Meeting Date:	Monday, May 27, 2019
To:	Mayor and Members of Council
From:	**Carol Maitland, EDC/Marketing Coordinator**
Report:	EDC 2019-01
Subject:	**Development of a Community Garden at Fiddle Park**

Recommendation

Be it Resolved that Council of the Town of Shelburne:

1. Approve the development of a Community Garden at Fiddle Park.

Background

The recommended location for the community garden is Fiddle park in the North East area of the park and adjacent to the washroom/kitchen facility.

Fiddle Park is approximately 114.5 acres of which 83.5 acres are designated natural. Amenities at the park include: pavilion, washrooms, and fully functional kitchen, walking trails, electricity, and water.

The location of the community garden, which will be accessible, would be about 1.05 acres. It is shown on the park map provided in Appendix 1.

The need for a Community Garden in the Town of Shelburne is in response to the findings of a report commissioned in 2016/17 by Dufferin County and Wellington Dufferin Guelph Public Health, *'Reducing Poverty in Dufferin*

County: A Proposed Strategic Framework - Dufferin County Wellington, Dufferin Guelph Public Health. Grodzinski, E. & Dr. Sutherns, R. (2017).

This report indicated:

- Shelburne's poverty rate is at 19% which is above the provincial average of 14%
- One in 12 residents are food insecure and one of every three children begin school in a vulnerable learning position
- In Shelburne 1 in 4 seniors and 1 in 5 children are at high risk of poverty
- One-tenth of the population living in Dufferin County (approximately 6,000 people) are living on very low incomes
- Increasing food costs affect low-income families disproportionately, particularly individuals receiving social assistance and seniors living on fixed income
- In 2016, the overall, the price of the nutritious food basket rose15% between 2011 and 2015, almost double the Consumer Price Index (CPI) rate of inflation for food in Ontario during this same time period

Their report is available on their website: http://dcmoves.org/wp-content/uploads/2017/12/ReducingPovertyinDufferin-Feb2017.pdf

Analysis

While Dufferin County does have incomes, education, and employment levels above the provincial average there is also a significant number of people living on very low incomes. According to the Report, one-tenth of the population (approximately 6,000 people) are living on very low incomes.

Poverty in Dufferin County:

- About 10 per cent of Dufferin County lives in poverty
- One of every nine households are at risk of homelessness and about 6,000 people, or 10 per cent of the county's population, with after-tax incomes below $33,700 are living in poverty
- Poverty is "hidden" in the community. Income levels and housing prices are, in general, above the provincial average
- There is a lack of understanding and awareness of the extent of poverty in the community, and the resulting costs

The report outlined the cost of poverty:

- Poverty costs Ontarians approximately $32 billion to $38 billion per year. This equates to between $2,300 and $2,900 per Ontario household per year
- In 2016, the County of Dufferin spent $4.2 million on social assistance benefits
- Income is a key social determinant of health. Research shows a direct correlation between poverty and negative effects on one's physical and mental health status
- Children that grow up in poverty often start school behind their peers who come from more affluent families
- School readiness impacts literacy rates and educational attainment levels, which are strong predictors of future employment and earning potential

Benefits of a community garden:

- Promote local food production and food security
- Include space to grow food for those in need: Anyone who stops by and the Shelburne's Shepherds Cupboard Food bank
- Gathering and meeting place; inclusive, friendly, respectful, and fun
- Knowledge sharing / Teaching opportunities - an environment for people to learn food-growing and life skills (cooking classes)
- Encourage pollinator populations by providing habitat and connection to the greater ecosystem
- Creative space to play and experience nature
- Events (Yearly Community Garden related events).
- Social enterprise – fresh produce sold to local eateries. Proceeds from the sale of goods will be returned to the community garden.
- Serve as a hub for a new Artesian Market (local incubator for entrepreneurs to sell a variety of products)

Community Education, and Partnerships

Partnerships will be sought with local organizations and business', as well as residents to encourage their involvement with community garden. Educational plans include cross-cultural learning, food preparation classes, and sharing of food-growing practices.

Community Garden Management

Staff will be responsible for the overall administration and management of the community gardens, working with community partners in the development and building of the community gardens. The economic development coordinator will be the lead staff person for the Shelburne Community Garden project.

General Garden Guidelines and Proposed Permanent Features

- At least a 10% of the space within the main garden will be a common area open to harvesting by anyone
- The remainder of the main garden will be a mix of allotments, and communal plots for harvest by garden members. A portion of
- communal harvests will be given to local charities
- The main gardens will be fenced Sightlines throughout the garden to prevent unwanted activities
- There will be multiple entrances (2-3) to help with sense of security
- Congregation spaces will be comfortable for sitting but not sleeping
- No electricity currently. Medium to long-term goal is the installation of solar lighting

Main Paths

- Main garden paths are wheelchair accessible (e.g. crushed gravel or paved, over 1.3m wide)

Perimeter

The main garden will have a fence designed to last - Chain Linked fencing

Sheds

The sheds will be locked, with member-access only. It will be located on the North side of the gardens to avoid causing shade on gardens. The shed will be built to discourage rats, squirrels, and raccoons.

Trees

Fruit and nut trees will form the foundation of the food forest that will line the north edge of the garden- outside the fenced areas. Tree heights will vary but not exceed semi-dwarf (15 feet).

Rain Garden (to be evaluated if feasible)

A rain garden, to collect excess water from the site, will be located in the places that currently has standing water in winter/spring. The size and construction of the rain garden needs to be determined in consultation with the Town staff. Plantings are to be determined, but should be deer-proof, and will likely be a combination of native plants.

Estimated Project Schedule

- Stage 1 - Engage the community through public consultation, to solicit ideas on the type of garden desired (late June 2019)

- Stage 2 – Establish a Community Garden Committee, tasked with organizing the garden build (July 2019)

- Stage 3 - Garden design (based on the public consultation) (July-August 2019)

- Stage 4 - Groundbreaking and build, and the design will be initiated in the August - Sept 2019

- Stage 5 - Garden plots available to the community January 2020

- Stage 6 - May 30, 2020 Garden open to members

The Town of Shelburne Community Improvement Plan

The Town is currently completing the Community Improvement Plan (CIP) for the entire Shelburne Community. The CIP has recognized a Community Garden as part of the revitalization of Fiddle Park in the “12 Big Moves”.

Financial Impact

The approved 2019 budget included $10,000 for the development of the community garden. As is listed in the budget below, staff have also applied for grant funding and $5000 from Cowan Insurance - Home Town Program and $8000 from Farm Credit Canada AgriSpirit Fund (expect to hear August 2019).

REVENUES	
2019 Town Budget	$10,000
Cowan Insurance Grant	$5,000
Crewson Insurance Donation	$ 500
Farm Credit Canada Grant *	$8,000
Community Fundraising **	$ 600
TOTAL	**$24,100**

EXPENDITURES	
FENCING	$7,500
SHEDS	$850
MISCELLANEOUS TOOLS	$500
GAZEBO	$3,000
RAISED BEDS	$3,525
275 GALLON IBS TANKS	$600
RAINWATER SYSTEM	$300
TOPSOIL, MULCH, COMPOST	$1,600
GRANIT/CRUSHED STONE - WALKWAYS 22 TONS	$1,552
STAFF LABOUR***	$1,500
GARDEN GRADING/PREP ****	$3,173
TOTAL	**$24,100**

Notes:
* Grant Funding 2019 application to Farm Credit Canada (pending approval)
** planned community fundraising/donations starting in September 2019
***Public Works Staff time is based on 10 hours per. Staff maintenance of beds would include delivering mulch and rain barrels and tilling the soil.
**** Town staff and equipment for two days for Land preparation to level the area using the backhoe $720; Dump truck $816; three staff $1387; Fuel $250

Policies & Implications

Bylaws affecting land use – not applicable
A community garden would be permitted as part of a Public Park as currently defined in the by-law. A Public Park is permitted in the Special Tourism (T) Zone and Natural Environment (NE) Zone within Fiddle Park.

Consultation and Communications

The City of Guelph. Staff met with Samantha Dupré who is the Community Stewardship Coordinator for City of Guelph. Guelph has an extensive Community Garden project. Staff toured two of their community gardens

and were provided with the general costs associated with ongoing maintenance of the community gardens.

Derek Rice was responsible for developing the first community garden in Orangeville. He provided insight on the benefits, sustainability of a community garden as well as the pit falls.

A List of some Community Gardens in Ontario is provided in Appendix 6.

Supporting Documentation

Appendix 1 - Map – Location of Shelburne Community Garden

Appendix 2 - Community Garden Best Practices. Guelph Wellington Food Round Table. Retrieved Oct. 2018 from: http://gwfrt.com/resources/

Appendix 3 –From the ground-up – A Guide for Soil Testing in Urban Areas. Toronto Public Health: Assessing Urban Impacted Soil for Urban Gardening, Decision Support Tool Technical Report and Rationale. Retrieved Oct. 2018 from: https://www.ruaf.org/sites/default/files/Guide%20for%20soil%20testing%20in%20urban%20gardens.pdf

Appendix 4 - Barrier Free Community Gardening. Kristin Ross, Carol Popovic, Region of Waterloo Public Health. Retrieved Sept. 2018 from: http://community-gardens.ca/sites/default/files/website_files/Barrier%20Free%20Gardens%20Guide.pdf

Appendix 5 - Images from City of Guelph, and Orangeville Community Gardens

Appendix 6 – Short list of Community Gardens is Ontario. Sustain Ontario: Community Garden network. Retrieved May 16, 2019 from: https://sustainontario.com/initiatives/community-garden-network/

Respectfully Submitted:

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Carol Maitland EDC/Marketing Coordinator

Reviewed by:

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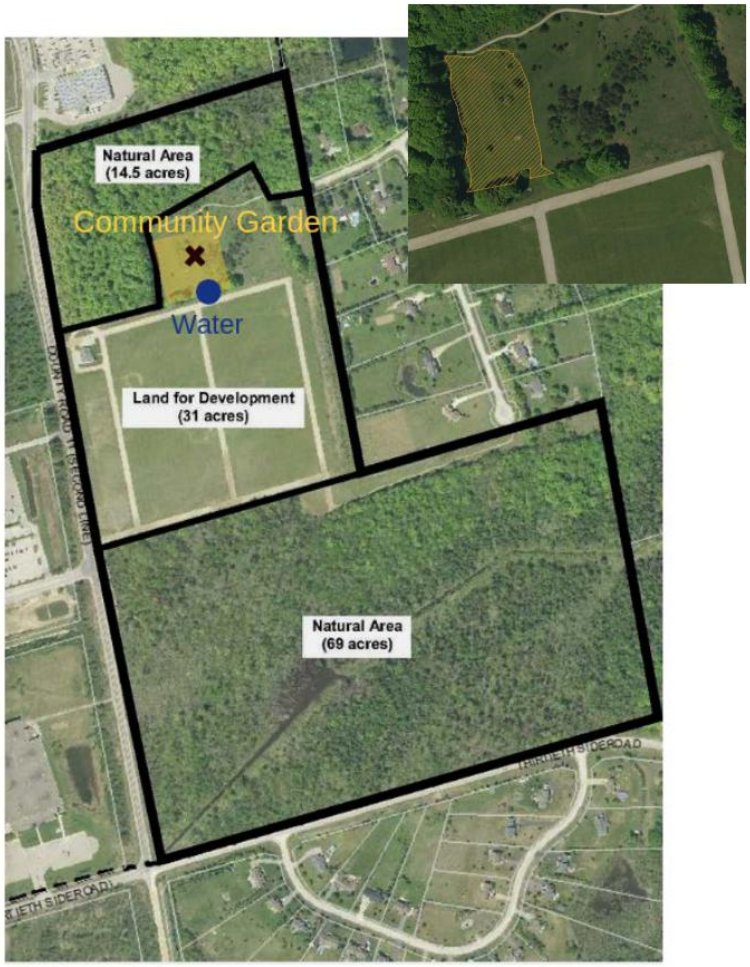
Denyse Morrissey, CAO

Appendix 1

The community garden is proposed for the area North | East to the washroom/Kitchen facility (Figure 1) The site slopes slightly downwards to the south and to the east. The area is protected on the west and north side by a strand of trees but offers full southern exposure from the sun. The area is approximately 1.05 acres



Water is available at the proposed site.

Fiddle Park Current Uses

- The open fields and trails are used by families as a walking area and a dog park
- The Pavilion is used by community groups and Town events for concerts, picnics and other social events
- The park is lit (on demand) at night but there is little night-time use
- The Park remains vacant for the majority of the year- it is severely underutilized (to-date 10 events have been held)

Appendix 2

Community Garden Best Practices Toolkit:

A Guide for Community Organizations in Guelph-Wellington

Table of Contents

Forward

This toolkit has been prepared by the Guelph Community Garden Network and is designed to assist individuals and community organizations in Guelph-Wellington who want to start a community garden. It outlines key steps to starting a garden, and provides a range of tools, tips, and supports to help along the way.

This toolkit has been adapted from a booklet of the same name produced by the Food Security Network of Newfoundland and Labrador and is based on best practices research about community gardens. Best practices were identified through a review of reports, resources, and guides on community gardens across North America. Some of the information and recommended resources are tailored to Guelph-Wellington. The bibliography at the end of this guide lists the materials consulted for the original toolkit.

Acknowledgements

This booklet would not be possible without the generous support of the Guelph-Wellington Food Round Table and the Ministry of Health and Long Term Care's funding support through the Healthy Communities Fund. Our thanks also go out to the Food Security Network of Newfoundland and Labrador for agreeing to the adaptation of their Community Gardens Best Practices Toolkit and to Karen McKay for the lovely photographs.

Introduction

What is a Community Garden?

Community gardens are parcels of land used by neighbourhood residents to grow their own vegetables, herbs, pollinator flowers and/or fruit. They are primarily used in areas where residents do not have any (or suitable) yard space to grow their own gardens. Community gardens are also important neighbourhood spaces, providing the opportunity for neighbours to meet each other, work together and become cohesive, supportive communities.

Community gardens vary widely in their structure, purpose and format. They can consist of collective plots, individual plots, or a combination of the two. Food may be grown for the garden's members, for a local organization such as a community kitchen or bulk buying club, or for the community at large. The most common type of community garden is one in which garden plots are rented to community members on an annual basis to plant vegetables for their own consumption.

Why Start a Community Garden?

A community garden can help improve food security for participants by increasing physical and economic access to adequate amounts of healthy food. Community gardens provide health, economic, educational, social, and environmental benefits to participants and the community at large. Community Gardens:

- Provide fresh, healthy, low-cost food that can substitute for otherwise expensive food purchases;
- Encourage physical activity for all age groups;
- Create a social gathering place for the community and encourage the sharing of intergenerational knowledge;
- Enable participants to learn basic gardening skills, from sowing seeds to harvesting, and to better understand their food system;
- Provide a welcoming space for participants to build self-confidence, wellness, and personal skills;
- Help improve the local environment by preserving and growing green space and by encouraging people to act as local stewards.

Types of Community Gardens

It will be important to choose a community garden model that will best serve the unique needs of your group. There are two common types of community gardens:

1. Collective Community Gardens follow the premise of —all for one harvest, one harvest for all, where everyone contributes their efforts to one large garden from which everyone shares the harvest. Together, participants decide what to plant and how to design the space.

Growing communally requires a significant degree of cooperation and works best with a small number of participants. This style is well suited for groups that already have a strong membership that meet regularly and may be able to garden at the same place where they currently gather, such as at a school, church, or club space. Beginner gardeners may excel in this environment as they are supported by a close-knit group from which they can learn new skills.

2. Allotment Community Gardens divide the garden space into plots that are each independently maintained by an assigned gardener(s), who is able to come and go on their own schedule. This model can provide garden space to individuals and community organizations that may not have access to it at home, or at their facilities.

This style works well for groups with varying schedules and a variety of aspirations for what they want from their gardening experience.

When developing a community garden model make sure that it is appropriately designed for the community that will be actively using the space. See **Note: Developing a Community Garden Model** (next page) for some ideas on adapting the models to be appropriate for your group.

This toolkit is oriented toward allotment community gardens, as they are the most common type, however, it will provide some support for establishing and managing collective community gardens and will describe many activities that overlap both types.

Note: Developing a Community Garden Model

What may work best for a new community garden is to develop a model which is a combination of the two common types to suit local needs and goals:

Collective community gardens may also find that there is value in separating off some areas for individual use. For example, designating separate plots for avid youth gardeners could give young gardeners a stronger sense of responsibility in the group. Also, an experiment or test plot can allow for new crops or techniques to be tested before the group decides whether or not to adopt it for the garden as a whole.

Allotment community gardens may also have areas that are communally managed, such as perennial projects like an herb bed or small orchard which will live for more than two years. These beds would carry over from year to year as the allotments change.

Some crops, such as squash and corn, take up a lot of room, shade other plants, and do not work as well in a small plot. Allotment-style garden participants may choose to share a collective space for such crops to solve these problems.

There are many successful examples of community gardens that have adopted a model that combined elements of both collective and allotment community garden models. See **Appendix A: Sample Site Map** (page 24) for a site map of the Two Rivers Community Garden in Guelph.

Getting Started: Steps for Success

Although there is no one best way to start a community garden, the following is a list of steps to consider when establishing a new garden project.

This toolkit describes a process that should begin 6-12 months before the garden is planted. **Appendix B: Are You Ready? Checklist** (page 25) provides a checklist based on the following steps. This will allow you to evaluate your readiness when starting a community garden.

Step 1: Identify a Group

The first step is to let people know about the plan to have a community garden and gauge the level of interest, support, and commitment from potential gardeners and other stakeholders.

Some community organizations may already have a group of people who are interested in participating in a community garden, such as members of a neighbourhood group, school, seniors' complex, or church.

At a Glance: Tips to Get People Involved in the Garden

Do local promotion: create garden posters that list contact information, meeting times, and upcoming activities and post those in public locations. Put notices in the community events section of newspapers, on local websites, and on social media. Consider making a simple display to give out information at well-attended community events.

Partner with established organizations: talk to groups already invested in the community such as churches, neighbourhood groups, local councils, schools, clubs, and businesses about getting their members involved.

Word of mouth: promote the garden to neighbourhood friends and families and ask them to pass the word on.

Let people know the benefits: inform people of the economic, health, environmental, educational and social benefits of community gardens.

It is a good idea to hold introductory community meetings to discuss the potential of a community garden and to recruit participants if they are not already identified. At these meetings identify who the garden will involve, who it will benefit, and what kind of garden it will be. (See **Introduction: Types of Community Gardens** (page 5 for a description of the different types of community gardens.)

When scheduling a public or community meeting, think about other events or meetings happening that you could partner with or attend to promote the community garden.

Send personal invitations to anyone you know who may be interested in being involved. **Appendix C: Sample Agenda for First Garden Meeting** (page 26) provides a sample agenda for the first meeting and lists some tasks to try to accomplish at this meeting.

Step 2: Form a Garden Committee

Once the community is engaged, form a garden committee of volunteers to help establish and run the garden. This committee can be made up of people who feel committed to the development of a community garden and have time to devote to it. Having garden participants on the committee will help make the garden appropriate and beneficial for members.

The garden committee will host regular meetings during the year to make plans and decisions about the garden, and will help organize harvest celebrations and fall closing days. The committee may also have working groups within it that manage particular aspects of the garden, such as education, youth activities, or construction. **Appendix D: Descriptions of Garden Committee Positions** (page 28) provides some common roles within the committee, their expected time commitments, and job descriptions.

It is important to match volunteers with duties that suit their level of interest, time commitment, and skills, so that they enjoy the volunteer experience and continue to be involved. Sharing responsibilities equally will increase member engagement and prevent volunteer burnout. Some volunteers may want to contribute their labour without participating as organizers, while others may prefer administrative tasks.

Quick Tip

Committees should take time to celebrate their hard work and to thank all volunteers. This goes a long way towards making people feel appreciated and keeping them engaged. Harvest celebrations and garden parties can be effective tools for doing this.

Garden Coordinator

The committee may choose to select a community garden coordinator to lead the development process and to advise and update the committee. The coordinator should have project management and leadership skills in order to make the garden a success. The coordinator can be a volunteer or paid staff depending on the group's available finances and seasonal changes in required time commitments. The responsibilities of a coordinator could also be divided among several organizers focused on managing different areas.

Step 3: Establish Partnerships

It will be important to establish partnerships with people or organizations that can help bring together the resources needed to successfully start the garden. Examples of potential partners for a community garden include:

- **Organizations** such as **OPIRG**, **Guelph & Wellington County Master Gardeners**, or **Canadian Organic Growers** that can provide valuable knowledge on growing vegetables and fruits in Guelph-Wellington.

- **Other community gardens** may be able to provide gardening advice as well as seedlings or transplants for the garden. Learn from the experiences of local groups that already have established gardens, and may offer pre-season garden education. See Appendix J for a link to the **Guelph Community Garden Network**.

- **Regional Nutritionists (Dietitians)** with your **Regional Health Authority** can help select the most nutritious vegetables for the garden and can provide information on the benefits of healthy eating.

- **Local businesses** such as **hardware stores** and **gardening stores** may be able to donate items to the garden such as tools, materials, and seeds. Consider asking local trades people to donate some of their time to offer advice and work on building, landscaping, and other projects.

- **Seniors Centres, Residences,** and **Organizations** may be interested in participating in the garden and may be able to help attract more seasoned gardeners that can provide support to new gardeners. Consider setting up a mentoring system to share gardening knowledge. **Appendix E: Gardener Application** (page 29) is a sample form to use for registering people to the garden and has a section for connecting mentors.

- **Universities** and **Colleges** may be able to offer educational workshops for garden participants on a range of related topics.

- **Churches, service clubs** and **non-profit organizations** can offer resources, guidance, donations, and networking opportunities and may also be interested in having a plot. Consider which local community groups may be able to contribute a few hours of labour to help the garden get started.

Working with a partner organization can offer the benefits of accessing a site, staff, participants, experience, and resources that already exist within the organization. There

are many across the city which you can contact for more information about potential partnerships and current programming. **Appendix J: Important Links and Resources** (page 36) provides contact information for some potential partners for community gardens in Guelph-Wellington.

When looking for partners think about the skills and resources that are required to successfully run a community garden, and what skills and resources already exist in the garden group. Garden participants and volunteers will likely already have many great resources for the garden:

- Participants may have knowledge or experience that can help in planning and designing the garden, such as landscaping, construction, or health and safety training.

- Garden members may already have garden tools and materials that they are willing to share. Make an inventory of tools available within the garden group. This will help in determining what additional tools are needed. **Appendix F: Sample Community Garden Wish List** (page 30) provides a sample garden wish list that may be helpful in identifying the resources needed for the garden.

- Participants will be active volunteers for the garden. Determine what kind of volunteer support is available and how to best use the time people are willing to commit to the garden.

- Many volunteers within the group may be connected to other community organizations or businesses that could assist with public outreach, providing a site, or other resources.

- Some group members may have connections to local media and would be willing to write press releases or do public service announcements to promote the garden.

- There may be links within the group to organizers of well-attended public events where the community garden could do outreach for new participants or stakeholders.

Step 4: Select a Site

There are many factors to keep in mind when selecting a site, such as good conditions for growing plants, gardener comfort, ease of access, proximity to resources, and garden visibility from pathways and streets. It is important to make sure the garden site is appropriate and accessible for the garden participants.

When visiting potential sites, be prepared to draw simple site maps to help in the selection process. The more information that is gathered about potential sites, the

easier it will be to select the garden and to design the garden layout. A site map will also be an important communication tool for use with garden members and for gardener recruitment and in garnering neighbourhood support. A Community Consultation is an important step to ensure that the garden will not be met with resistance in later stages.

At a Glance: Garden Site Map Characteristics

1. Sun/shade patterns
2. Wind patterns
3. Drainage patterns
4. Changes in elevation (slope)
5. Soil conditions and quality
6. Existing trees
7. Existing shrubs & flower beds
8. Existing buildings
9. Existing structures
10. Existing fences
11. Paved areas
12. Traffic patterns
13. Existing play areas
14. Existing sitting areas
15. Underground sprinkler system
16. View from and to the garden
17. Space to accommodate future plans for expansion

Guelph is fortunate to have the support of both the City and the Upper Grand District School Board. A pilot project started in 2010 saw four community gardens established on school grounds and public land. The City of Guelph has since created a policy which outlines their commitment to work in partnership with community groups, neighbourhood groups and gardening organizations to support Community Gardens.

They offer Coordination assistance, including hosting a Community Consultation as mentioned above, and Operational Support, including site preparation (eg tilling), wood mulch delivery, water access/solutions and waste removal. An application process must be followed by groups wishing to garden on City or School Board property. See **Appendix J** (page 36) to contact the City's Community Engagement Coordinator.

At a Glance: Key Questions for Site Selection

(Ask the landowner any questions that you may not be able to determine upon first visit)

- Does it get at least six hours of direct sunlight per day during the spring, summer and fall?
- Is there access to water?
- Does it have enough space to accommodate the number of interested gardeners and to allow for growth?
- Is the ground relatively flat?
- Is the site close to the people who plan to use it? Gardeners should be able to walk or drive a short distance to the garden.
- Is the site visible from the street or pedestrian areas? A visible site will be safer and attract more neighborhood support.
- Can a truck gain access to the lot?
- Is the soil safe for gardening? Test the soil for contaminants. The test results will determine what type of garden is possible.
- What is the site being used for presently? Is a garden compatible with the other current uses?
- Is it known who owns the lot? Permission will need to be secured from the landowner to have a community garden there.
- Is the neighbourhood in support?
- Does the landowner have insurance for a community garden?
- Will the site likely still be available in years to come? It is good to have a space where the garden can grow for multiple years.
- Does the site have any existing wind breaks to protect plants?
- Does the site need to be cleared before it can become a garden?

Liability Insurance

Insurance is important to protect the community garden organization as well as the landowner against liability for injuries or damages that may occur in the garden. When selecting a site, determine if the landowner already has liability insurance that would cover a community garden. If not, the landowner may wish to expand their coverage or the community garden organization may wish to secure its own. Speak with the landowner and a local insurance company to determine the appropriate coverage for the garden.

Step 5: Look for Funding & Sponsorships

There are a number of different ways community garden groups can get the resources they need. Some operate without external funding and depend on membership fees alone, while others actively pursue corporate sponsorship or government funding. External funding can be helpful, but is not always required depending on the scale of the garden's activities.

Prior to seeking funding, it may be beneficial for the group to develop a community garden wish list that can be distributed to members, partners, and potential donors and sponsors. **Appendix F: Sample Community Garden Wish List** (page 30) provides a list that may be helpful in identifying the resources desired for the garden. Potential funding avenues for community gardens include:

- **Annual gardener membership fees** are rental fees for garden plots that can help cover the operating costs of the garden. It is important that membership fees reflect the purpose of the garden, needs of its members, and resources it will offer.

- **Community businesses,** such as hardware stores or garden centres, can provide in-kind support, donations, expertise and labour.

- **Local institutions** may be able to provide a garden site and with it access other resources, such as water and soil.

- **Corporations** can provide support in the form of donations and sponsorship.

- **Fundraising** can raise money for start-up expenses, one-time purchases, or support the annual operations of the garden.

- **Municipal, provincial, and federal governments** offer a variety of grants that could support a community garden. These opportunities generally require an organization to submit an application for funding, maintain financial and activity records, and provide a final report at the end of the funding period. If your community garden is not part of an already incorporated agency, you may wish to consider partnering with an existing neighbourhood group or other non-profit organisation in order to apply for grants.

The public meetings, promotions and networking activities that have taken place to this point will have helped build relationships that can assist in the search for funding and sponsorships. **Appendix H: Funding Sources in Ontario** (page 33) provides a list of potential funding opportunities for community gardens.

Step 6: Plan and Design the Garden

Developing a garden plan and site design is an important step to complete before planting the garden. Community gardens should be developed as lasting places for a community to gather and grow nutritious food together.

Every community garden plan is different and is determined by the group of gardeners' needs. Based on the introductory community meetings and public outreach

completed so far, the group should have an idea of which type of garden (collective or allotment), or combination of types, is most appropriate for what the group wants to achieve. Now is the time to finalize what model will be applied to the garden.

Introduction: Types of Community Gardens (page 5) provides a description of the different types of community gardens, which will be helpful in developing a garden model.

Having a garden model selected will help make site design more apparent. The group will know whether the garden requires raised beds, separate plots, and/or one or more large common plots. See **Appendix I: Design Guidelines for Community Gardens** (page 34) for a list of points to consider when designing the garden. Make photocopies of the site map that was developed when selecting potential sites and use those copies to pencil in various design options for review and voting by the garden committee. See **Appendix A: Sample Site Map** (page 24) for an example of a community garden site map.

The following are general principles for designing a successful community garden:

- Allow for convenient water access
- Ensure physical accessibility (allow for comfortable mobility for all participants)
- Provide space for required structures (compost, rain barrels, sheds, etc.)
- Orient plots for optimal growing conditions (direct sunlight, wind breaks, etc.)
- Provide a composting area
- Consider fencing needs (e.g. to deter wildlife)
- Make the garden visible (e.g. post adequate signage)
- Incorporate rest and play areas, and if possible, ensure access to washrooms

Quick Tip

Keep the garden plan simple and manageable for the first year. Once the garden is established, there will be lots of opportunity to add new elements and expand in future years.

Garden Design for Physical Accessibility

When designing the garden, keep in mind that not all people will move through the space in the same way. These simple design tips will help ensure that all participants are able to enjoy the garden space:

- Design garden pathways that are smooth and wide enough for strollers, wheelchairs, and wheelbarrows to navigate. Level the ground or add ramps and ensure the slope of pathways do not exceed 5cm rise or fall/3m of run.

- Construct tool sheds, greenhouses, and other buildings so that they are accessible to strollers, wheelchairs, and wheelbarrows.

- Stock materials so that they are easy to reach and safely stored.

- All tools should be durable and lightweight. Some adapted tools that may be helpful are: left-handed tools, tools with tailored grips for easier lifting, and tools with extra length for extended reach.

- Add handrails, handles, or posts onto garden beds or structures where they could be useful for gardeners' stability.

- Consider providing kneeling mats or short stools if people will be down beside low garden beds for long periods of time.

- Keep in mind the height and arm reach of potential gardeners and the ease at which they will be able to bend down or over garden beds. Consider raising the soil level of some plots with raised beds, or use table tops and containers, to make reaching more comfortable.

Garden Design for Families & Children

Community gardens benefit from active participation of families and children. Families will be attracted to a garden when the experience is one that all members will enjoy. When designing the garden, be sure to include tailored resources for children to make the garden a welcoming and fun environment.

- Include children's garden plots, and activities in which children can successfully participate.
- Create responsibilities for children that give them a sense of accomplishment.
- Incorporate healthy snacks into the day's work and encourage children to taste and take home the fruits and vegetables that are grown in the garden.
- Base plot size on the length of a child's reach so that it is accessible on all sides.
- Supply children-friendly tools and supplies such as smaller watering cans, children's gloves, and child-appropriate tools.
- Locate children's garden plots in a central, visible area, away from roads, so that the children are always safe and supervised.

Step 7: Determine Garden Guidelines

Garden guidelines should be established through consultation with gardeners, committees, and other key stakeholders such as the landowner and funding groups. Garden guidelines are an excellent way to ensure that everyone understands how the garden will operate and what is expected of participants.

Garden guidelines will include information about health and safety guidelines for the garden to ensure safe practices by participants and volunteers while working at the garden. These will also include guidelines for working with others, sharing space, and treating fellow gardeners with respect.

Guidelines provide a place to record procedures to ensure that from year-to-year new volunteers and participants know how to open and close the garden and run activities throughout the growing season. Information that is only passed on by word of mouth can be lost, so recording it in the guidelines will store it for future years.

Generally, community garden guidelines highlight and elaborate on the following important areas:

- Volunteer and participant responsibilities and expected conduct;
- Agreements, fees, waivers, and other forms;
- Safe handling of tools;
- Garden procedures; and
- Important contacts.

Quick Tip

Post the day-to-day parts of the guidelines in a visible place at the garden (e.g. on the garden shed or at the front gate) and make sure they are easy to read and will withstand weather.

Consider getting each new participant to sign-off on the guidelines when they register.

Step 8: Start your Community Garden!

You are now ready to start your community garden. The following sections provide further information to help you run and maintain the community garden.

Installing & Maintaining the Garden

Now that the group has determined who the garden is for, what garden model will be applied, and which site to use, it is time to start installing the garden. Garden installation will happen in the late spring, once the soil has thawed, the air has warmed, and the threat of frost has passed.

There are four key stages to constructing the garden, which can occur at the same time or separately depending on time and resources available. It is important to be organized and to work collaboratively with members during these stages:

Stage 1: Prepare the Site

It is important to have the soil tested before planting the garden to determine the soil quality and whether raised beds are required. If garden plots are going to be in the ground, it is a good idea to rent a rototiller to till the soil and add any amendments required based on the soil test. Depending on the site's conditions, the group may also need to level the ground, and install water lines and a drainage system. Speak with a local horticultural group or gardening centre for advice on what is required for the site at hand.

Stage 2: Build and Install Garden Infrastructure

Once the site has been cleared and prepared, it is time to build and install required garden infrastructure. The infrastructure that is installed will depend on the garden design and needs of the group. Keep in mind that not all of these are required to be completed in the first year, and that projects can be added as the garden develops. Some of the items you will want to consider installing include:

- Composting bins
- Garden shed
- Rain barrels
- Rest area with benches/shade
- Fences and gates
- Accessible raised beds
- Pathways & ramps
- Children's play areas
- Greenhouses and/or cold frames

Stage 3: Plant the Garden

When deciding what to plant in the garden, consider growing conditions, which crops are easiest to grow, and which plants offer the highest nutritional value. Work with local gardeners and farmers to select the crops that will grow well in the region, and select plants that are likely to succeed. Regional nutritionists can provide help selecting the most nutritious plants. In the first years of a community garden, it is important that gardeners have successful yields and enjoy eating what they grow in

order to build confidence and enthusiasm. The following crops can be grown in Guelph-Wellington without the assistance of a greenhouse (those in bold are good for beginners):

Vegetables: Asparagus, **beans**, beets, broccoli, brussel sprouts, cabbage, carrots, cauliflower, celery, **chard**, corn, **cucumbers**, **garlic**, horseradish, jerusalem artichokes, kale, kohlrabi, leeks, **lettuce**, onions, parsnips, **peas**, peppers, potatoes, **radishes**, rutabagas, **salad greens**, spinach, spring onions, squash, **tomatoes**, turnips, **zucchini**.

Fruits: apples, blueberries, currants, gooseberries, melons, mulberries, paw paw, pears, plums, raspberries, saskatoon berries, strawberries.

Herbs: basil, bay, **borage**, caraway, chamomile**, chives, cilantro**/coriander, **dill**, lavender, mint, oregano, **parsley**, **sage**, savory, tarragon, **thyme**.

Other: edible flowers (nasturtiums and pansies for example, and the flowers from zucchini and other squash).

Depending on experience and timing of planting, the group may choose to plant the garden from seed, use transplants (seedlings or young plants that are transplanted from a pot or tray into the garden), or a combination of both.

At a Glance: Tips for Planting from Seed

- Use hardy local seed varieties of plants that are likely to succeed.
- Follow the instructions on the seed packets to ensure good results.
- Confirm the soil is warm enough for seeds to germinate (the growth of a seed into a young plant or seedling) before planting.
- Water seeds after planting them, and again every 24 hours.

Local garden centres, the Guelph Farmers' Market and some farms will carry seedlings that can be purchased and planted in place of starting from seed. These may be helpful if starting late in the growing season. Gardeners can also start transplants indoors ahead of time in order to grow plants that require a longer growing season, such as tomatoes. Talk to other gardeners and arrange to trade extra plants and seeds. Network with other community gardens for leads on plant donations or to organize a larger seedling exchange.

At a Glance: Tips for Gardening with Transplants

- Only certain plants can be started early and transplanted into the garden; read seed packages for directions.
- Start seedlings indoors or in a greenhouse ahead of time in small containers (egg cartons and toilet paper rolls cut in half work well) by planting seeds in a seed starter soil mix available at local garden centres; if starting indoors, place in a sunny window or use artificial lights designed for growing plants.
- Wait until the heat of the day has passed before transplanting.
- Plant just the roots and a bit of stem in the soil; use the 'after-thinning' spacing recommendations found on seed packets.
- Press transplants firmly into the ground, leaving a depression.
- Water transplants at least once every 24 hours; soak the roots, but avoid wetting the leaves.
- Wait to use organic fertilizer until the second watering.

Stage 4: Garden Maintenance

Successful community gardens require considerable communal and individual plot maintenance throughout the season. Collectively, gardeners and volunteers will be expected to work together to maintain shared spaces including communal plots, composting bins, garden sheds, paths, etc.

The garden coordinator should develop a to-do list of general maintenance that needs to be completed regularly at the garden. Post the to-do list in a visible spot at the garden and encourage that tasks be shared equally among gardeners and volunteers. On-going communal tasks will include:

- Proper cleaning and storage of shared tools;
- Collection of litter and yard debris (branches, twigs, etc.);
- Proper use of the compost bin, including keeping it closed to prevent pests;
- Sweeping or raking up leaves on walkways/paths;
- Upkeep of sheds, fences, greenhouses and other infrastructure;
- Maintenance of common areas (lawns, herb/perennial gardens, fruiting bushes, trees etc.)

Quick Tip

Always make sure that participants are aware of how to handle tools and equipment safely and how to avoid common garden accidents.

The garden should always have a first aid kit and appropriate safety gear available, including gloves and eye guards.

When there is a large task to be completed, such as building a shed or walkway, many community gardens organize 'work bees' where volunteers and gardeners gather together to accomplish the task at hand. These work bees can be turned into fun and educational events by including a potluck and/or workshop along with the day's activities. Communal work days occur at least twice during the season, for opening and closing day. During these work days volunteers and gardeners come together to either prepare the site for gardening, or close the site for the winter months.

At a Glance: Garden Plot Maintenance

Individual plot maintenance is very important in order to have a productive garden. These are some basic tips that should be incorporated into regular plot maintenance:

- Water plants only in the morning or evening to reduce evaporation. Give infrequent but generous waterings, about an inch once a week. Avoid frequent shallow waterings, which only encourage roots to stay near the soil surface. The more deeply rooted your plants, the more resilient they'll be in a dry period.

- Weed regularly to ensure that water and nutrients go to your plants and not to weeds.

- Use mulches to help conserve soil moisture and stunt weed growth. Mulches include leaves, straw, wood chips, plastic covers, or other materials that cover the ground around plants.

- Prune plants, such as tomatoes, as needed.

- Tie back and stake plants that require extra support.

For more advice on maintaining a successful garden plot, speak to a local gardener, farmer, horticultural group, or gardening centre and refer to the contacts and materials available in **Appendix J: Important Links and Resources** (page 36).

Developing a Communication System

Good communication with participants and outreach into the community is important for a successful community garden. The garden committee, with input from participants, should determine how to communicate information both to volunteers and gardeners, as well as to the general public. Effective communication can help increase participation and enjoyment of the garden.

Communication with Garden Participants

It is important that all participants are included and up-to-date on the garden activities, and are given the opportunity to provide input. Some successful approaches garden committees use to communicate with participants include on-site garden bulletin boards, group email updates, newsletters, and websites. These communication tools can also be used to help participants arrange tool sharing and carpooling. Regular meetings with all garden participants are recommended as an effective way to engage participants in planning garden activities. Some members may not have readily available computer/internet access. Establishing a phone-tree or buddy-system will help ensure these members are kept up-to-date.

Gardener registration is an important way to get to know gardeners at the beginning of the season. **Appendix E: Gardener Application** (page 29) provides a sample gardener application form that can be adapted to fit the needs of the group. Gardener applications will provide the information required to begin connecting gardeners for mentoring, linking participants with volunteer opportunities, and distributing resources that are needed for the growing season. Once the application forms have been received, participants can be given a welcome packet which familiarizes them with the community garden and how it works.

Many community gardens have a spring registration gathering to bring potential gardeners together to meet each other, learn about the garden, discuss the season, select and pay for plots, and hand out materials.

Garden Events

Hosting garden events can help participants get to know each other, build support networks, and learn more about gardening. Events can be as simple as a potluck at the garden or someone's house, or as elaborate as education events such as full days of themed workshops. Garden events offer the opportunity for education, relationship building and celebration of the successes of the garden and its volunteers.

Community Outreach

The following are useful methods to communicate important garden-related activities to the public:

- Announce news with public bulletin boards and community newsletters;
- Create a garden website and social networking accounts;

 Hold public tours of the garden and open garden days;

 Celebrate the harvest as a community event;

 Host garden education activities for all ages;

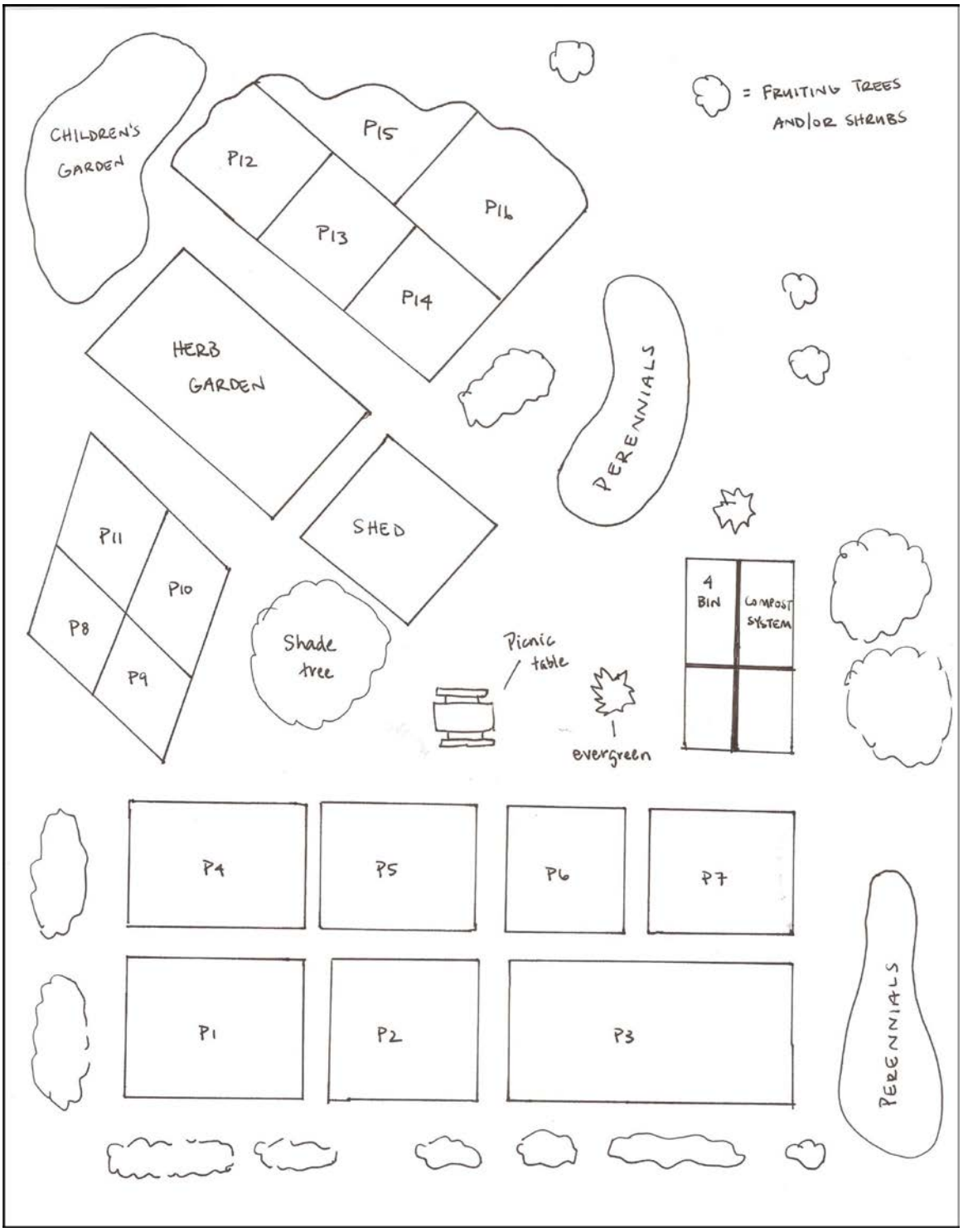
 Document garden activities with photos, videos, and annual reports;

 Hold work days and invite the community to lend a hand to accomplish bigger projects; and

 Promote the garden through public announcements that go out over local radio, television, newspapers, and free local publications.

Appendix A: Sample Site Map

This site map is from the Two Rivers Community Garden in St. Patrick's Ward. It is a mixed allotment and collective style garden, with individual allotments in a variety of shapes and sizes, a communal garden, perennial beds & borders and several fruiting bushes and trees.



Appendix B: Are You Ready? Checklist

1. Identify a Group

- ☐ Is there interest in the community for a garden?
- ☐ Do you know who will be using the garden?
  - ☐ Families and children
  - ☐ Seniors
  - ☐ Neighbourhood residents
  - ☐ General public

2. Form a Garden Committee

- ☐ Are there volunteers willing to take on the different roles?
- ☐ Is there a Garden Coordinator?

3. Establish Partnership

- ☐ Have you identified partners with various experience and skills?
  - ☐ Gardening
  - ☐ Programming and Events
  - ☐ Landscaping
  - ☐ Education

4. Select a Site

- ☐ Is the site accessible to the participants and is it large enough to allow for growth?
- ☐ Does the site have favourable wind, sun, and shade conditions?
- ☐ Has the soil been tested for nutrients and contaminants?
- ☐ Do you have the land owner's permission?
- ☐ Has a Community Consultation been completed?
- ☐ Is there access to a water source and other amenities?

5. Look for Funding and Sponsorships

- ☐ Membership Fees
- ☐ Government grants
- ☐ Local business donations
- ☐ Fundraising projects

6. Plan and Design the Garden

- ☐ Have you chosen a garden model? (Collective or Allotment)
- ☐ Will raised beds, sheds, greenhouses or other infrastructure be needed?
- ☐ Have you made a garden map?

7. Determine Garden Guidelines

- ☐ Have you created garden guidelines?
- ☐ Have participants signed off on the guidelines?
- ☐ Are the guidelines posted in a visible location at the garden?

8. Start your Community Garden!

Appendix C: Sample Agenda for First Garden Meeting

Prior to the arrival of guests, there are a number of set-up activities that should be organized:

- Provide beverages and healthy snacks if possible
- Offer child care if a volunteer and space are available
- Set up the room for easy discussion by placing tables and chairs in a large circle so everyone can face each other
- Post the agenda and important topics on flip charts around the room
- Provide materials to record notes and comments
- Consider having name tags

Some of the agenda items the group may want to discuss include:

1. Welcome and Introductions

- Do an ice-breaker activity by asking the group to share their names and interest in community gardening
- Review the agenda and point out washrooms and the snacks/beverages

2. Garden project overview and update

- Provide background information on the garden project, and explain where the idea originated
- Explain what has been done so far and the purpose of meeting

3. Brainstorm and discuss garden project

The purpose of this discussion is to begin determining what the garden will look like, and who it will serve. Depending on the size of the group, you may want to organize this session into break-out groups of 4-5 people per group, with each group discussing different topics, and then reporting back to the group at large for general discussion.

Some of the key questions to be discussed during this session include:

- What is the purpose of the garden and who will the garden be for?
- What type of garden model is most appropriate? (plot or communal)
- Is land available for a garden, or are there potential sites in mind?
- Will a garden committee be formed to oversee the garden activities and what working groups will be necessary?
- Will there be a fee charged to gardeners for space rental and what resources will gardeners receive in return?
- What is the best way for the group to stay in touch?

- How will work for the garden as a whole be shared, such as annual flower planting, record/bookkeeping, potluck events and maintenance?
- What will be the name of the garden?
- How will money be raised to support the garden?

4. Next Steps and Wrap up

- Create a list of action items and ask people to sign up as leads for items
- Have a sign-up for general volunteering and for participating on committees
- Schedule the next meeting
- Thank attendees for participation, invite them to stay for snacks
- Follow-up promptly after the meeting by distributing important minutes and the next steps action items list and key contact information

Appendix D: Descriptions of Garden Committee Positions

Garden committees provide valuable support to the success of any community garden project. It is important that committee members have clear roles so their time is spent effectively. Roles and time commitments will vary widely depending on the size of the garden and number of members. Listed below are some of the positions your group may wish to fill.

Coordinator works with stakeholders to manage the garden; coordinates and secures cooperation of participants and project partners and maintains continuity.

Registrar maintains the waiting list for people who want plots, runs spring registration, takes calls from interested gardeners, and assigns plots. At large gardens, a committee shares the work of the registrar.

Communications Facilitator makes sure gardeners are in touch through meetings, phone calls, mail and email. Receives comments, answers questions, and brings concerns to the committee.

Outreach Coordinator coordinates publicity for the garden and helps create a welcoming atmosphere for new members. At large gardens, this is sometimes done by a committee.

Treasurer collects garden fees and deposits them in a garden bank account, pays bills, authorizes spending in consultation with other gardeners, and sometimes manages grants that the garden receives. The treasurer also works with other garden volunteers to budget for the season and then approve expenses. At some gardens, there are two treasurers. It's a good idea to have several co-signers on the bank account for convenience and security.

Grounds Leader organizes work days to make sure that paths, common areas, hoses, fences, compost, greenhouses and other common resources are in order.

Education Leader organizes and publicizes events at the garden. Sets up educational workshops and connects new and experienced gardeners for mentoring.

Safety & Security Leader provides information on garden safety and accident avoidance, monitors the garden for safety hazards and addresses them, and makes sure first aid materials are on hand along with people with first aid knowledge. The Leader also works on strategies to minimize theft and vandalism.

Appendix E: Gardener Application

1. Gardener name:_____

2. Gardening partner(s):_____

3. Gardener Address: _____

4. Partner Address: _____

5. Gardener Phone: _____ Partner Phone: _____

6. Gardener E-mail: _____ Partner E-mail: _____

7. Did you have a plot at this garden last year? Yes ____ No____

8. Number of plots this year_____ Fee per plot $_____ Total plot fee paid $_____

Please let us know what areas you're interested in volunteering below:

__ Plot coordinator
__ Composting crew
__ Communications
__ Leadership team
__ Grounds crew
__ Events crew
__ Security
__ Horticulture advisors
__ Maintenance crew
__ Treasurer
__ Translation
__ Outreach & community relations

9. If you are a new gardener, would you like an experienced gardener to help you? __ Yes __ No

10. If you are an experienced gardener, would you like to help a new gardener? __ Yes __ No

11. Photo Permission: From time to time, gardeners, garden leaders and the media will take photos of the garden. **If you do not give your permission, please let photographers know when you encounter them at the garden.**

12. Phone and e-mail: All gardeners are required to share their phone number and e-mail address with garden leaders. In addition, a gardener phone and e-mail list is shared with all gardeners. Please check here ( ) if you **do not** give your permission to share your phone number and e-mail with all gardeners.

By signing below, I agree that I have read and understand the Gardener Guidelines and plan to abide by all of the garden rules. I understand that neither the garden group nor owners of the land are responsible for my actions. I therefore agree to hold harmless the garden group and owners of the land for any liability, damage, loss or claim that occurs in connection with use of the garden by me or my guests.

Signature: _____ Date: _____

Appendix F: Sample Community Garden Wish List

This list provides a good start for a community garden in identifying required tools and materials. Get input from the garden committee, volunteers and others with experience organizing a community garden.

Horticultural Items:

. Topsoil (triple-mix), compost, potting soil, seed starting mix

. seeds, bulbs, bedding plants, cover crop seeds

. perennials, shrubs, fruit bushes and shade trees

. manure, bone meal, blood meal, other natural fertilizers

. soil testing kit

. mulching materials such as shredded leaves, hay, shredded bark, wood chips, black plastic, corrugated cardboard

Equipment and Supplies:

. hand tools: forks, spades, shovels, trowels, rakes, hoes, cultivators

. pruning shears

. child-sized hand tools

. wheelbarrow and garden cart

. garden hose, soaker hose, drip irrigation systems and parts, spray nozzles

. hose reels, rain barrels, watering cans

. rototiller, chipper-shredder, mower, edger (these items may only be needed once a year so think about renting or sharing with another group)

. plant labels, plot markers, signs, indelible markers

. locks and chains or ideally a tool shed or storage bench

. fabric row covers, cloches

. gloves, kneeling pads

Appendix G: Potential Garden Site Checklist

Don't be deterred if your site doesn't meet all (or even most!) of the criteria below. This is an "ideal" list, but farmers and gardeners have long enjoyed successes in a wide range of 'adverse' conditions! Be sure to see Appendix O: Links & Resources for information on how to maximize your growing space.

1. Sun, shade, and wind

- ☑ At least six hours of direct sunlight per day and minimized shade
- ☑ Maximize protection from wind with trees, shrubs, buildings, fences

2. Changes in elevation (slope)

- ☑ Slope of 10° or less
- ☑ South facing slope if any
- ☑ Good water drainage
- ☑ Not too many constantly wet spots
- ☑ Not too many high & dry spots

3. Soil conditions and quality

- ☑ Loose texture, not compacted
- ☑ Neutral pH
- ☑ Sufficient nutrient content
- ☑ Not contaminated (check the history of the site): Salt, lead, car exhaust, industrial or other waste are possible contaminants

4. Existing resources

- ☑ Shed / Storage
- ☑ Bathrooms
- ☑ A source of water
- ☑ Electrical outlets
- ☑ Trash cans
- ☑ Compost bins

5. Accessibility

- ☑ Paved or smooth walkways
- ☑ Wheelchair access
- ☑ Raised beds, handrails and ramps where needed
- ☑ Close proximity to garden users
- ☑ Vehicular access (parking and loading/unloading areas)

6. Play and rest areas

- Nearby parks or play structures for children
- Open space in addition to the garden
- Benches or other places to sit

7. Safety and Security

- Neighbouring buildings with windows facing the garden
- Adequate entries and exits
- Fences (see note below)

8. Future expansion:

- Room to grow
- Support of land owner
- Long-term access to the site

Appendix H: Funding Sources in Ontario

City of Guelph: http://guelph.ca/cityhall.cfm?subCatID=1357&smocid=1940

Evergreen: http://www.evergreen.ca/en/funding

Guelph Community Foundation:
http://www.guelphcf.ca/ForbrCharities/GrantPrograms.aspx

Home Depot: http://www.homedepot.ca/foundation

Meridian Credit Union:
http://www.meridiancu.ca/meridian/community/Donations/Pages/default.aspx

Rona: http://www.rona.ca/content/rona-foundation-unleashing-potential-youth_profile_investor-relations

TD Friends of the Environment: http://www.fef.td.com/

United Way of Guelph-Wellington:
http://unitedwayguelph.com/apply_for_funding/apply

When applying for grants consider the following tips to help create successful applications:

- Develop the concept first. A fully developed idea can be transformed into a proposal more easily.
- Read all available material before beginning. Carefully read the guidelines, application form and other instructions before preparing an application.
- Prepare to invest some time. Gathering the needed information, establishing partnerships and writing a well-documented proposal takes time.
- Give examples. Back up proposals with examples, and demonstrate the need for the project with appropriate statistics.
- Make coherent transitions. Make sure that all parts of the proposal, from the goals and objectives to the action plan, budget, expected results, evaluation framework, and the plan for disseminating results, are logically connected and leave no loose ends.
- Keep it simple. Write clearly and avoid using jargon that others might not understand.
- Give complete responses. Answer all questions in sufficient detail so that a reader who is not familiar with the project can understand the goals, plans and expected outcomes.
- Ask for help if it's needed. Ask for advice from other organizations that have successfully applied for grants, and talk to representatives from the granting agency for advice or clarification if the group has questions.

Appendix I: Design Guidelines for Community Gardens

Adapted from Dig it! A practical Toolkit: How local governments can support community gardens, by Herb Barbolet, Co-published by: Ministry of Community Development and Union of British Columbia Municipalities. Spring 2009.

Guiding Principles for Designing and Planning Community Gardens

Celebrate food: Build outdoor facilities for outdoor eating that enable people to socialize and celebrate food.

Productive landscape: Choose plants that produce food or herbs. Edible flowers add a pleasing aesthetic.

Appearance: Design community gardens to be attractive and easily maintained.

Showcase: Use community demonstration gardens to profile urban agriculture practices, and locate gardens in communal spaces (e.g., courtyards and rooftops).

Think like a gardener: Design community gardens from the perspective of a user (e.g., think about wheelbarrow turning and loading zones).

Ecological health: Maintain community gardens with plant and soil health in mind. Promote the use of natural building materials, fertilization, and pest control.

Inclusiveness: Design for all mobility levels.

Safety: Ensure safety for all ages by pro-actively addressing potential hazards.

Eyes on the garden: Ensure that sites are highly visible to the surrounding community.

Connect to green space: Locate community gardens near trail systems and park areas whenever possible.

Long-term stability: Design the garden with growth in mind. Leave space available for additional plots or common areas.

Design for energy efficiency, effectiveness and sustainability: Organize the garden to ensure that the most commonly used amenities are most easily accessible.

Structural Design Suggestions for Community Gardens

When planning new community gardens, the following structural design suggestions should be considered:

Raised beds: Raised beds are useful when ground soil is contaminated. Beds should be a maximum of two feet wide to allow access from one side, and a maximum of four

feet wide to allow access from two sides. Where space is limited, a minimum of 32 sq. ft (4' X 8') is sufficient to grow a good range and quantity of produce. Wheelchair accessible gardens should be 24 to 48" above grade.

Soil: Soil depth for in-ground and raised beds should be a minimum of 6". Some vegetables require 12 to 18" of soil. Think about what you will be planting before building raised beds. If soil must be transferred to a site, test it for pH, nutrients, and contaminants.

Water: Having a site with water access nearby is essential. Plan your garden to allow for easy access to water from all garden plots. Rain barrels can collect rainwater to be stored and used in the garden as a sustainable source of water.

Easing movement in the garden: Gardens should be designed for easy movement of soil, plants, tools and water. One-foot wide paths between beds and two-foot widths between bed clusters are a minimum. Four-foot wide paths are required for full accessibility. Include space for vehicle access and loading areas. A small number of parking spots and a bike lock-up area should be available.

Composting: On-site composting is key to managing gardens and creating nutrient-rich soils. One three-stage composter is generally required for every 10-15 standard-sized (4' X 8') garden beds, or every 320-480 square feet.

Additional soil amendments: Additional amendments may be required beyond compost. Manure, fish meal, seaweed and other supplements should be considered. Cover crops could be used in winter months to maintain soil fertility.

Structures: On-site structures can include storage sheds, potting areas, greenhouses, benches, playgrounds, and harvest tables. These enhance the garden environment and provide spaces for people to gather.

Signage: Weather-protected bulletin boards help gardeners share information. Signage for garden plots and even crops can ease way-finding and create a special identity for the garden.

Fencing: Low, permeable fences can exclude wildlife and signal that the garden is a special place with specific rules. Green fences - edible shrubs and trees - are a friendly and attractive alternative to traditional fencing.

Special features: Community gardens can be enhanced by installing special features – such as a fruit tree orchard, beekeeping facilities, or demonstration plots. Feast tables encourage social activity in the garden and add value to the space. Demonstrations of container gardening for patios and rooftops can help encourage participants to also begin growing food at home.

Appendix J: Important Links and Resources

Support in Guelph-Wellington:

City of Guelph
List of existing Neighbourhood Groups:
http://www.guelph.ca/living.cfm?subCatID=1243&smocid=1827

Community Engagement Coordinator:
kelly.guthrie@guelph.ca, 519-822-1260 Ext. 2677

Everdale Environmental Learning Centre:
www.everdale.org, 519-855-4859

Guelph-Wellington Food Round Table's Community Garden Network:
http://gwfrt.com/working-groups/community-gardens/

Guelph-Wellington Master Gardeners:
http://www.gwmastergardeners.mgoi.ca/
mgguelph@hotmail.com, 519-824-4120 Ext. 56714

Guelph Centre for Urban Organic Agriculture:
http://www.uoguelph.ca/gcuof/
Martha-Gay Scroggins, mscroggi@uoguelph.ca, 519-824-4120 Ext. 53032

Perth, Waterloo, Wellington chapter of Canadian Organic Growers:
http://www.cogwaterloo.ca/ 226-251-3012

Upper Grand District School Board, Community Use:
Andrew.Seagram@ugdsb.on.ca, 519-822-4420 Ext. 800

Internet Resources:

The **Guelph Wellington Food Round Table** has links to a wide array of websites and documents on planning and organizing community gardens, growing tips and teaching resources: http://gwfrt.com/resources/

Other websites of interest include:

City Farmer: http://www.cityfarmer.info/

Compost Council of Canada: http://www.compost.org

Farm Folk, City Folk: http://www.ffcf.bc.ca/

Foodshare: http://www.foodshare.net/garden01.htm

Grow Veg Grow Guides: http://www.growveg.com/growguides.aspx

Harvest to Table: http://www.harvestwizard.com/

Planet Friendly: http://www.planetfriendly.net/organic.html

Appendix 3

From the Ground Up

sources

To develop this guide, Toronto Public Health used information from literature reviews, experiences in other jurisdictions, consultations with gardeners and experts, information on soils in the City of Toronto, and a pilot study of five proposed gardens. The full report, entitled *Assessing Urban Impacted Soil for Urban Gardening: Decision Support Tool Technical Report and Rationale,* is available at: toronto.ca/health/lead/soil_gardening.htm

disclaimer

This Guide is for general information only. The City of Toronto assumes no liability for how the Guide is used and interpreted, or for the accuracy or completeness of the Guide. The City makes no warranty or representation as to the suitability of soils for gardening or other circumstances applicable to individual gardeners. It is the sole responsibility of the individual to ensure that conditions are suitable for gardening at their chosen location.

contact us

For City of Toronto information about your site and to provide feedback on these guidelines, please contact 311 or 416-392-2489 (phone outside of city limits).

October 2013

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summary

guide for soil testing in urban gardens

Cities are great places to grow food, but they can also have issues with soil contamination. This guide is for people who want to start an urban garden and want to get more information about the safety of their soil.

Follow these three steps to check your soil quality and to take actions to reduce your risks:

Step 1

Establish the level of concern

Step 2

Test the soil

Step 3

Take actions to reduce risks

step 1

establish a level of concern

The initial step is to assess whether the soil may be contaminated by past activities on the land. This is done by inspecting the site and researching the history of the garden site.

Doing a site visit and searching the site history will help you determine if your site is:

- Low
- Medium or
- High Level of Concern

The Level of Concern gives you the next steps for your site: **actions to reduce risks** from exposure to soil contaminants, and in some cases, soil testing.

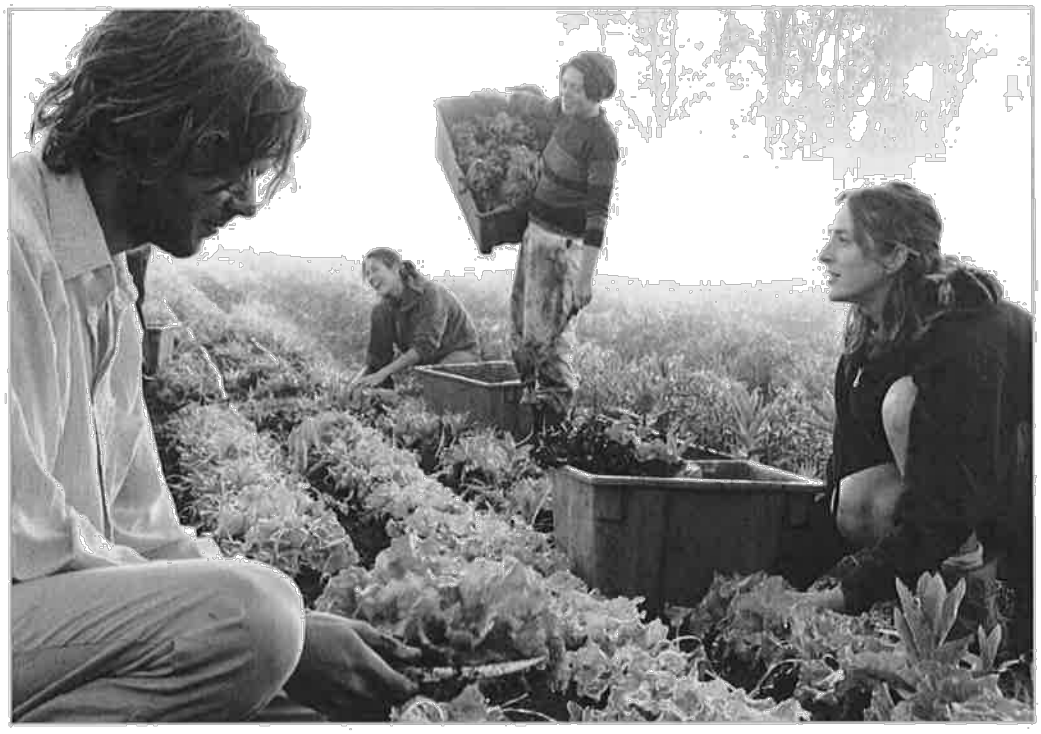


Photo credit: Everdale

what to look for when determining a level of concern

You are looking to find out if your site, or a site close by, is or once was (going back to the earliest records):

low concern

- ☐ residential
- ☐ parkland
- ☐ farmland
- ☐ childcare centre or school

medium concern

- ☐ risk managed park
- ☐ orchard
- ☐ infill area
- ☐ hydro corridor
- ☐ commercial land uses (excluding gas station, dry cleaner, printing or autobody shop)
- ☐ located within: a former landfill; former lead reduction zone; or 30 m from a rail line or major arterial road
- ☐ industrial land that has been remediated

high concern

- ☐ gas station
- ☐ drycleaner
- ☐ printing shop
- ☐ autobody shop
- ☐ industrial land
- ☐ rail line or railyard industrial land
- ☐ site reveal signs of dumping or burning, smells or staining of the soil

For definitions and instruction on how to find out if your site is or once was any of these land uses, please see Page 6.

conduct site visit

Purpose: Inspect the site to help you determine the Level of Concern.

A site visit involves walking through the area and inspecting the site thoroughly. Use the following checklist to find the information you need.

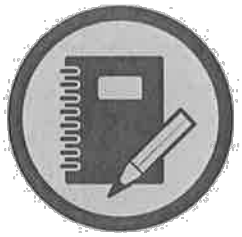
Site visit checklist

Materials needed

☐ Work Boots

☐ Work Gloves

☐ Shovel



☐ Notebook & Pencils

1. Make a Site Diagram

☐ Sketch a quick diagram of the site, showing its size, location and surroundings.

☐ Look around, and note on your diagram:

- Land use of site (residential, commercial, industrial, school, park, etc.)
- Neighbouring land uses (immediately next to the garden site)
- Estimated distances to a major arterial road[1] or railway lines.

1 Roadways with traffic frequencies greater than 20,000 vehicles per day, speed limits of 50 to 60 km/h, no stop signs (traffic lights control intersections), and frequent use by city buses. Find your street on the City of Toronto Road Classification System, available at: toronto.ca/transportation/road_class/index.htm.

2. Walk the site

- ☐ Walk each section and note on your diagram any signs of:
  - Stained soil
  - Unusual odours
  - Trash or debris (household garbage, litter (in unusual quantities), old tanks and pipes, construction/demolition debris[2])
  - Burned patches
  - Old equipment, pipes or tanks
  - Dead or dying plants
- ☐ Pick a few random spots and dig into the soil. Look out for all of the signs identified in the list above.

3. Talk to the neighbours

- ☐ Ask what the site was used for in the past
- ☐ Ask about any dumping or burning on the site that they have noticed
- ☐ Make notes of your conversations, marking the activities and locations on your diagram

2 Potentially asbestos-containing materials (e.g., drywall joint compound, mechanical insulation, roofing materials, floor and ceiling tiles, fire doors). Potentially lead-containing material (paint chips, plumbing solder, old pipes). Potentially PCB-containing material (old electrical equipment such as transformers, fluorescent lamp ballasts, capacitors).

conduct site history

Purpose: Learn about your site to help you determine the Level of Concern.

A site history involves:

- searching the City archives
- calling 311 to search additional City records to find out if your site was once a risk managed park, infill area, former landfill or lead reduction zone

Use the following checklist to find the information you need.

Site history search checklist

1. Get your site searched in the City of Toronto databases

Call 311 and ask to have your site searched by Toronto Public Health in the following:

- ☐ Historical Land Use database
- ☐ Risk Managed Park
- ☐ Lead reduction zones
- ☐ Infill zones
- ☐ Landfill database
- ☐ Toronto Public Health records of environmental site assessments

Please note: it could take up to several days for this research to be completed.

2. Visit the City of Toronto Archives

255 Spadina Road (short walk from Dupont Subway Station)

416-397-5000 ▪ toronto.ca/archives ▪ 9:00 a.m. to 4:30 p.m. ▪ Monday to Friday

The Archives are open some Saturdays, but certain materials may not be available on the weekend. Admission to the Archives is free. You will need to register as a researcher to get access to the Archives materials. This is a simple step that requires you to provide identification that includes your address and agree to comply with Archives rules.

It will probably take two to three hours for you to research a single site at the Archives. If you identify any indicators of High Concern, you can stop searching.

What to do at the Archives

☐ Register and sign in

☐ Check the Street Names Binder

Check the Street Names binder for your municipality. Look up the street name for your site to determine if and when the street name has changed. You will need this information when you check the City Directories and Fire Insurance Plans.

☐ Use the maps

Use the Building Construction Dates map to look up the date the neighbourhood around your site was developed.

☐ Check the databases

Use the following resources to look up the historical uses of your site and of immediately surrounding sites. Start with the editions produced soon after the neighbourhood was developed, and proceed forward in time.

- City Directories (this resource will tell you the types of businesses that were around the site in question)
- Fire Insurance Plans (these will show the lot sizes and the type of structures that were present on or around the site)

☐ If needed, check additional databases

If the resources above do not provide enough information, use the following resources to look up the historical land uses of your site and immediately surrounding sites:

- Assessment rolls
- Aerial photographs (these will help you see if it was a residential area or industrial area, etc.)

putting it all together

Now you have got all the information you need to determine the Level of Concern for your site and the next steps.

Table 1: Putting it all together - Establishing a Level of Concern and Next Steps for your site

level of concern	definition	next steps
low concern	• Garden site has always been residential, parkland, farmland, child care centre or schoo	Take Action Level 1 (see Page 20)
medium concern	• Garden site is or has once been a risk managed park, orchard, hydro corridor, infill area, commercial land uses (excluding gas station, dry cleaner, printing and auto body shop) • Garden site is located within: a former landfill; former lead reduction zone; or 30 m from a rail line or a major arterial road • Industrial land that has been remediated	Test the soil (see step 2)
high concern	• Garden site is or has once been a gas station, dry cleaner, print shop, auto body shop, rail line or rail yard • Is or has once been industrial land • Garden site reveals indications of dumping or burning, smells or staining in the soil	Take Action Level 3 (see Page 20)

things to consider for *all* sites

Soil quality is an important consideration for anyone growing food in the city. The only way to know for sure about the safety of your soil is to test your soil. Alternatively, you can use raised bed or container gardens with clean soil.

Interior and exterior house paint contained significant amounts of lead until the early 1990s. The soil surrounding buildings painted with lead-based paint may be contaminated with lead. Using raised bed or container gardens is the best way to avoid exposure to lead contaminated soil. Add clean soil and compost every year. Plant non-edibles directly beside buildings.

If you are planting a garden on public land (e.g., park or hydro corridor) or you are a developer using part of your commercial or industrial land for a garden, there may be regulatory requirements for soil sampling. Call 311 or refer to the full report for more information at: toronto.ca/ health/lead/soil_gardening.

Photo credit: Everdale

step 2

test the soil

Toronto Public Health recommends testing the soil if the planned garden is on a Medium Concern site AND if the garden is larger than 16 m^2 (170 ft^2) or 4 X 4 m (13 X 13 ft). Testing the soil consists of taking a soil sample, having it analyzed, and interpreting the results. It is not cost-effective to conduct soil testing for small gardens. This is based on estimates of the cost of soil testing versus building a raised bed garden. If you have a small garden in the Medium Concern category go to Action Level 3 (see Page 20).

Toronto Public Health developed Urban Gardening Soil Screening Values (SSVs) to ensure that gardeners are not exposed to unsafe levels of soil contaminants through contact with garden soil and consumption of garden produce (see Table 2, Page 17). In deriving the SSVs, we considered public health, children's exposure, background levels of soil contaminants, and other sources of exposure to contaminants.

soil sampling

Purpose: Collect a representative soil sample of the site. A composite soil sample is made up of two or more combined sub-samples to represent an area of the garden.

Use the following checklist to walk you through taking a soil sample.

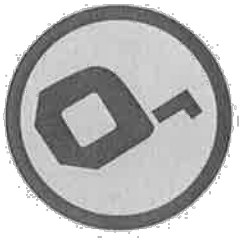
Photo credit: Don Nichols

Soil sampling checklist

Materials Needed

☐ Work Boots

☐ Work Gloves



☐ Measuring Tape

☐ Trowel

☐ Shovel

☐ 2 Clean Plastic Buckets (9L each)

☐ Resealable Bags (3.7L)

☐ Cooler & Ice Packs

☐ Notebook & Pencils

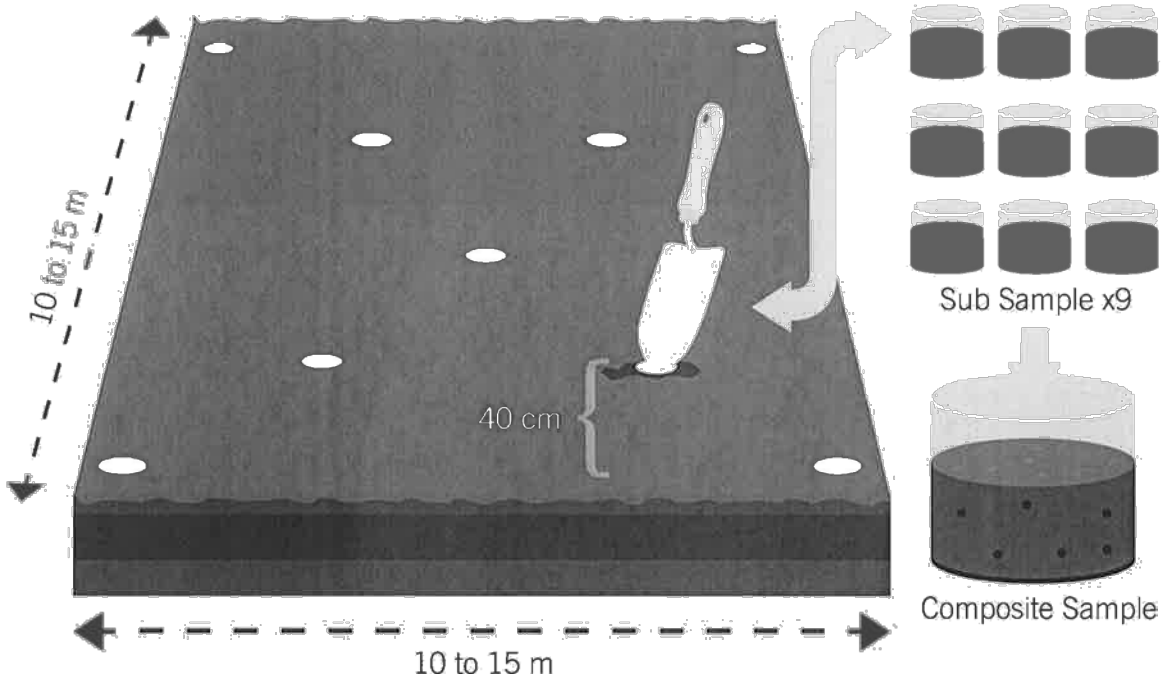
☐ Large Black Permanent Marker

☐ Tape, Pylons or Rope (Something to mark boundary of proposed garden site)

Create a diagram and plan where you are going to take your soil samples:

- Make note of the name and address of the property
- Draw a line around your garden using pylons, tape or rope. The soil sample should be taken from the area that the gardeners use. A typical community garden will need only one or two soil samples. We recommend that a composite soil sample is taken every 10 x 10 to 15 x 15 m area (approximately 50 x 50 ft). Starting at one corner of the composite soil sampling area, walk diagonally to the far corner and repeat, making an "X" pattern. Mark the location of a sub-sample approximately every 2.5 m (8 ft) using a pylon or some other marker. This is where you will take your sub-samples of soil that will make a sample. For gardens larger than half an acre, call 311 for help
- Note the location of the sub-samples on your diagram

Figure 1: Soil Sampling Area



Soil sampling checklist

Sample the soil

- Strip off turf or other vegetation from the sub-sample spot
- Take shovel and dig into soil down to 40 cm (16 in)
  Place sub-sample soil into Bucket 1
- Break up and mix the sub-sample soil in Bucket 1
- Remove stones and visible debris
- Note the presence and type(s) of debris, smells, and staining in your field notes
- Transfer a trowel full of the mixed soil from Bucket 1 to Bucket 2
- Refill the hole with the remainder of the soil in Bucket 1, and replace the turf
- Repeat until nine sub-samples have been collected separately in Bucket 1 and transferred to Bucket 2

Create composite soil sample

- Mix the combined sub-samples in Bucket 2 to make the composite.
- Label sample bag with:
  - name of site
  - sample number
  - sampling date
  - name(s) of person(s) doing the sampling
- Transfer the mixed soil from Bucket 2 to the labeled sample bag
- Seal the sample bag and place it in a cooler with ice packs

Note: If you are creating more than one composite sample, all equipment should be washed with soap and water between the composite samples. There is no need to wash the equipment when taking sub-samples.

The laboratory will tell you how much soil you need. Typically, each composite soil sample is approximately 2 cups (2 small trowels of soil). Each laboratory is different and prices change over time. You should expect to pay between $150 to $300 for each composite soil sample.

soil analysis

Purpose: Select a laboratory for the soil analysis and tell the lab staff what analyses you would like them to do.

Toronto Public Health has identified a list of the most likely contaminants present in Medium Concern sites (see Table 2, Page 17). Use the following checklist to walk you through getting your samples analyzed.

Soil Analysis Checklist

1. Select a laboratory able to do the analysis

☐ Find qualified labs in your area through:

- Standards Council of Canada (SCC) or the Canadian Association for Laboratory Accreditation (CALA). You can find the contact information for these organizations through an internet search
- Yellow Pages (heading: Laboratories – Analytical & Testing)
- Internet search (keywords: environmental analytical laboratory Toronto)
- Ask the lab if they are accredited by the SCC or CALA, and if they meet the MOE Reg. 153 method detection limit for the metals and PAHs

Photo credit: Lauren Baker

2. Contact the Laboratory

- [ ] Get in contact with your chosen lab several days before you take the samples to:
  - Confirm price and turnaround time
  - Obtain a chain of custody form. The chain of custody form provides information on you (the client), the samples, and the analyses that you want
  - Tell the lab when you expect to deliver the samples
  - Obtain instructions for handling the samples and delivering them to the lab

3. Fill out a Chain of Custody Form

- [ ] Fill out the chain of custody form and keep the required copies with the samples
  - Every lab's form differs, but you will have to indicate that you want the soil tested for pH values, metals and PAHs. Write out the full name of each one listed in Table 2 on Page 17
- [ ] Contact the lab for advice if you have any difficulty with the form
- [ ] Soil interpretation
  - Ask the lab to interpret the soil samples according to the contaminants and the Soil Screening Values for urban gardening listed in Table 2 on page 17

4. Deliver Samples to the Lab

- [ ] The laboratory will provide instructions
- [ ] Deliver or ship samples to lab within one day of sampling. Some laboratories will pick up the soil sample
- [ ] Keep samples refrigerated or in a cooler between the time you take them and the time you deliver or send them to the lab

interpreting the results

Purpose: Compare the soil test results to the two sets of Urban Gardening Soil Screening Values (SSVs) shown on Page 17 to determine which Level of Concern and Action Level applies to the garden site.
If you have difficulty interpreting the results, call 311.

Interpret the soil tests, confirm the Level of Concern and take appropriate action.

Compare the concentration of each contaminant identified in the soil test results with the Urban Gardening Soil Screening Values (SSVs) shown in Table 2 on Page 17.

Your soil test will confirm whether your site is Low, Medium or High Concern, depending on what is found in your soil sample. For example, based on Step 1 (site history and visit), you may have concluded that your site is Medium Concern. However, after you have the soil tested, you may find that the levels of contaminants are high and that your site falls into the category of High Concern.

Photo credit: Lauren Baker

Table 2: Urban Gardening Soil Screening Values (SSVs) (mg/kg)

metals	ssv 1	ssv 2
Arsenic (As)	11	110
Cadmium (Cd)	1.0	10
Cobalt (Co)	23	170
Chromium, total (Cr)	390	630
Chromium, VI (CrVI)	5.0	5.0
Copper (Cu)	180	660
Mercury (Hg)	2.7	2.7
Molybdenum (Mo)	13	13
Nickel (Ni)	34	340
Lead (Pb)	34	340
Selenium (Se)	10	11
Zinc (Zn)	500	1800
pahs		
Acenaphthene	0.050	0.32
Acenaphthylene	0.093	0.47
Anthracene	0.58	0.58
Benz(a)anthracene	0.23	2.3
Benzo(a)pyrene	2.3	3
Benzo(b)fluoranthene	0.23	2.3
Benzo(g,h,i)perylene	0.10	1.0
Benzo(k)fluoranthene	0.23	2.3
Chrysene	0.099	0.99
Dibenz(a,h)anthracene	0.77	0.77
Fluoranthene	0.14	1.4
Fludrene	0.99	0.39
Indeno(1,2,3-c,d)pyrene	0.23	2.3
Phenanthrene	3.1	3.1
Pyrene	0.11	1.1

NOTE: Some of the SSV1 and SSV2 values are the same. Please refer to the Technical Guide for an explanation. The contaminants in the Table are used as indicators to guide gardeners to take appropriate actions. Units can be expressed as mg/kg, µg/g, ppm or parts per million.

interpreting results

Use the Soil Screening Values (SSVs) to interpret the soil test results, confirm the Level of Concern, and take the appropriate action.

The SSVs are different than the soil standards developed by the provincial government. Toronto Public Health developed Urban Gardening Soil Screening Values specifically for gardening in Toronto.

If the concentrations of all of the contaminants are below the SSV 1, then the site is Low Concern:

action level 1

Recommended

If the concentration of any contaminant is over the SSV 1 level, but lower than the SSV 2, then the site is Medium Concern:

action level 2

Recommended

If the concentration of any contaminant is above the SSV 2, then the site is High Concern:

action level 3

Recommended

See Page 20 for Action Level 1, 2, and 3.

Photo credit: Everdale

step 3

take action to reduce risks

Gardeners can take many simple and inexpensive actions to reduce their exposure to urban soil contaminants.

Depending on the Level of Concern for your site, there are three different levels of recommended actions to reduce your exposure to soil contaminants. Table 3 on Page 20 summarizes the three Action Levels.

There is a higher likelihood that many contaminants are present in the soil of High Concern sites. It is not economically feasible to test for all the possible soil contaminants. Therefore, we recommend that raised bed or container gardens or fruit and nut trees are used at these sites.

Photo credit: Lauren Baker

Table 3: Levels of Concern and Recommended Actions to Reduce Gardeners' Exposures to Soil Contaminants

low concern ↓ **action level 1**	Use good gardening practices: • Wash your hands after gardening and always before eating • Wash produce with soap and water
medium concern ↓ **action level 2**	Use good gardening practices AND: • Lower the concentrations of contaminants by adding clean soil and organic matter (compost and manure) to the existing soil. Adding organic matter will also improve the pH level of the soil • Reduce dust by covering bare soil with ground cover or mulch. Peel root vegetables before you eat or cook them • Avoid growing the types of produce that accumulate soil contaminants (See list on next page)
high concern ↓ **action level 3**	Use good gardening practices AND: • Reduce dust by covering bare soil with ground cover or mulch • Build raised bed gardens (add a minimum of 40 cm/16 in. of clean soil on top of garden fabric), or grow food in containers • Add clean soil and organic matter annually (compost and manure) to the raised bed or containers OR • Grow only nut and fruit trees (not any other types of produce)

take action to reduce risks

For Medium Concern Sites – avoid certain plants that can accumulate soil contaminants
Various plants types are different from each other, and so is their uptake of contaminants. Some plants will uptake some soil contaminants, while others do not at all. Some plants will uptake contaminants only in the parts of the plant that we don't eat. We recommend for Medium Concern sites:

- Eat only the fruit, seed or grain (not the leaves, root, or shoot) for the following plants:
  - tomato
  - corn
  - barley
  - oat
  - rice
  - rye
  - sunflower
  - wheat
  - soybean
- Grow these plants in raised bed or container gardens:
  - alfalfa
  - amaranth
  - beets
  - carrots
  - chicory
  - dandelion
  - endive
  - garden pea
  - lettuce
  - mushrooms
  - radish
  - rice (wild)
  - sorghum
  - sorrel
  - spinach
  - brassicas (broccoli, brussel sprouts, cabbage, cauliflower, kale, kohlrabi, mustard greens, canola, turnip)

Action Level 2 measures will reduce the concentration of soil contaminants over time. Therefore, after two years of implementing Action Level 2 measures, consider testing the soil again. If the tests show that the site is now a Low Concern site, you can start growing these plants in the garden soil.

let's work through an example together

Suzanne is a community youth worker in Toronto. Her workplace backs onto a hydro corridor. She wants to start a community vegetable garden in the hydro corridor.

step 1
establish a level of concern

Once she got permission to build a garden, she researched the hydro corridor site and discovered that before it was a hydro corridor, it was agricultural land. Suzanne does a thorough walk through the proposed garden site. She uses a shovel to turn over the soil in various locations and doesn't notice any indication of garbage dumping, soil staining, or strange odours coming from the soil. Suzanne classifies her site as Medium Concern (hydro corridors are Medium Concern sites).

Photo credit: Elena Elisseeva

step 2
test the soil

Suzanne is planning a garden that is 15 by 15 m (50 x 50 ft). This classifies her garden as a large garden so she notes that soil sampling is recommended for her site.

She does an internet search and after a few phone calls, finds a laboratory that will analyze her soil samples for the metals and PAHs (listed in Table 2 on Page 17), for the best price.

For the size of her garden, Suzanne notes that she only needs one sample to send to the laboratory. The laboratory she is working with sends her a container for her composite soil sample with instructions on how much soil is needed.

Suzanne starts her soil sampling by making a detailed map of her garden site. She then draws a line around her garden using pylons. She starts in one corner of her garden and walks in a diagonal line to the far corner and repeats, making an "X" pattern across her garden.

Suzanne takes a soil sample approximately every 2.5 m (8 ft) by digging into the soil down to 40 cm (16 in) and putting that soil sub-sample into a standard sized bucket (Bucket #1).

She makes sure to include soils from just below the grass line down through to 40 cm. She removes the grass and other vegetation from the soil sample. Suzanne mixes the soil around and then takes a sub-sample from Bucket #1 and transfers a scoop of the soil to Bucket #2. She empties the soil from Bucket #1 back into the hole that she just dug. Suzanne then goes on to dig her next sub-sample.

When Suzanne has collected all of her sub-samples (nine will do) in Bucket #2, she mixes all the soil in the bucket, turning over the soil multiple times making sure to mix the soil completely. Suzanne then takes a scoop or two and puts it in the container (either the laboratory will provide it or you can use a sealable plastic bag). Suzanne labels the bag providing all the information that the laboratory needs (e.g., date, contact person, contact information, site name). She stores the soil sample in a cooler with ice packs for shipping or until the laboratory picks up the sample.

In about a week, Suzanne receives the laboratory results. She compares her soil sample to the Urban Gardening Soil Screening Values (SSVs). She is particularly concerned about lead and arsenic levels. The lead level for her soil is 2.4 mg/kg, while the arsenic level is 1.3 mg/kg.

Suzanne compares all of the soil contaminants and determines that they are all below the SSV1. She classifies her garden as a Low Concern site, even though it was originally thought to be Medium Concern.

step 3
take action to reduce risks

Suzanne proceeds with her garden plan, makes sure to let all her gardeners know that they need to take Action Level 1 measures to reduce their exposure to urban soil contaminants: wash their hands after gardening and wash all the produce with soap and water before eating.

Call 311 toronto.ca/health | TORONTO Public Health

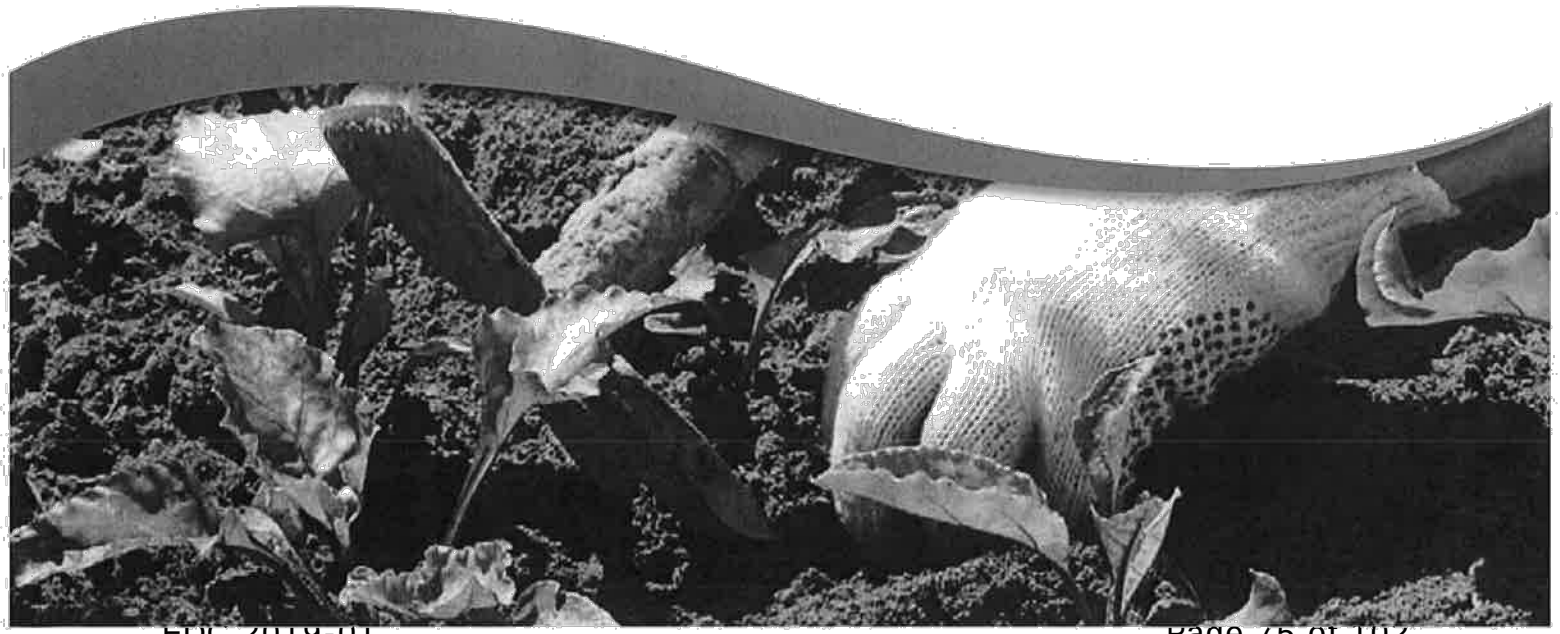
BARRIER-FREE Community gardening in Waterloo Region

Region of Waterloo
PUBLIC HEALTH

Community Garden Council of Waterloo Region
"Growing Healthy Communities"

Opportunities waterloo region
Igniting bold solutions to poverty

The Ontario Trillium Foundation
La Fondation Trillium de l'Ontario



Barrier-Free Gardens

Barrier free gardens provide an opportunity for everyone to garden. These gardens remove physical barriers that prevent people with mobility or sensory challenges from taking part. This guide takes the reader through the steps of planning and designing a "barrier free" garden. This guide is another step along the path of building an inclusive community garden movement in Waterloo Region.

Why a barrier-free community garden guide?

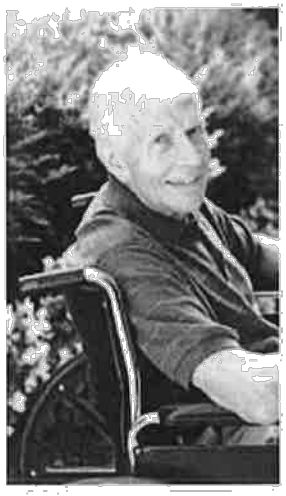
The way we design and build our communities may help people experience a sense of belonging and feel more secure. It also helps people get around and exercise more despite activity limitations. This improves overall health. (Paraphrased from CABE London UK)

Who may encounter barriers?

A 2011 study of garden coordinators reflects on some physical barriers experienced by participants in community gardens (Region of Waterloo Public Health, 2011):

- 47.4% have difficulty bending or limited flexibility
- 21.1% have difficulty walking in the garden
- 15.8% are unable to use regular garden tools due to physical challenges
- 10.5% may experience confusion or memory loss that limit experiences in the garden
- 5.3% have difficulties with hearing and vision

Activity limitations—Our community is changing in many ways. More and more residents are experiencing activity limitations. These limitations are imposed by a condition or a long-term physical or mental health challenge that has lasted (or is expected to last) six months or more (Canadian Community Health Survey, 2003)




How many people are impacted in Ontario and Waterloo Region?

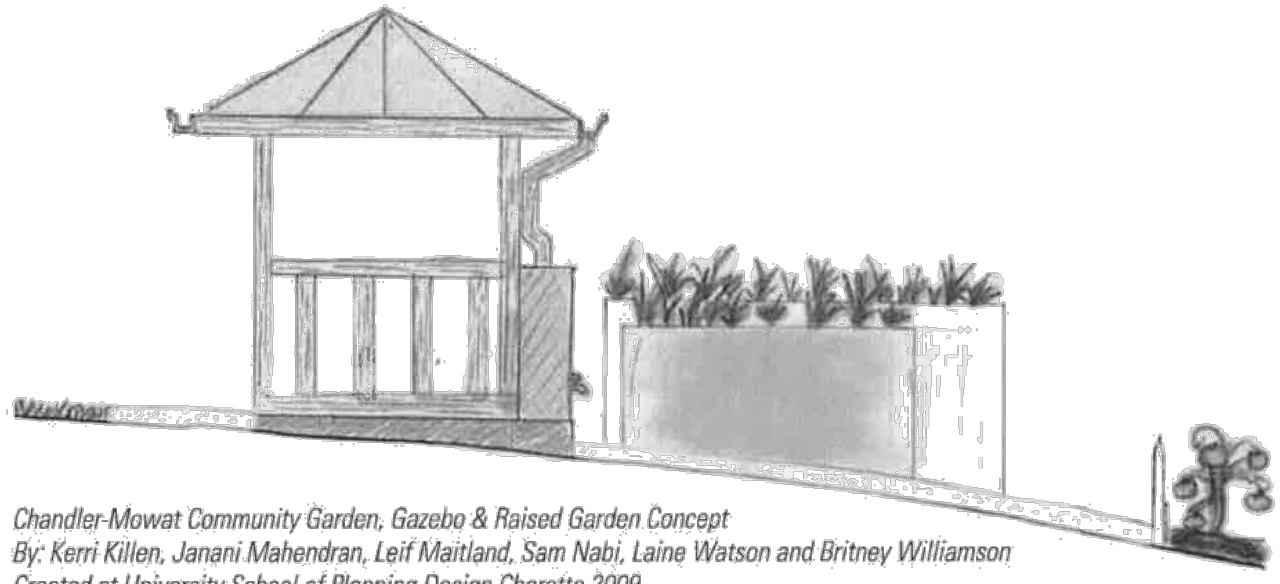
According to Statistics Canada 15.5%, or one in seven, of Ontarians have a disability (Statistics Canada, 2006); that's about 18.5 million people. These people are active participants within our communities, contributing to local economies and accessing local services. As the population ages over the next 20 years, the number of Ontarians with Diasbilities is expected to grow to one in five people (Beer, Charles, 2005). Creating accessible services and facilities for people with disabilities is essential to meeting the needs of this significant number of Ontarians (Region of Waterloo Public Health, 2011).

The population is also experiencing a growing number of seniors, as of 2009, people 65 years or older comprised 11.7% of Waterloo Region's total population (Statistics Canada, 2010a). The fastest segment of the senior population is the 80 plus age group, reflecting a steady increase in life expectancy (Waterloo Region Community Assessment Report, 2011).

What are our responsibilities?

In 2005, Ontario passed the *Accessibility for Ontarians with Disabilities Act*. Its purpose is to implement and enforce five accessibility standards; customer service, transportation, information and communication, employment and the built environment (Beer, C, 2010).

Barrier-Free Community Gardens are in line with Region of Waterloo's accessibility strategy (Region of Waterloo Public Health, 2011): "The Regional Municipality of Waterloo will continually strive toward achieving an environment that is free of barriers for individuals with disabilities consistent with our requirements under the Ontarians with Disabilities Act, 2001 and the Accessibility for Ontarians with Disabilities Act, 2005".



Chandler-Mowat Community Garden, Gazebo & Raised Garden Concept
By: Kerri Killen, Janani Mahendran, Leif Maitland, Sam Nabi, Laine Watson and Britney Williamson
Created at University School of Planning Design Charette 2009

Before you get started

It is essential to work with your community before designing and building a barrier-free garden

1. Involve the community. Are they supportive in having a barrier-free garden?
2. Assess your neighbourhood. What are the demographics, needs and capacities?
3. Select your garden site. Is there a place to park nearby or are there accessible pathways to the garden? Will a garden grow there?
4. Involve people who want to garden, but experience physical barriers.
5. Form community partnerships with key people in the neighbourhood (businesses, neighbourhood associations, community centres, community volunteers, senior's centres or faith groups, etc.).
6. Contact the local city planning department to find out what kind of permits are needed.
7. Reconfirm the garden designs with stakeholders and determine roles and responsibilities.

For effective tools on community engagement strategies, see the following online resources:

- Tamarack Institute for Community Engagement: A Canadian Institute dedicated to the art and science of community engagement and collaborative leadership. **http://tamarackcommunity.ca**
- Citizen Engagement Toolkit — Alberta Urban Municipalities Association: **http://www.auma.ca/live/AUMA/Toolkits+%26+Initiatives/Citizen_Engagement_Toolkit**
- Tools for Community Engagement — Islands Trust, BC: **http://www.islandstrust.bc.ca/climatechange/pdf/communityengagementtools.pdf**
- International Association of Public Participation Toolkit: **http://iap2.affiniscape.com/associations/4748/files/06Dec_Toolbox.pdf**
- ICSP Toolkit — Ontario: **www.amo.on.ca/Content/NavigationMenu/SustainableMunicipalities/FederalGasTax/IntegratedCommunitySustainabilityPlan/default.htm**
- South Lanary, UK — Wheel of Participation (another model of the spectrum): **http://www.mercury.org.au/PDFs/Wheel%20of%20Participation.pdf**
- Effective Engagement: A Guide to Principles and Practice (Scotland): **www.drugmisuse.isdscotland.org/goodpractice/EIU_commeng.pdf**

Be cautious when choosing materials for water containers, pathways or garden containers—ask if it is environmentally safe to use when growing food. Avoid using materials made of polyvinyl chloride, lead, rubber tires, old railway lumber and some treated woods.
(Salamone, M.F., Westlake, G., 1998; Health)

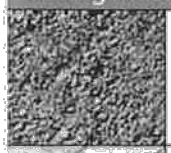
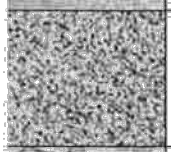
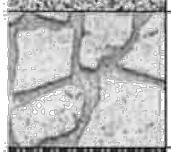
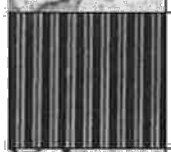
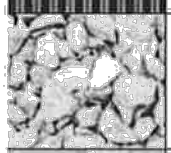
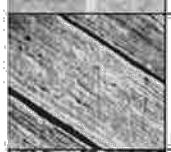
Accessible pathways

Accessible pathways and entrances are vital for easy movement throughout the garden. Garden paths must be level, firm, with little slope, slip-free with traction, and wide enough to turn a wheel chair around—a minimum of 152 cm (Larson, Hancheck, & Vollmar, 1996). All gates or doorways, ramps and walkways should be 90 cm wide for single wheelchair passage or 180 cm for two-way passage. (Shoemaker, C.A., 2005)

Pathways require a gentle slope; anything steeper than 2.5% will be difficult for most manual wheelchair users (Department for Transport UK, Retrieved 2010). Use steeper slopes sparingly for short distances; a slope more than 8% will be too difficult. A cross fall camber less than two percent is necessary to prevent slipping hazards with pathways that have poor drainage (Ferguson, M., Retrieved July 7, 2010).

Pathway surfaces are easier to use if hard surfaces are paved or, decomposed granite, or packed crushed stone/gravel is used. Grass turf surfaces and wood chips are very difficult for people with a wheelchair, walker or stroller to use. Choose porous materials and avoid using materials prone to lift with frost. (Shoemaker, C.A., 2005).

Pathway Surface Table

Paving Material	Comments
 Asphalt	• Absorbs and radiates heat and can get very hot • Can develop cracks after freezing • Develops slippery, oily sheen when wet • Can emit smell of tar/camphorated oil on hot summer day
 Brick	• Expensive and must be installed properly • Requires seasonal maintenance as brick may lift or crack in severe climate • Paving bricks are recommended over building bricks
 Concrete	• Expensive • Glare can be a problem for people with visual difficulties • Added colour and texture can help people with vision problems • Porous pavement system recommended
 Decomposed granite or crushed stone	• Is readily available • Good for wheelchair use but not for people using crutches • Comes in natural tones of tan and brown • Needs a weed barrier underneath such as weed-block fabric or plastic
 Flagstone	• Need to be even surfaced • Must set firmly in sand or mortar base with very narrow joints • Can be slippery when wet and wobbly to walk on • Encourages growth of moss and lichen
 Portable rollout mobility mats	• Portable and removable rollout • Corrugated surface provides traction • Good for wheelchair users and strollers • **Caution:** product material and risk of chemical leeching • Light weight and easy to install • Flexible and conforms to the ground • Coloured mats provide visibility markers
 Screenings	• Comes in large and small limestone pieces • Not recommended for people using canes, wheelchairs or walkers
 Tile	• Earth tones can complement garden area • Can be very slippery when wet • Used only as accent edging
 Wood decking	• Can be slippery when wet • Can be expensive • May be labour intensive to maintain
 Wood chips and turf	• Not recommended for people using canes, walkers or wheelchairs

Adapted from Woy, J. (1997), Community Action Coalition for South West Wisconsin, Inc, 2010

Accessible garden plots and pots

Raised Beds

Raised beds are garden structures built at varying heights for people with different abilities to sit or bend. Varying designs and heights can be used. Rasied beds can be rectangular, L-shaped or circular. They can be at ground level for people who prefer to garden while lying on a mat, built higher to accommodate wheelchairs, or built at waist level for gardeners who have difficulty bending.

Some gardeners may prefer to sit on the edge of the garden bed. Install a wide sturdy ledge for seating (about 20–45 cm wide)(Larson, Hancheck, & Vollmar, 1996; Rothert, G., 1994). Ledges at different levels can provide space for leaning, sitting or kneeling. A ledge also provides a space to place tools.

Raised-bed Size Guide

Raised beds can be hand-made from a variety of materials like cement blocks, wood or stone. Commercial beds are also available. Some community gardens have even adapted picnic tables for their raised beds. However, the container must be safe and able to sustain the pressure of the soil and have good drainage.

The container soil needs special attention. A good mixture is one part organic material (peat moss, compost, leaf mold, or dehydrated cow manure) to ten parts screened topsoil. Use a layer of coarse gravel, broken rock, or sharp sand beneath the soil for drainage. Raised beds with good drainage will need more watering (Woy, 1997).

A raised bed can be a simple raised rectangular or square structure filled with soil atop a layer of gravel for drainage. Alternatively, it may also have a planter box installed atop a false bottom. The planter box should be at least 21–26 cm deep and use light weight soil. The average height for a bed to accommodate a standard wheelchair is about 61 cm high.

The person in the wheelchair will garden seated along the side of the bed and will benefit from the use of specially designed garden tools. A similar structure for the gardeners unable to bend is a rectangular structure about 76–91 cm high depending on the height of the gardener in question (Larson, Hancheck and Vollmar, 1996; Rothert, G, 1994).

The recommended width for both structures is 76 cm for one-sided access and one and a half metres for access on both sides. More complex structures can be designed with ledges or planter boxes that allow for knee or armrest clearance. These structures accommodate the wheelchair better and allow the person to garden face on.

Gardener	Maximum Height (metric)	Maximum Height (imperial)	Maximum Width (metric)	Maximum Width (imperial)
Men				
Standing	99–102 cm	39–40 inches	91.5 cm	36 inches
Seated but able to stand	76 cm	30 inches	63.5 cm	25 inches
Chairbound	61 cm	24 inches	40.5 cm	16 inches
Women				
Standing	89–94 cm	35–37 inches	91.5 cm	36 inches
Seated but able to stand	68.5 cm	27 inches	53 cm	21 inches
Chairbound	61 cm	24 inches	40.5 cm	16 inches

Table Planters

Table planters are high enough to use as raised beds and are accessible for use with a wheelchair. A shallow bed on legs, allows for greater range of motion with space for wheelchairs or chairs to fit under.

Measurements for Wheelchair Accessible Table Planters

Feature	Measurement	Comments
Total Height	89–94 cm	No higher than the rib cage
Knee clearance under table top	69–76 cm	Knee clearance for a standard wheelchair is 61 cm, armrest clearance is 63 cm
Planter box depth	21–26 cm	use a lightweight soil
Width	1.5 m	If accessible from all sides
	75 cm	If accessible from only one side

(Larson, Hancheck, & Vollmar, 1996; Shoemaker, C.A., 2005)

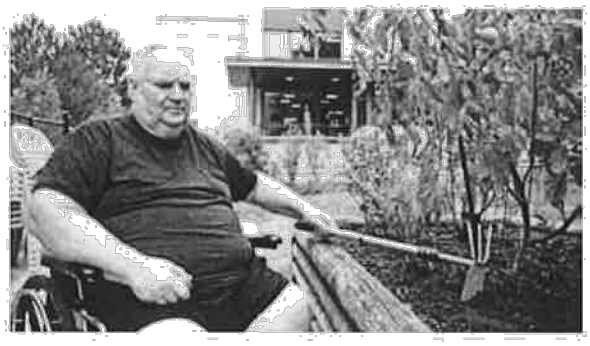
Remember, choose materials that are safe for growing food!

This picture shows a prototype used by residents at Trinity Village Care Centre in Kitchener.

Total Height = 89 cm
Knee Clearance = 63 cm
Planter Box Depth = 27 cm
Width = 95 cm × 95 cm

Maximizing garden space

Making the garden more accessible may cut down on the amount of gardening space available. The use of intensive gardening techniques and methods to keep the soil healthy will help gardeners grow more in less space (Woy, 1997). Intensive spacing cuts down on watering and weeding by reducing the amount of bare ground around plants.



Intensive spacing to maximize garden yield

Crop	Spacing (inches)	Spacing (cm)
Beans	4–9	10–23
Beets	2–6	5–15
Broccoli	15–18	38–46
Brussel sprouts	15–18	38–46
Cabbage	15–18	38–46
Carrots	2–3	5–8
Cauliflower	15–18	38–46
Chinese cabbage	10–12	25–31
Collards	12–15	31–38
Corn	18–22	46–56
Cucumbers	18–36	46–91
Eggplant	18–24	46–61
Kale	15–18	38–46
Leeks	2–6	5–15
Lettuce	6–9	15–23

Crop	Spacing (inches)	Spacing (cm)
Melons	24–36	61–91
Okra	12–18	31–46
Onions	4–6	10–15
Parsley	4–6	10–15
Peas	2–6	5–15
Peppers	12–15	31–38
Potatoes	10–12	25–31
Pumpkins, squash	24–36	61–91
Radishes	2–3	5–8
Spinach	4–6	10–15
Sweet potatoes	10–12	25–31
Swiss chard	18–24	46–61
Tomatoes	18–24	46–61
Turnips	4–6	10–15

From: Woy, J. (2007)

Container Gardening

Container gardening can be portable and used almost anywhere. Container gardens are especially great to use where the soil quality is questionable. Gardeners can use any containers safe to grow food. The container must hold the soil and have good drainage. Use lightweight soil mixture for raised beds as recommended. Add a trellis or stake to increase gardening space in container gardens and raised beds.

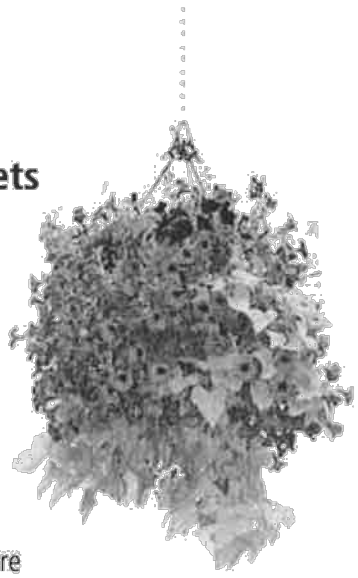
Suggested Dimensions For Containers

Note about boxes and pots: The width of the container should be roughly equal to the spread of leaves on a mature plant (Woy, 1997)

Dimensions	Depth	Successful Crops
30 cm × 122 cm	20 cm deep	bush-type peas, beans, cucumbers, kale, broccoli, and lettuce
61cm × 91 cm	20 cm deep	beets, carrots, onions, lettuce, leeks, turnips, kohlrabi, corn and zucchini

(Source: Larson, Hancheck, & Vollmar, 1996)

Hanging Baskets



Hanging baskets provide space accessible at varying heights. A pulley system can raise or lower the basket as needed. These baskets can provide gardening space, where traditional ground level plots are not available or accessible. Again, use a lightweight soil mixture. (Shoemaker, C.A., 2005).

Vertical Wall Gardens

Vertical wall gardens provide a vertical surface such as a wall or a fence to garden. These walls have many different containers that hold the soil. The containers are often at right angles to the ground or straight up. Creative designs include bookcases, shelves and hanging bags.

Depending on the desired structure, plants can grow at right angles to the wall. An opening will need to be cut through the container where the plants will be inserted and the root systems positioned. Secure the plant with wire so that it will stay in place and grow out sideways (Westbrook, 2007).

The soil needs changing once a year. Usually, the soil stays moister longer due to less exposure to the air (Westbrook, 2007).

Watering is easier when drip or other irrigation systems are used. Increase safety by anchoring all freestanding planters to a wall or ground base and bolt planters attached to a wall.

Bag and Plant Vertical Garden

Try this easy-to-build and cost-effective vertical garden. The plants grow out perpendicular to the wall. Make this garden container with a Hessian-type mesh bag, rockwool and plants. Fill the mesh bag with rockwool. Cut slits into the bag and rockwool to sow the plants. The rockwool holds the water and nutrients while retaining enough air pockets for the roots to grow and thrive.

This type of garden needs to be manually watered – watch out: water will drain out. Place the bag outdoors where the water can drain freely.

Salad greens, herbs, and petunias grow very well in this type of container.

Water

Gardeners need to access water in an easy and safe manner. If a garden hose is used, be careful it does not become a tripping hazard or block pathways. Place all accessible garden plots close to a water source. Try to have a ground surface that will not get slippery or muddy when wet. Water spigots need to be easy to use. Install hand levers and snap connectors at an accessible height of 61–92 cm from the ground (Larson, Hancheck, & Vollmar, 1996).

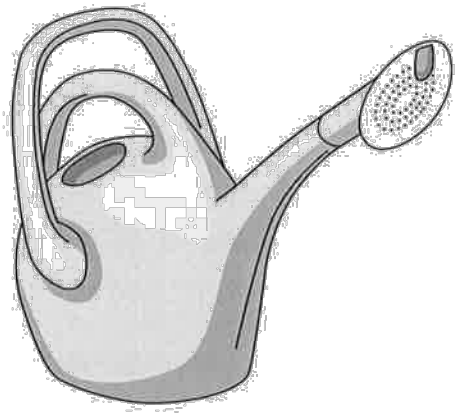
To avoid food contamination, water storage containers should be made of food grade materials that have not previously stored chemical substances (The Virtual Weber Bullet, 2010). Wash all produce thoroughly before eating.

Ways to make water readily available at accessible plots include:

- gravity barrels with an attached hose that runs along the top of the raised beds
- soaker hoses, spigots, or capillary watering systems
- use of water wands, water barrels and short tap

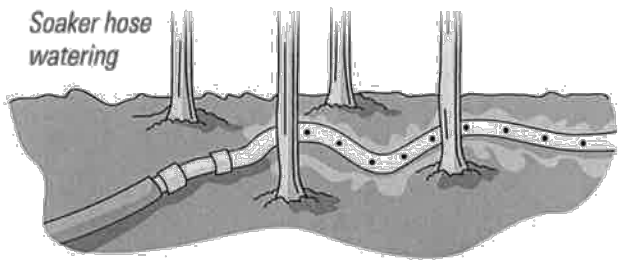
(Dowling Community Garden, 2010, One Voice- Action for Disability, 2010)

Capillary watering with rope

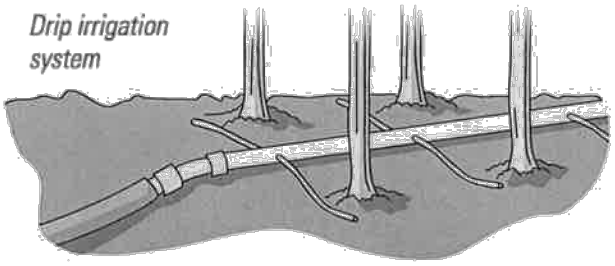


Watering can

Soaker hose watering



Drip irrigation system



More Accessible Watering Options

Water System	Characteristics
Soaker hoses	made of rubber, canvas or plastic ooze water all along their length good for watering long rows of closely spaced plants need no assembly available at most home and garden supply stores hand-make by poking small evenly spaced holes in a garden hose
Capillary watering	used for container gardening plants water themselves through absorbing water from provided source capillary mats are soaked with water where the pot is placed on top to absorb water works best with flat bottom containers with large holes capillary with rope—cotton rope is placed in container of water and coiled on surface of container garden can be found at more specialized gardening stores
Watering cans	use lap board with non-slip coating to carry water with a wheelchair install a paint bucket hook from a ladder onto a walker to carry a watering can carry only half full unless cans have leak proof lid
Drip irrigation systems	water emitters can be placed at the roots or exactly where water is wanted—less wasted water use for small tabletop gardens or larger ground gardens require dexterity for installation low maintenance after installed come in kits set timers for watering—easy to program

(Source: Woy, 1997, p. 79–82)

Sitting Area

Gardeners of all abilities appreciate sitting areas to relax and enjoy the tranquility of the garden. Benches with small pergolas or umbrellas overhead provide shade and a welcome spot to rest. Seating at raised beds allows people to garden longer and rest. An attractive common area with additional seating is also a welcoming attraction to the neighbourhood.

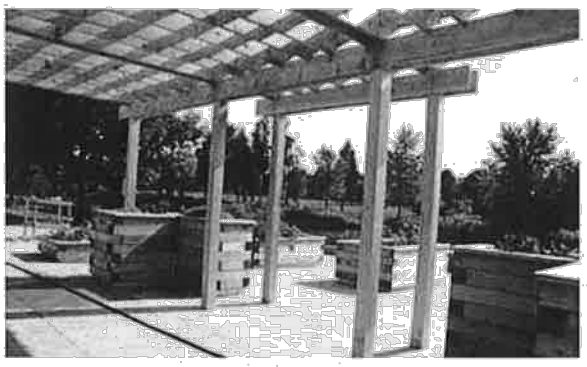


Photo courtesy of Guelph Enabling Garden

Shade

Shade is important for all gardeners. Gardeners need to limit their exposure to direct sunlight between the hours of 11 a.m. and 4 p.m. (Canadian Cancer Society, 2005). Shade structures are important features in an accessible garden. Shaded areas can greatly reduce hazards of sun exposure such as UV skin damage, dehydration, sunstroke, eye damage, and medication reactions.

Other sun safety recommendations include wearing hats, long sleeve shirts, sun block and sunglasses to protect from UV damage. Umbrellas, arbors over seated areas, and pergolas are structures that can provide shade. Shade structures can also serve as landmarks to orient people in the garden.

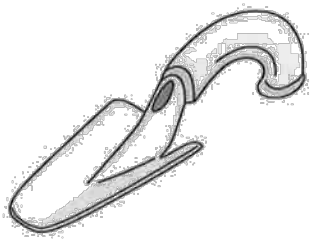
Markers/adjustments to paths and contours for those with visual impairments

Gardeners with problems seeing appreciate pathway markers or adjustments that allow them to move more freely around the garden. These features help gardeners with low vision to better see, feel the contours of the landscape and benefit from a variety of sensory features. The easiest colour to see is yellow. Use yellow paint or tape as a marker along the sides of the path, to mark changes to pathway grade, to highlight steps or lips, or other potentially dangerous features. Mark pathway boundaries with a change in texture, a curb or curved edges for extra sensory aid.

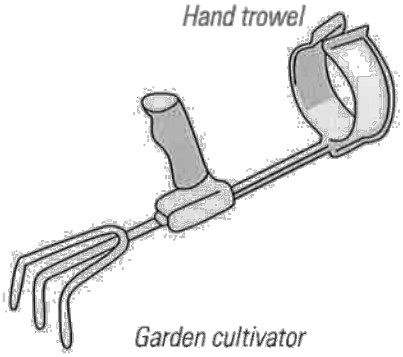
Tool design to increase accessibility

People with physical barriers may also benefit from specially designed tools or simple modifications to standard tools. A list of helpful tools and equipment includes:

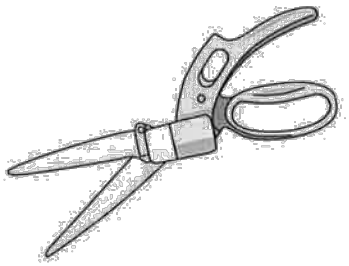
- Lightweight aluminum alloy blades for hand tools (towels, cultivators)
- Longer or extendable handle for rakes, spades and hoes
- Smaller blades and tool heads
- Large-diameter and padded/molded handle grips—thumb and index finger should just begin to overlap when gripping
- Tools that enable both hands to be used or allow for the tool to be held close to the individual's body
- Tools with springs that return to the open setting
- Grasping tools that allow for grasping, retrieving
- Long handled, cut-and-hold pruning shears
- Firm grip weed puller with a 60–90 cm handle
- Scissors with large openings
- Reinforced rubber hoses that resist kinking, extension hoses (brass snap connectors at every connection point), wall-mounted hose reels
- Garden carts or four-wheeled wagons instead of wheel barrows
- Garden aprons or tool belts
- Lapboards



Hand trowel



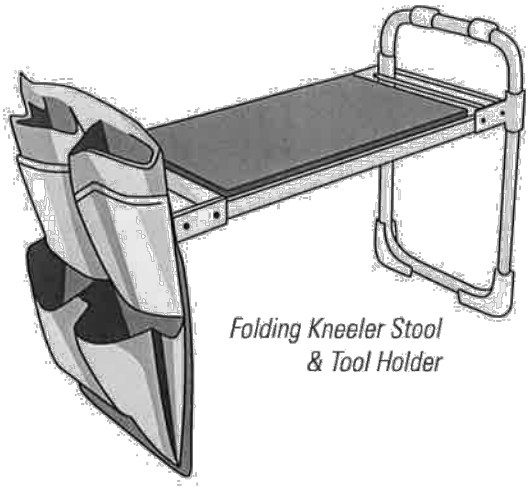
Garden cultivator



Grass shears

Add-on handles and grips are now available. For more tips on choosing the right tools, see Thrive; How to choose gardening equipment and tools:

http://www.carryongardening.org.uk/shop/how-to-choose-gardening-equipment-and-tools-46499ada/default.aspx (Thrive, 2009)



Folding Kneeler Stool & Tool Holder

(Rothert, G., 1994)

Storage

Storage areas should be accessible, allowing the gardeners easy access to tools, gloves, compost, and other materials. The location should be close to the garden with accessible pathways and entrances into the storage shed. Ramps, visual markers and appropriate signage are necessary. Storage at the raised beds is also possible. Some models of raised beds and table planters include sliding tool drawers or hooks to hang tools at the garden bed.

Signs

Signs with the International Symbol of Accessibility welcome people of all abilities to participate in the community garden. Signs are an important information source for people who have difficulty hearing. Signs provide information about the accessibility of the garden and possible hazards in the garden. Braille provides important information for people with visual difficulties. Signage may inform gardeners about changes in pathway slope, steps or stairways; or other hazards.

Photo courtesy of Guelph Enabling Garden

Multi-sensory features

Gardens that are stimulating and appeal to the sensory abilities of all gardeners are especially important for people with some sensory loss. An accessible garden provides plants and features which stimulate the senses through seeing, hearing, smelling, tasting and touching.

Sense	Feature		Examples
See	Contrast	Contrast helps people with residual sight differentiate between items	– flowers – foliage – patterns—dandelion clocks, pine cones, bark (plane, birch, eucalyptus), variegated leaves, skeleton leaves
	Colour	Plants offer a complete spectrum of colour throughout the seasons Theme-coloured areas help explore moods and atmosphere	– flowers – berries – leaves – lichens – bark – mosses
	Shape	Nature provides a variety of different shapes	– leaves (sycamore, beech, ash) – fruits (apples, currants, rose hips) – flowers (daisy, poppy, bell flowers) – stems (bamboo canes, dead nettle—square stems) – plant containers (round, square, rectangular)

Sense	Feature		Examples
See	Movement	Moving garden features placed in a breezy area stimulate interest and improve attention spans, especially if combined with sound Place these features within reach for added sensory stimulation	– trees (aspen, willow, white poplar) – grasses – wind chimes – hanging compact discs
Touch	Texture	A variety of textures provides helpful cues to people with visual impairments The outdoors is full of different textures and provide signals to interpret the environment	– rough surfaces—lichens, bark – smooth (flower petals) – ridged (textured concrete, backs of leaves) – hairy (leaves such as Stachys, buds, grass) – bumpy (twigs) – soft (mosses, fungi) – slimy (algae)
	Shapes		– circular flowers – cubic containers – oval fruits – triangular ivy leaves
	Weight		– bark – heavy clay
	Temperature		– sun-warmed water – cold shaded water – stone next to soil
	Wet and dry		– moist and dry soil/sand – freshly shed leaves and older dry ones
	Contrasting densities		– hard stone – soft moss
Hear	Natural sounds	Sounds that occur naturally	– leaves rustling in the wind – birds singing – water trickling/dripping/ splashing – rain on an overhead cover
	Activated sounds	Sounds that can be activated by people	– splashing water – striking chimes – sound sculptures – "sound fences", activated by dragging a stick along a series of lengths of tubing or piping are melodious and fun

Sense	Feature		Examples
Smell	Scents that fill the air and can be smelt without touching the plant	Plants or other materials that have distinctive and interesting scent	• mock orange (Philadelphus) • roses • winter honeysuckle • curry plant • cut grass • hay
	Intimate scents where the flowers need to be investigated		• violet • primrose • some Narcissus
	Activated scents which are released when plant parts are crushed		• basil, rosemary or other culinary herbs • scented geranium
	Familiar smells		• pond water • wood shavings • autumn leaves • cut grass
Taste			• fruits • vegetables • wild edibles • herbs

From Sensory Trust. (2009). Sensory Garden Design Advice. Retrieved April 8, 2010 from http://www.sensorytrust.org.uk/information/factsheets/sensory_ip2.html.

Other features to consider for an accessible garden

Suggestions from people with lived experience:

- locate garden on a bus route for people who do not drive
- install light for evening gardening to prevent the exhausting effects of daytime heat
- include an accessible washroom with raised toilet seats and sturdy grab bars
- incorporate a buddy system to offer assistance if needed
- install "help" buttons in the garden for those gardening by themselves. Push buttons, switches, etc, should be no less than 750 mm and no more than 1200 mm above ground level. (Department for Transport UK, Retrieved June 16, 2010)
- have key structures to orient people in the garden
- use outdoor, portable, rollout mobility mats as an alternative to permanent pathways

(Grand River Accessibility Advisory Committee, 2010)

Additional Resources

Thrive has a website, Carry on Gardening, which has many helpful tips of how to garden when faced with a physical challenge. See **http://www.carryongardening.org.uk/default.aspx**

Other online resources to consider are:

AccessON
http://www.accesson.ca/en/accesson/index.aspx

Dowling Community Gardens: Building Accessible Raised-Bed Gardens
http://www.centerforneighborhoods.org/parksandgardens/DowlingBuildingRaisedBeds.pdf

Madison's Inclusive Community Garden Guide
http://www.cacscw.org/downloads/Universal%20Design%20for%20Community%20Gardens.pdf

Region of Waterloo Accessibility Planning
www.region.waterloo.on.ca/accessibility

Straight Talk: Accessible community garden tears down barriers to growing food in Vancouver.
See the article and video
http://www.straight.com/article-332507/vancouver/accessible-garden-tears-down-barriers-growing-food-vancouver

The Enabling Garden
http://www.enablinggarden.org/location.htm

Tips to build a garden planter by Garden Guides
http://www.gardenguides.com/95502-build-garden-planter-legs-wheelchair-users.html

University of Minnesota Healing Gardens
http://www.sustland.umn.edu/design/healinggardens.html

Barrier-free gardens are an important community asset and provide all residents with an opportunity to enjoy the benefits of gardening regardless of their ability. Removal of physical barriers is possible in current community gardens with appropriate support of the public and community leaders.

Summary of Accessible Garden Features

Feature	Considerations	Tips for Implementation	Recommended Materials
Path surface	• surfaces must be level, firm, with little slope, provide traction • must be wide enough to turn a wheel chair around, 1067–1520 mm wide	• pathways needed from parking lots to garden entrance • use concrete slabs at least 10 cm thick, over a 15 cm gravel bed • use decomposed granite poured over weed-block fabric or plastic 10–15 cm thick. Water and tamp it down before use by wheelchairs	• hard surface paving (porous concrete, asphalt) • packed clay soil • decomposed granite • packed crushed stone (number nine gravel stone) **Do not use grass turf surfaces/woodchips**
Raised Beds	• larger areas of soil allow for a wider diversity of plants • warms up quicker in the spring and extends growth season • provides good drainage • use where land is not accessible (i.e. roof tops, paved areas) • use for invasive plants	• average height is 61 cm • average width from all sides is one and a half metres; from one side is 75 cm • recommended ledge size for sitting is 20–46 cm • need to water more • place close to water source • soil mix of one part organic material (peat moss, compost, leaf mold, or dehydrated cow manure) to ten parts screened topsoil is recommended	• stacked flagstone • vertically or horizontally placed landscape timbers or ties • pressure-treated lumber size 5 × 25 cm • Cedar wood or Redwood • reinforced concrete paving slabs • DO NOT USE CREOSATE OR CHROMATED COPPER ARSENIC TREATED WOOD (some stocks may still exist) **Avoid using railway ties**
Table Planters	• table planters provide space underneath for a wheelchair or chair • raises soil to desired working height	• average height is 89–94 cm • average knee clearance height is 69 cm • soil depth is at least 20–25 cm • bed width—all side access is one and a half metres • bed width—one side access is 75 cm (Larson, Hancheck & Vollmar, 1996)	• same soil mix as for raised beds • Cedar wood or Redwood

Feature	Considerations	Tips for Implementation	Recommended Materials
Containers	• portable and usable in non-garden sites • can use where land is not accessible (e.g. paved areas) • measurements for boxes/pots: • size to grow bush-type peas, beans, cucumbers, kale, broccoli, and lettuce build = 30 cm x 121 cm, 20 cm deep • size to grow beets, carrots, onions, lettuce, leeks, turnips, kohlrabi, corn and zucchini boxes and pots 61cm x 91 cm, 20 cm deep	• use stable, durable containers • smaller containers dry out quicker than larger ones • consider weight, appearance, and cost For wooden containers: • use screws instead of nails • use sealers, paint, stain to stop warping and splitting • sand all rough edges	• food grade plastics • AVOID USE OF PVC's OR PLASTICS USED TO STORE CHEMICALS • clay pots free of lead paint (porous, decorative) • whiskey barrels (good height, inexpensive, need to soak for 24 hours before using, drill drainage holes in the bottom) • line containers with stones for drainage • DO NOT USE OLD TIRES TO GROW FOOD PLANTS
Vertical Wall Gardens	• can have varying heights • visually appealing • versatile in design and materials	• containers are covered in plastic, then wire mesh, and stacked or inserted into a vertical timber frame shelves with wire-fronted boxes	• wood for shelving • plastic • wire mesh
Path Markers/ Contours	• markers help people with low vision • changes in contour helps people with no vision to feel pathway edges	• use a variety of sensory plants to provide alternate sensory features	• small stakes and yellow tags for edge markers • yellow eco-friendly exterior paint for pathway edges

From Larson, Hancheck, & Vollmar, 1996

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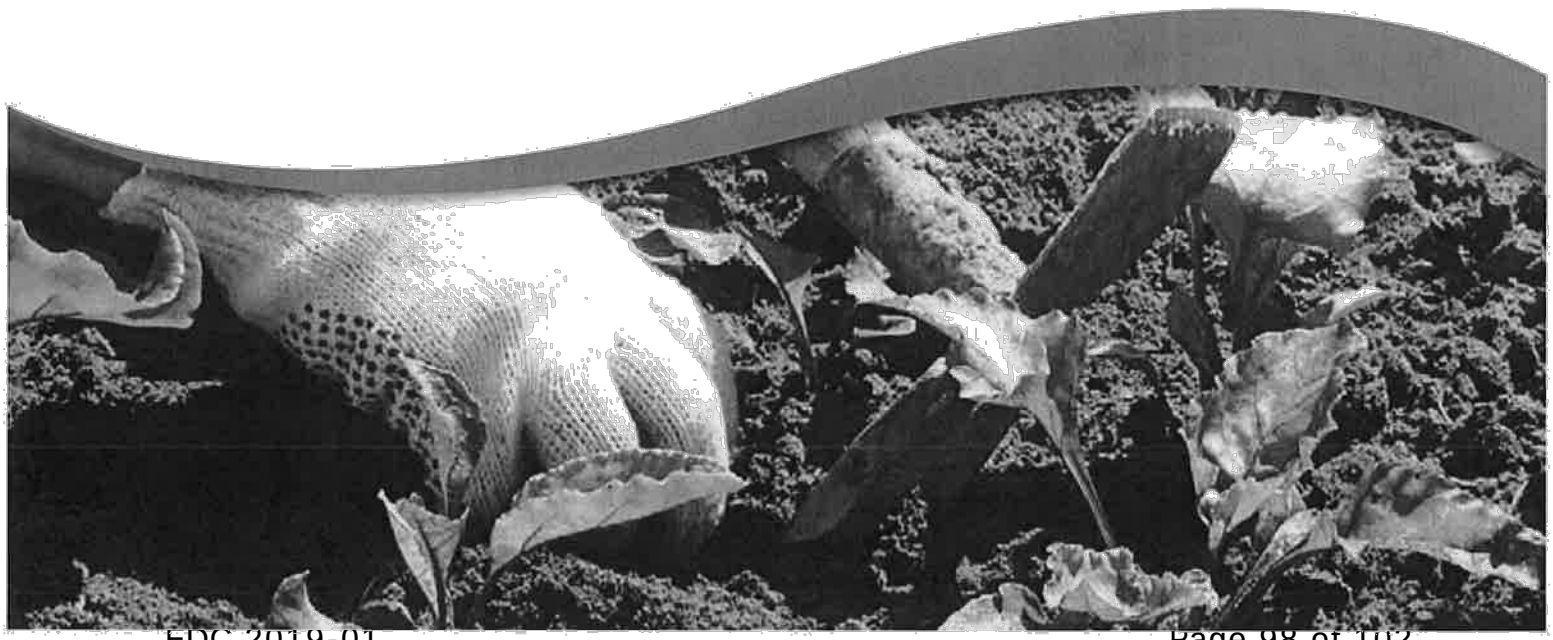

Guelph - Community Garden

Guelph Sensory Garden

Orangeville Community Garden






Appendix 6

Short list of Community Gardens in Ontario

Albion Hills Community Farm

Algoma Food Network

Barrie Community Garden Program

Brockville Community Garden Network

Burlington Community Gardens

Community Gardens Network Chatham-Kent

Durham Integrated Growers -Location: York Region - Number of Gardens: 6

Stormont-Dundas-Glengarry Community Gardens Network

Thunder Bay Community Garden Collective - Number of Gardens: 12

City of Toronto Community Gardens - Number of Gardens: 22 and

Regional Municipality of Waterloo - Number of Gardens: 60

Windsor-Essex County, Ontario - Number of Gardens: 15

Orillia, Simcoe County, Ontario

Community Gardens in Old Ottawa East

Oshawa Community Gardens

Sarnia, Ontario - Number of Gardens: 10