Council X is permitted to participate in Farmers' Markets or fund raising sales of produce, or may donate excess produce to local community food shelves. Any and all proceeds therefrom must be dedicated directly back to the Community Garden.

- Vehicles must be parked on hard surfaces. Vehicles are not permitted on City property outside of these designated areas, such as on grass, *at any time* (except for short periods of loading or unloading). Parking is available [PROVIDE LOCATION]. A gravel pathway will be maintained by [CITY? DISTRICT COUNCIL X?] for gardeners from this parking to the Garden Site. .
- District Council X or its Gardening Committee will contact Gopher State One Call to appropriately mark the site prior to any digging or excavation either by hand or mechanized means.

**Services Provided by the City of Saint Paul:** The City agrees to provide cooperation and assistance for the presentation of a successful Community Garden, and it may take actions upon request and/or at its sole discretion to aid District Council X in the installation and presentation of the garden, including:

- de-sodding of site
- installation of hedge material
- deliver mulch
- deliver compost

The City shall be reimbursed by District Council X for its provision of services that aid District Council X in the installation and presentation of the Community Garden.

**Financial Consideration:** District Council X agrees to pay the City the consideration of one dollar (\$1.00) per year for each year of the Agreement term for the right to use the Community Garden. Financial consideration of the full \$5.00 cost will be billed by the City to District Council X and paid in year one.

As a courtesy, District Council X shall notify the City of the number of garden plots established at the Community Garden by June 30 of each year, District Council X may charge gardeners all costs associated with the Community Garden back to its garden participants.

**Management Rights:** The privileges granted to District Council X shall not be construed as a waiver of management rights, nor as a conveyance of any property rights whatsoever. The City retains full and complete rights to manage and control the Community Garden and to enforce all rules, regulations and ordinances it deems necessary for its management and operation. Nothing in this section is intended to or shall be construed as a waiver by the City of any other rights or authority accorded by law.

**Retention of City Authority:** Any decision affecting any matter not otherwise provided for in this Agreement shall rest solely within the discretion of the City.

**Termination:** The City or District Council X may terminate this Agreement at any time with thirty (30) days written notice to the other party. If there is a public purpose need for the property, the City agrees to provide notice as soon as needs are known, if possible. In the event of Force Majeure, the City may terminate the Agreement and take possession immediately if necessary.

**Assignment and Subletting:** District Council X shall not assign or transfer this Agreement without the written consent of the City.

**Indemnity:** District Council X agrees to indemnify, defend, save and hold harmless the City of Saint Paul and any agents, officers and employees thereof from all claims, demands, actions or causes of action of whatsoever nature or character, arising out of or by reason of this Agreement to permit use of the Community Garden by the District Council X, or the use or condition of the Community Garden or as a result of the operations or activities taking place on the Garden Site. It is fully understood and agreed that District Council X is aware of the conditions of the Garden Site and uses the same "as is."

**Holdover:** Any holdover after the expiration of the term of this Agreement shall be allowed only after receiving the written consent of the City. Said holdover use shall be deemed to be only from month to month. All other terms and conditions of this Agreement shall be applicable.

**Compliance with Laws:** The Community Garden may be used for only the purposes stated herein. It is the sole and exclusive responsibility of District Council X in the use of the Community Garden to comply with all laws, rules, regulations or ordinances imposed by any jurisdiction affecting the use to which the property is proposed to be put. Inability or failure by District Council X to comply with any of said laws, rules, regulations or ordinances will not relieve District Council X of the obligation to pay the required costs and expenses provided herein.

**Non Discrimination:** District Council X, for itself, its personal representatives, successors in interest and assigns, as a part of the consideration hereof, does hereby covenant and agree that:

- a) no person, on the ground of race, sex, color, creed, religion, age, disability, marital status, familial status, status with respect to public assistance, national origin, sexual or affectional orientation or ancestry shall be excluded from participating in, be denied the benefits of or be otherwise subjected to discrimination in the use of said Community Garden;
- b) in connection with the construction of any improvements on said Garden Site and the furnishing of services thereon, no discrimination shall be practiced in the selection of employees and contractors, by contractors in the selection and retention of first tier subcontractors, and by first tier subcontractors in the selection and retention of second tier subcontractors;
- c) District Council X shall use the premises in compliance with all other requirements imposed pursuant to the Saint Paul Legislative Code Chapter 183.

**Default of Payment:** District Council X agrees that, should it default on any payment owing and due to be paid to the City as provided in this agreement, then the remaining unpaid balance shall, at the option of the City, immediately become due. District Council X further agrees that the City may, at its option and without notice to District Council X, enter judgment against District Council X in Ramsey County District Court for the

amount of the unpaid balance. District Council X does hereby confess judgment in the amount of the unpaid balance due upon default, and does authorize City to enter judgment as provided above. District Council X does hereby agree that City, at its option, may enter a judgment, at any time within one year of the time the last payment shall have come due, for the full amount of the unpaid balance due pursuant to the confession of judgment provided herein.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first written on Page 1 of the Agreement.

FOR THE CITY OF SAINT PAUL  
("City")

FOR THE DISTRICT COUNCIL X  
COMMUNITY COUNCIL  
("District Council X")

\_\_\_\_\_  
Director of Public Works

\_\_\_\_\_  
Executive Director

\_\_\_\_\_  
Director of Financial Services

\_\_\_\_\_  
President

APPROVED AS TO FORM:

\_\_\_\_\_  
City Attorney

**EXHIBIT A**  
**MAP OF GARDEN SITE**

**[Insert map here.]**

## EXHIBIT B

### GUIDELINES FOR SITE MAINTENANCE AND GARDEN ORGANIZATION

#### 1. Site Maintenance

##### Sanitation and Maintenance

- The City shall approve all landscape plans, including grading, plot location, storage design and location, signage design and location and furniture design and location before District Council X shall install or make changes.
- Soil must not be tilled closer than twenty (20) feet from \_\_\_\_\_ Street/Avenue/Road, and no closer than fifteen (15) feet from \_\_\_\_\_ Street/Avenue/Road/bridge infrastructure/wall infrastructure and adjoining property. Grass must be grown and maintained around the perimeter of the tilled area and on boulevards.
- The garden group will be responsible for mowing the perimeter of the site. It is recommended that any areas that will not be mown be low growing plants, preferably native plants, and the planting plan must be submitted for approval by the City before commencement.
- Raised planting beds may be used, but only for erosion control on slopes and must be constructed of landscape timber or stone and masonry that preexisted on the site from past site uses.
- The premises must be kept free of trash and debris.
- No trees other than those already on site may be planted.
- Tools, pots, hoses and equipment must be properly stored when not in use.
- All plots, pathways and common areas must be kept free of weeds; the use of mulch is encouraged.
- Structural items such as staking materials, arbors, benches, tables and fencing must be kept in good repair.
- The use of traditional horticultural materials for hardscaping is encouraged, including stone and wood. The supervising entity of the garden group must approve the use of any non-traditional materials.
- Gardens with individual plots must have policies in place for addressing abandoned or neglected plots in a timely manner.
- All turf within the garden perimeter to the curb will be maintained by the garden group as applicable. Grass must not exceed four inches in length at any time.
- Aisles must be kept free of weeds, rocks, plants and other materials. You may use landscaping cloth covered with wood chips to control weeds in the aisle but you **may not** use non-organic materials such as carpeting, roofing material, plastic, etc.
- All organic garden debris must be composted in appropriate bins on site. Compost material must be vegetable matter from the garden lot itself or from Ramsey County composting sites. Gardeners may bring a reasonable amount of compostable leaves and grass clippings only from home to be composted on site. *No woody vegetation, kitchen waste, diseased plants or weeds with mature seeds are allowed.* All compost must be secured in a bin. Gardeners or other persons may not dump debris or other garbage anywhere on City, railroad, private or MNDOT property.

- Pets brought on site must be under the control of their owner(s) at all times. The City of Saint Paul dog ordinance Sec. 170.06, 200.05 and 200.09 shall remain in full force and effect. Should problems occur (owners not cleaning up appropriately, animals not appropriately restrained, dangerous animals, etc.) pets will be banned from the site at the sole discretion of the City.
- District Council X and/or gardeners shall not cut down, cause damage to, or remove from the leased premises any bushes or trees without the written consent of City staff. Invasive species such as buckthorn are specifically exempted and will be allowed to be removed simply upon notice to the City.
- Grading or terracing of the garden site if based on plans provided to the City, and approved by the City, shall not constitute property damage that must be restored upon lease termination.

#### Techniques - End of season practices

- All non-woody herbaceous material must be removed from the lot or composted at the end of the growing season and lease period.
- All temporary structures and furniture must be removed or stored appropriately, including staking materials, tomato cages, garden adornments, signage, etc.
- Permanent materials intended for outdoor use (durable tables, benches, arbors, etc.) may be left on site.
- All debris and trash must be removed. See Compost section for information on assistance with waste removal.
- Compost bins and storage boxes must be cleaned, organized and closed for the season. These items can remain on site and must be locked.

#### Fertilizer and Pesticide Use

For health and safety reasons, the City of Saint Paul has strict policies concerning pesticide and fertilizer use on City property.

- City policy prohibits application of pesticides (herbicides, fungicides and insecticides) and fertilizers on city property without an applicator's license.
- Anyone applying chemicals on City property must be licensed city staff or contracted by the city to perform the service.
- If there is a need to use pesticides in a garden on City property, District Council X must first contact assigned City staff, in order to help determine action.
- By City policy, any application of pesticides or fertilizers requires documentation with the pesticide/fertilizer's name, dosage, area applied to, date, time and weather conditions. Documentation must be on approved forms and submitted to the City Department of Parks and Recreation for filing. Parks and Recreation can supply a Pesticide Usage Report form. Contact Division of Parks and Recreation Gardens Coordinator Mark Granlund, 651-632-2454, to receive a form.
- There are four commonly used organic pesticides and fertilizers that gardeners can use with prior notification to the City. These include Neem oil spray, diatomaceous earth, composted manure fertilizer, garlic/pepper spray. Currently, and until further notice, these four items can only be applied with a license from the City.
- Whenever pesticides or fertilizers are used, the area must be posted for 48 hours following application with Minnesota Department of Agriculture approved signage.



- When spraying in a garden or in adjacent areas, the applicator will take reasonable measures to minimize drift and runoff into gardens.
- The following items are all “soil amendments” not fertilizers or pesticides and are specifically allowed by this agreement: Naturally occurring organic fertilizers
  - Composted manure fertilizer
    - Worm castings
    - Peat
    - Seaweed
    - Humic acid
    - Guano
  - Processed organic fertilizers
    - Bone meal
    - Bloodmeal
    - Azomite
    - Compost
    - Humic acid
    - Amino acids
    - Seaweed extracts
    - Natural enzyme-digested proteins
    - Fish meal
    - Feather meal
    - Decomposing crop residue (green manure) from prior years

#### Water Access and Usage Guidelines

- Garden groups are responsible for keeping the garden well-watered.
- Sprinklers are permitted but may *only* be used when a garden member is present. Drip irrigation water systems may be used if adequately timed and managed. Any irregularities in water use or billing due to system malfunction for any reason will be the sole responsibility of District Council X. Sprinklers and hoses must be stored when not in use.
- If water is not potable, signage will be posted by District Council X, the City or Saint Paul Regional Water Services.
- It is the responsibility of District Council X to pay for quarterly Saint Paul Regional Water Services charges.
- It is the responsibility of District Council X to pay for seasonal water start up and shut down.

#### Signage

Informational and educational garden signage is permitted and encouraged to inform the community about the garden group and its activities.

Permanent signage is not allowed, but temporary seasonal signage may be used and must meet the approval of gardeners, the coordinating group and Public Works staff.

District Council X will submit design, dimensions and a materials description of any signage to Public Works before installing.

Garden signage shall be placed on site within the tillable area and subject to approval of the City and the effected artist based on a submitted plan.

Temporary signs must be visually-pleasing, well-maintained and durable.

### On-site Storage

- The City will not provide storage for equipment, tools or garden structures.
- Any above ground storage units must be approved in writing by Public Works staff.
- All storage units must be attractive, well-maintained, organized and must be locked when no one is on site.

### Compost

Garden groups are responsible for managing garden waste and debris. The best way to do this is on-site composting. Please follow these guidelines for establishing a compost system:

- Compost bins must be durable, attractive and well-maintained.
- Compost must be properly processed with regular turning and appropriate water levels.

### Art

Any public art produced and installed in the Garden Site is the property of the City of Saint Paul and may not be moved or altered in any way.

## **2. Garden Organization**

The best way to manage the work of creating and maintaining a community garden is to use the abilities of all the garden members through specific responsibilities. All gardens must have a coordinator and an alternate or co-coordinator. Some suggested roles or committees for other garden members include:

- Watering – responsible for managing the gardeners' watering schedule and ensuring that the garden is well-watered.
- Composting – ensure that the compost system is correctly used and compost is appropriately processed.
- Garden Calendar – create and manage the calendar for the garden including season opening/closing, clean-up days, garden events, planting dates, etc.
- Beauty and Order – ensure that the garden site is attractive, well-maintained and free of trash and debris; incorporate additional structures such as tables, benches, arbors, art, etc.
- Events and Public Relations – coordinate events to build community in the garden group and to welcome the broader community to learn about the garden; establish relationships with neighborhood organizations, arrange food shelf donations, etc. (The safest route to the garden is on the path provided under the bridge from the Hamline Ave. Service Drive immediately west of the Hamline Bridge.)
- Plot Supervisor – ensure that all garden plots are well-managed, tended on a regular basis, weeded and that all ripe materials are regularly harvested.
- Signage and Artscaping – Design and maintain permanent and temporary garden signage and garden art.
- Education Coordinator – Assess needs of garden group and coordinate appropriate educational events and workshops.

- Community Outreach/Recruiting – similar to events and PR; develop ways to integrate the community into the garden; focus on specific groups like youth, elderly, disabled; recruit new gardeners.

Good communication between District Council X and the City is an important part of maintaining our relationship. The following contacts should be used for communication between District Council X and the City. The parties agree to notify each other as changes are made and successors to the following are named:

District Council X Contacts:

District Council X contact – organization name, contact name, phone number and email

Garden coordinator – name, phone number and email

Alternate coordinator contact – name, phone number and email

City Contact:

Bruce Beese, Public Works Administration Manager

1000 City Hall Annex

25 West Fourth Street

Saint Paul, MN 55102

651-266-6096

[bruce.beese@ci.stpaul.mn.us](mailto:bruce.beese@ci.stpaul.mn.us)

## EXHIBIT C

### SUPPLEMENTAL INFORMATION ABOUT LEAD IN SOILS

WW-02543 Revised 2002

## Lead in the Home Garden and Urban Soil Environment

Carl J. Rosen

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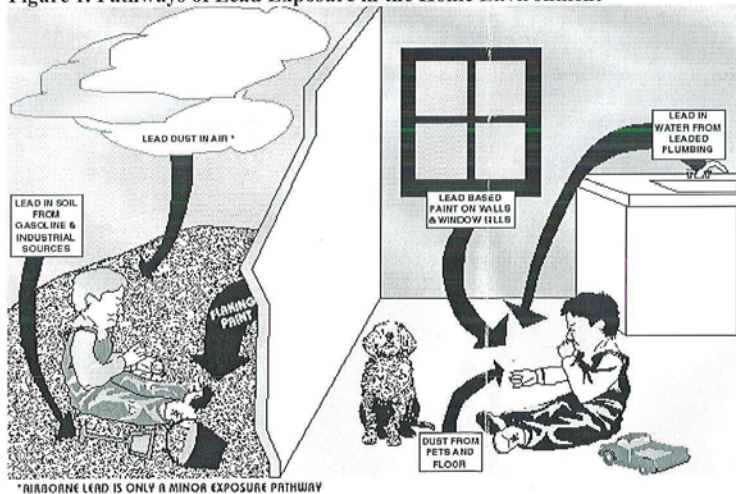
### Sources of Lead in the Environment

At high concentrations, lead is a potentially toxic element to humans and most other forms of life. For this reason, there is a need to be concerned about elevated lead levels in the environment, particularly in metropolitan areas. Background concentrations of lead that occur naturally in surface agricultural soils in the United States average 10 parts per million (ppm) with a range of 7 to 20 ppm<sup>1</sup>. Soils with lead levels above this range are primarily the result of lead contamination.

There are two major sources of lead contamination: 1) lead-based paint where contamination may occur when paint chips from old buildings mix with the soil; and, 2) lead from auto emissions. Studies conducted in urban areas, have shown that soil lead levels are highest around building foundations and within a few feet of busy streets<sup>2,3</sup>. Although lead in paint and gasoline is not presently used to any great extent, once lead has been deposited, it moves very little through the soil and can persist for a long time. Therefore, lead contamination of soils from these sources continues to be a concern.

In addition to lead contaminated soils, elevated lead in water, air, food, and some folk medicines can also affect human health. Exposure to lead can come from one or more of the pathways depicted in Figure 1. The focus of this fact sheet is to outline the risks to human health from lead contaminated soils and how to minimize these risks.

Figure 1. Pathways of Lead Exposure in the Home Environment



## Lead in Garden Soils and Plants

*The most serious source of exposure to soil lead is through direct ingestion (eating) of contaminated soil or dust.* In general, plants do not absorb or accumulate lead. However, in soils testing high in lead, it is possible for some lead to be taken up. Studies have shown that lead does not readily accumulate in the fruiting parts of vegetable and fruit crops (e.g., corn, beans, squash, tomatoes, strawberries, apples). Higher concentrations are more likely to be found in leafy vegetables (e.g., lettuce) and on the surface of root crops (e.g., carrots).

Since plants do not take up large quantities of soil lead, the lead levels in soil considered safe for plants will be much higher than soil lead levels where eating of soil is a concern (pica). Generally, it has been considered safe to use garden produce grown in soils with total lead levels less than 300 ppm. The risk of lead poisoning through the food chain increases as the soil lead level rises above this concentration. Even at soil levels above 300 ppm, most of the risk is from lead contaminated soil or dust deposits on the plants rather than from uptake of lead by the plant.

## Removing Lead on Roots, Leaves, or Fruits

There is more concern about lead contamination from external lead on unwashed produce than from actual uptake by the plant itself. If your garden is close to busy streets or highways, remove outer leaves of leafy crops, peel all root crops, and thoroughly wash the remaining produce in water containing vinegar (1 percent) or soap (0.5 percent).

## Precautions for Garden Soils

To minimize absorption of lead by plants a number of control measures may be taken:

1. Maintain soil pH levels above 6.5. Lead is relatively unavailable to plants when the soil pH is above this level. If needed, add lime according to soil test recommendation. Lead is also less available when soil phosphorus tests are high. For information about obtaining a routine soil test, contact your local Extension office.
2. Add organic matter to your soil. In soils with high lead levels, adding one-third by volume organic matter will significantly reduce lead availability. Organic compounds bind lead and make it less available to the plant. When adding organic matter, the pH should also be maintained above 6.5. Good sources of organic matter include composted leaves, neutral (non-acid) peat, and well-rotted manure. Avoid leaf mulch obtained along highways or city streets as it may contain higher than normal lead levels.
3. Locate your garden as far away from busy streets or highways and older buildings as possible.
4. Because of the possibility of bare soil exposure to children through hand to mouth activity, soils with lead levels exceeding 100 ppm should not be used for gardening. If soil exposure to children is not a concern, then plants can be safely eaten from soils with soil lead levels up to 300 ppm.

## **Residential Bare Soil Standards**

The Minnesota State Legislature has established a bare soil standard of 100 ppm<sup>4</sup>. This level of 100 ppm is currently lower than the levels used by the United States Environmental Protection Agency and most other States. A level of 300 ppm is commonly used, which is based on measured risks of eating soil by young children. Eating soil by young children is of particular concern since intestinal absorption of lead is approximately five times greater in children than adults. It is assumed that about half of the lead in the soil eaten by children is absorbed. The amount absorbed from soils (bioavailability) is dependent on many variables including the health, diet, and age of the child.<sup>5</sup> Whatever soil lead limit is used depends on the frequency and duration of exposure before an assessment can be made.

The dietary exposure that results in blood levels of concern has been estimated to be 60 micrograms of lead per day for children 6 years or younger<sup>5</sup>. Given a soil lead level of 100 ppm (100 micrograms per gram), eating approximately two teaspoons of this soil per week would be required to give the same amount of lead found in a diet that can cause elevated blood levels of concern. This calculation is based on the assumption that half of the lead in the soil eaten by children is absorbed. For a soil that has a lead level of 300 ppm, eating about three quarters of a teaspoon per week could cause elevated blood lead levels of concern.

According to Minnesota State Rules, residential soil containing more than 100 ppm lead does not have to be removed unless the presence of paint chips is visible. Covering bare soil with sod or other materials is adequate. If your soil tests high in lead (greater than 100 ppm), it is recommended that children in the area under the age of six have a blood lead test. Contact your local health department or private physician for information about blood lead testing.

## **Soil Tests for Lead**

If you suspect high levels of lead in your soil, it may be desirable to have the soil tested. The soil should be sampled by taking 6 to 12 subsamples from the area of concern. For play areas, sample to the depth to which the child has been exposed, usually one half to one inch depth. For garden soils the sampling depth should be from the surface 3 to 4 inches. Lead does not move to any great extent in soils and, unless mixing occurs, it generally stays concentrated near the soil surface. Mix the subsamples thoroughly in a plastic pail, remove about a one cup volume, and submit to a laboratory in a clean container. Lead determination in soils is expensive and not recommended on a routine basis. Several laboratories in Minnesota have the facilities to analyze soils for lead content, including the University of Minnesota Soil Testing Laboratory<sup>6</sup>. Contact your local Extension office or look in the phone directory under "Laboratories" to obtain information about testing laboratories offering this service to your area.

## Remediation of Lead-Contaminated Soils

Currently, the best ways of dealing with high lead soils are to 1) immobilize the lead by raising soil pH and adding organic matter followed by planting of sod, 2) mixing or covering the high lead soil with clean (low lead) soil, or 3) eliminate the lead by physically removing the soil. Information and guidelines on removal of high lead soils can be obtained from the Minnesota Pollution Control Agency.

One proposed method of removing lead from lead-contaminated soils is to grow lead accumulating plants on these soils and then harvest and remove the plants. This process, termed bioremediation, has shown promise for cleaning up soils that have been contaminated with cadmium, zinc, and copper, but at the present time is of limited value for lead. While plants differ in their ability to accumulate lead, even the lead accumulating leafy vegetables do not accumulate enough lead to make bioremediation of this metal practical. Research is currently under way to determine if some plant species can accumulate greater quantities of lead. For now, immobilization of the lead in the soil, covering/mixing high lead soils, or physical removal of lead contaminated soil are the remediation technologies available.

### Summary

Lead may reach potentially toxic levels in soils close to busy streets and highways or near old buildings where lead-based paint has peeled or been stripped off. Plants generally do not absorb or accumulate lead in quantities that would be of concern. The greatest danger of lead toxicity from soil is direct consumption of lead-contaminated soil or dust. By following the guidelines in this fact sheet, you can help reduce the risks of lead poisoning from lead contaminated soils.

For more information on the abatement of lead, call your local health department or the Lead Program of Minnesota at the Minnesota Department of Health, P.O. Box 59040, Minneapolis, MN 55459-0040.

<sup>1</sup> Holmgren, G.G., M.W. Meyer, R.L. Chaney, and R.B. Daniels. 1993. *Cadmium, lead, copper, and nickel in agricultural soils of the United States of America*. Journal of Environmental Quality 22:335-348.

<sup>2</sup> Rolfe, G.L., A. Haney, and K.A. Reinbold. 1977. Environmental contamination by lead and other heavy metals. Vol.2. Ecosystem Analysis. Institute for Environmental Studies. University of Illinois, Urbana-Champaign. 112pp.

<sup>3</sup> Singer, M.J. and L. Hanson. 1969. Lead accumulation in soils near highways in the Twin Cities metropolitan area. Soil Science Society of America Proceedings 33:152-153.

<sup>4</sup> Minnesota Department of Health. 1993. Minnesota Rules Chapter 4761.0300. Residential Lead Abatement. Standards.

<sup>5</sup> Carrington, C.D. and P.M. Bolger. 1992. An assessment of the hazards of lead in food. Regulatory Toxicology and Pharmacology 16:265-272.

<sup>6</sup> Contact the University of Minnesota at 612-625-3101 for more information on lead testing.

*Carl J. Rosen*

*Extension Research Soil Scientist*

*Department of Soil, Water and Climate*

In accordance with the Americans with Disabilities Act, this material is available in alternative formats upon request. Please contact your University of Minnesota Extension office or the Extension Store at (800) 876-8636.

College of Food, Agricultural  
and Natural Resource Sciences  
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**EXTENSION**