



Growing Community Gardens

*A Denver Urban Gardens' Best Practices Handbook for
Creating and Sustaining Community Gardens*

Special thanks to all the Denver Urban Gardens staff for their contributions and Rosemerry Wahtola Trommer for her editing expertise.

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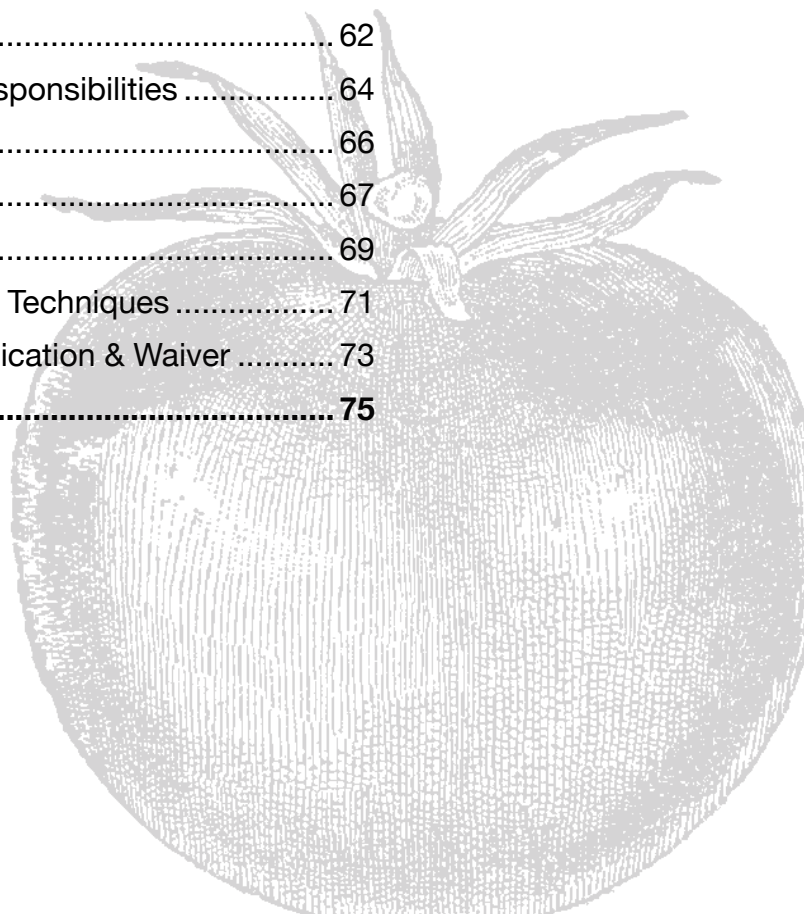
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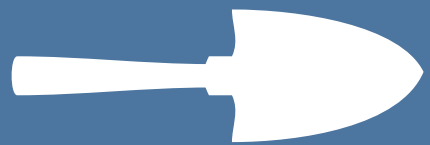
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Introduction



About Us

Since 1985, Denver Urban Gardens (DUG) has come alongside residents, and together, we grow community—one urban garden at a time. As of 2012, Denver Urban Gardens supports over 120 community gardens throughout Metro Denver, including more than 30 school-based community gardens. Critical to our mission is to act as a resource and partner, working in tandem with communities to create their own urban community gardens. We seek to enable, unite and empower participants to reach out and improve their communities and health through community gardening. Our gardens bring communities together—producing food, fostering neighborhood activities and hosting educational programs for thousands of individuals annually.

Denver Urban Gardens offers neighborhoods the resources essential for healthy community gardens, including ongoing technical expertise with the following:

- securing sustainable land for gardens;
- designing and building gardens;
- supporting garden organization, leadership, outreach, and maintenance;
- utilizing gardens as extraordinary places for learning and healthy living; and
- linking gardens with related local food system projects and policy.

In addition to building and supporting community gardens, we manage the Master Composter Training Program, the Master Community Gardener Training Program, the Free Seeds and Transplants Program, the Helping Kids Get Healthy Educator Workshop Series and the DeLaney Community Farm. We also provide extensive opportunities for youth education in nutrition and gardening.



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Purpose of This Handbook

The intention of this Handbook is to provide a tangible road map, with technical assistance directions, to guide you toward your goal of a sustainable community garden. To that end, *Growing Community Gardens* is a compilation that shares the practices and core beliefs of our organization's experience over 25 years. During that time, we have worked with countless partners and communities with the primary goal of building and strengthening community.

In 2006, Denver Urban Gardens received funding from LiveWell Colorado to pilot programs and projects that promoted healthy eating and active living through community gardens and supporting programs in three Denver neighborhoods. Over a period of seven years, we learned a great deal about what works best for our gardens and the communities we serve. This Handbook is a result of our work as a LiveWell Colorado community and as a leader in building and sustaining community gardens. Thanks to a grant from LiveWell Colorado, we are able to share our experiences with you in this Handbook.

To make this Handbook even more helpful, we include some of our most useful documents as appendices; these are meant to be templates, easily adaptable for organizations and communities with different needs. We hope these resources will help communities lay a solid foundation from which to begin planning a thriving and sustainable community garden network.

In addition to this publication, DUG has previously partnered with others to author the Youth Farmers' Market Handbook and the Denver School Garden Coalition Operating Manual, which provide detailed, programmatic information on how to work with youth in the garden setting. When appropriate, we will refer readers to those Handbooks for more specific information.

Denver Urban Gardens' website (www.dug.org) is also a great way to find many of the resources mentioned in this Handbook. Finally, sometimes the best way to get the information you need is a person-to-person conversation. If after reviewing this Handbook, you have additional questions, please feel free to contact the DUG staff directly at dirt@dug.org or 303.292.9900.



General Philosophies & Principles

Denver Urban Gardens' core values are embodied in our vision of a thriving and connected network of deeply rooted community gardens—gardens conceived of, cultivated by and supported by local residents and institutions throughout Metro Denver.

We know that community gardens enrich and provide lasting benefits to neighborhoods when they are:

- initiated collectively by community members who participate in organization, design, construction, and ongoing care;
- planned for and protected as a highly valued neighborhood asset;
- well-maintained, inviting and accessible to all people;
- aligned with the broader purpose of the site, as in the case with a garden in a park, on the grounds of a school, or as part of an affordable housing development;
- encouraging individual self-sufficiency and integrity, while collectively developing strong social networks in which participants look after, learn from, and share with each other;
- donating a generous portion of their bounty to others in need;
- providing healthy food and promoting healthy lifestyles in which members celebrate growing, cooking and eating together;
- models of environmental stewardship through organic and sustainable practices including composting and water conservation;
- sites for fostering a sense of belonging and attachment, in both the lives of the gardeners and in the life of the neighborhood;
- honoring diverse viewpoints, valuing the strengths of each gardener, bridging differences, promoting understanding and developing respect through the unifying act of gardening together.

When working with communities to actualize their vision of an urban garden in their neighborhood, we look to our core values as well as to the bedrock principles of sustainability and social equity. The concepts of sustainability and social equity have been threaded throughout this Handbook. Before moving forward, we want to make sure that readers know how DUG defines these two overarching concepts in relation to community gardening.

Sustainability

Denver Urban Gardens is committed to providing spaces for long-term community building. Our gardens must be developed by the local community, must be set up for the long-term, and must be organically grown and cared for.

The American Community Gardening Association states that “community gardening is most successful and long lasting when the people affected by the garden have a role in leading the development of the garden” (Abi-Nader et al., p. 13). This is demonstrated by DUG’s commitment to the idea that community gardens are more likely to be sustained if they grow from the local community’s desire, needs, and strengths. This approach helps to ensure there is enough demand and desire to care for and use the garden for years to come. This also allows the garden to reflect the individual community’s needs and uniqueness.

To ensure the longevity of a community garden, we recommend that gardens not be built on privately owned land. Regardless of the landowner's commitment, in our experience, privately owned land is eventually sold or developed. Sustainability can be difficult to achieve when there is uncertainty around the long-term use of the land.

Recognizing the need for environmental sustainability, we ask all of our gardeners to incorporate organic growing practices and refrain from adding any non-organic amendments or using pesticides and/or herbicides. Along with this, we encourage gardeners to amend their soil each year with plant-based compost. Not only does composting increase soil health, it also has been shown to reduce water needs in community gardens, while reducing the amount of waste in our landfills. The majority of our gardens have on-site compost bins and gardeners are encouraged to develop a compost system.

Social Equity

Denver Urban Gardens works with communities of all income levels to create and build sustainable community gardens, while prioritizing the needs of underserved communities. Over 80 percent of DUG's community gardens are located in low- to moderately low-income neighborhoods. We work closely with organizations already serving low-income populations to round out services for those in need. Often, our gardens are located on public sites in low-income neighborhoods, such as at [Metro CareRing](#), a nonprofit emergency food pantry providing individuals and families with food, bus tokens and funds for utility assistance; [Focus Points Family Resource Center](#), a nonprofit that serves primarily young, low-income, Spanish-speaking immigrant families in northeast and north central Denver through family literacy programming; and multiple [Denver Housing Authority](#) public housing sites.

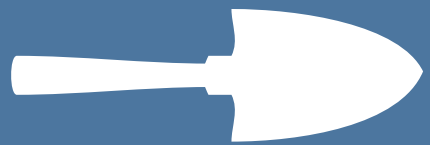


Community gardens are proven to reinforce ties to one's environment (Comstock et al., 2010) and increase food access and food security. Community gardens provide an opportunity for people to grow their own food with greater control over the environment and inputs used in the growing process. This empowers individuals to change their own lives and physical environments while increasing their access to fresh produce and open space.

Along with increased food security and access to healthy environments, community gardens are catalysts for organizing community. The process of creating a community garden that meets the needs of diverse individuals encourages neighborhood residents to work together toward a common goal. This process and the garden that it produces helps to bridge gaps and create networks that cross socioeconomic and cultural strata. Breaking down these barriers creates a stronger and healthier neighborhood.

Denver Urban Gardens also partners with organizations such as [Tri-County Health Department](#) and [Denver Housing Authority](#) to ensure access and availability to people who may lack the financial resources to cover the costs of a community garden plot fee. Additionally, Denver Urban Gardens offers a Free Seeds and Transplants program that allows in-need populations to order a variety of free vegetable seeds and transplants to plant at home or in a community garden.

Why Community Gardening?



What is a Community Garden?

Denver Urban Gardens defines a community garden as a unique space where neighbors and residents can come together to build community and grow food. The collective will of the gardeners results in a sum, the garden, that is greater than each of the individual parts. People will sometimes ask about the differences between an urban garden and a farm. Participants may initially come to a garden to grow healthy food, however, DUG believes that ultimately, deeply rooted community connections are the primary fruit of the gardener's labor. With a farm, food production is most often the primary goal.

Additionally, there is often a misperception that community gardens are only for skilled gardeners. This is antithetical to the true nature of a community garden. Community gardens welcome skilled and unskilled gardeners in a spirit of common unity. Through the process of working and sharing together, people learn from the knowledge, skills and abilities each person brings to the garden. Community gardens benefit gardeners of all skill levels.

A community garden is a unique and inclusive community space; it reflects the personality and tells the story of the gardeners and the neighborhood that surrounds it. It is a neutral space, a place where people from all backgrounds gather, meet and share. A community garden has the very real potential to be important to its neighborhood and creates strong ties between neighbors.



In Their Own Words

"I also LOVE being part of a community garden. It has been so long since I have been able to sweat and work in the sun. I'd often run up for just a minute and hours would slip away as I relished working the dirt, admiring my plants, admiring my fellow gardener's plants and methods, and meeting people from the community. We created a free mini-botanical garden in the middle of an empty field. It felt like a time warp. Folks would leave their cell phones in the car and take part in the community. I loved hearing conversations and the problem solving. We participated in pondering the science of all of it versus growing from your heart. I loved the sneaky smiles from 'that will never work,' when it really did. And I loved how Mother Nature covertly nurtured us through our trials and tribulations. Families would come and spread a picnic blanket near the garden and eat and read aloud and just enjoy the space we had created. A true heaven-on-earth scenario." — Ute Trail Community Gardener

Benefits of a Community Garden

[The Healthy People 2010 Initiative](#), a national framework for public health prevention, suggests that individual health is almost inseparable from the health of the larger community. Understanding and improving this larger community—the places people live, work and recreate—will go a long way to promoting health and strengthening neighborhoods. Since 2004, Denver Urban Gardens and the Colorado School of Public Health have worked together, through the Gardens for Growing Healthy Communities (GGHC) community-based research initiative, to explore how gardens, as neighborhood places, support healthy living. The results of this research partnership have shown what community gardeners have known all along: community gardens are good for neighborhoods.



The GGHC research affirms that community gardens positively affect the neighborhoods in which they are located through health, social, ecological and neighborhood benefits.

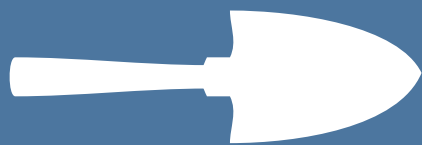
The health benefits are numerous. As well as eating better and being more active, gardeners are more involved in social activities, view their neighborhoods as more beautiful, and have stronger ties to their neighborhoods (Litt et al., 2011). More than 50 percent of community gardeners meet national guidelines for fruit and vegetable intake, compared to 25 percent of non-gardeners (Litt et al., 2011). In fact, community gardeners consume 5.7 servings of fruits and vegetables per day on average, compared to 3.9 servings for non-gardeners (Litt et al., 2011). And, when it comes down to body mass index, community gardeners averaged 24.2 compared to 27.2 for non-gardeners (Litt et al., 2011).

When looking at the social and ecological benefits, the research is just as affirming. All community gardeners (100 percent) stated that their main reasons for gardening were to be outside in nature and to get their hands dirty. Almost 80 percent of them gardened as children (Litt et al., in prep). Most (95 percent) community gardeners give away some of the produce they grow to friends, family and people in need; 60 percent specifically donate to food assistance programs (Litt et al., in prep).

The GGHC research found that at a neighborhood level, community gardens promote stronger neighborhood leadership, outreach, and volunteerism (Teig et al., 2009). They strengthen emotional bonds to the neighborhood (Comstock et al., 2010) and aesthetic appreciation (Hale et al., 2011). With such strong evidence of the many benefits of community gardening, it is no wonder that 88 percent of people who do not garden want to see gardens in their neighborhood (Litt et al., in prep).

Additionally, youth greatly benefit when a garden is located on school grounds and they participate in nutrition and garden-based educational activities. Various studies have found that school garden programs increase academic achievement, physical, social and emotional health, and have positive impacts on the school and nearby community (see [Appendix A](#) for a compilation of research).

Choosing to Start a Community Garden



Assessing Community Readiness

When a group of dedicated community members comes to consensus that a community garden complements their vision for their neighborhood, the community must assess its own readiness to support and sustain a community garden. This requires a community to affirm that there is 1) a critical mass of committed participants, 2) broad-based support, 3) agreement from the participants on the need for the garden and the multiple purposes it may serve, and 4) an available, sustainable, long-term site. Here are key questions Denver Urban Gardens encourages anyone wishing to establish a community garden to consider:

- Is there a solid need for the garden? Does the community garden have a broad base of support that reflects the demographic makeup of the surrounding neighborhood? As a guideline, we recommend having a core group of at least 12-15 interested individuals to begin the planning process.
- What partnerships have been formed to strengthen the connection between the community garden and the surrounding community? Examples may include a culinary arts program, service learning programs and youth education organizations.
- Is there a local group or organization that can benefit from a partnership with your community garden? If so, what type of group? Examples may include schools, food banks, hunger relief organizations and nonprofits and churches that prepare meals for people in need.
- Have individuals/local organizations been contacted to help with day-to-day support with various activities? Activities may include helping with ongoing maintenance of garden amenities, providing cooking demonstrations, and teaching gardening classes.
- Is there any skilled and/or unskilled local labor to support garden construction, financial management, material donations, art installations, etc? Local support may include connecting with a local hardware store, service organizations or corporate volunteer program.



The answers to these questions help determine how much need and support already exist for the community garden. A positive community readiness assessment is a sign that the community has a solid foundation for moving forward. The more cohesive the neighborhood effort, the easier the process becomes and the faster the vision can be made a reality.

Models of Community Gardens

Denver Urban Gardens works primarily with the following community garden models. These models are not mutually exclusive and there are often characteristics of several models at one site.

Traditional

Most DUG community gardens are comprised of many separate garden plots that are cared for by individuals and families. Community gardeners care for and harvest from their own plot. Shared spaces like pathways, perennial herb and flower beds, sheds, and gathering spaces are cared for by all members of a community garden. The day-to-day operations of the garden, including new gardener sign-ups and organization of community work days and gatherings, are handled by volunteer garden leaders or steering committees.

Communal

Although the communal model is not very common for DUG community gardens, they do exist. In the communal model, gardeners are not assigned individual plots but, rather, the entire garden is planted, harvested and maintained by the group. These gardens are often connected to a specific program or organization with a defined goal, i.e. a church growing for its meal program. In our experience, this model is difficult to sustain because it may not lead to feelings of ownership and may limit the amount of time and care people are willing to invest in the garden.

School-Based

Denver Urban Gardens manages over 30 school-based community gardens in the Denver metro area. These school-based community gardens are unique because they are located on school property, giving students access to the garden for educational purposes. Schools have opportunities to infuse produce from the garden into the cafeteria and community at large through programs such as Garden to Cafeteria and Youth Farmers' Markets. School-based community gardens also provide neighbors a space for gardening at a site, which by virtue of being a school, promotes community engagement. Additionally, school and community gardeners mutually benefit from the sharing of knowledge, resources and programs. For example, the student gardeners may rely on the community gardeners to bridge the school year and provide care for their plots and plants over the summer.

Specialty

Specialty community gardens are designed and developed for specific populations with distinct characteristics, unique circumstances and needs. Denver Urban Gardens has worked with older populations, community centers for disabled populations, and youth to develop specialty gardens. Examples of DUG specialty community gardens include the Atlantis Communities Garden located at a day-center for the disabled community, the Courthouse Square Community Garden located at a housing facility for low-income seniors, the Family Crisis Center Community Garden located at a residential transitional treatment center for youth, and the Gilliam Youth Services Garden located at a state-operated juvenile detention center.

Timeline

Intentional planning promotes sustainability. A community garden, from start to complete build out, may take two to three years. This estimate may shift dramatically based on the energy, cohesiveness and readiness of the organizing community, as well as the resources made available to the project. Each community garden model has its own considerations, which can be incorporated into the planning and design process.

The following three phases illustrate the process of planning and building a community garden from conception to first planting:

Assessment

Before any planning, designing or construction occurs, DUG goes through a due diligence process with the community. This includes having a discussion with the property owner and helping with the community readiness assessment. The goal is to make sure all interested parties understand the breadth of what is involved in becoming a community garden and that they are ready and willing to move forward.

Planning

Once everyone is committed, planning begins. This is when DUG obtains or helps to obtain the proper permits, approvals and use agreements, which can vary depending on the municipality in which the garden is located. This phase also includes fundraising, which is typically a joint effort between DUG and the garden or host organization. The garden is also designed during this phase; DUG works closely with community members and the landowner to design a garden that is suitable for the site. Often this includes community design workshops, where potentially gardeners provide input; this ideally occurs in the fall prior to construction.

Construction

The construction phase can extend over many years; however, to initiate planting, only the basic infrastructure needs to be in place. The basic infrastructure generally includes plots, pathways, water access, perimeter fencing and tool storage which is usually achieved in the first year. After these elements are installed, items such as pergolas, compost bins, orchards and community gathering spaces can be added as funding and time permits. It may also be appropriate for the first season of a garden to be a pilot year, in which a handful of garden plots are established to gauge the level of neighborhood interest and build momentum for the garden.

At the end of this Handbook, we include steps for starting a traditional community garden ([Appendix B](#)), the construction timeline ([Appendix C](#)) and the steps for starting a school-based community garden ([Appendix D](#)). The timeline and steps required to establish traditional community gardens and school-based community gardens are also included in the New Garden Interest Packet and the Denver School Garden Coalition Operating Manual, respectively.

Costs & Funding

A community garden can be as simple or as complex as the community gardeners and the property owner desire. Each community garden and the resources and infrastructure it requires is unique.

When putting together a budget, remember that a garden can take up to three years to fully complete and funding can be planned for accordingly. Essential start-up elements include plots, pathways, irrigation, perimeter fencing and tool storage. When considering irrigation, it is important to know if the community garden has access to an existing water line or if a new water tap will be required. Irrigation and fencing are often the two most expensive line items in a community garden construction budget. Use [Appendix E](#), the Cost Estimate for a Typical DUG Community Garden, as a guide to estimate how much it will cost your community to establish a community garden and to create fundraising goals.

Denver Urban Gardens works closely with communities to help identify and secure funding. DUG staff provides significant services at start-up and throughout the life of the garden, including, design, construction, community and leadership organization, garden programming and resources, accounting and troubleshooting. DUG provides our staff time on an in-kind basis, when possible. Hard costs for a typical DUG garden are generally between \$15,000 and \$25,000. While this cost may seem daunting, DUG is continually raising funds for each project. As part of this process, it is critical that communities embark on independent fundraising efforts as well. When a community comes together and collectively works to raise funds for the garden, a by-product is an increased sense of ownership and commitment to the community garden.

Successful fundraising is the outcome of strong community partnerships. When looking for funders to adopt portions of the cost and labor associated with constructing a community garden, remember to include in-kind donations of services, materials and equipment. In-kind donations are a way to reduce the overall cost of a garden and engage supporters that may not have cash to contribute. Consider approaching local businesses, foundations, and philanthropists that see the value of investing in their community. Plant sales, community events and community grant programs are all great options for community garden fundraising, as well as partnerships with nearby businesses (such as restaurants and local grocery stores), where a portion of the proceeds for a particular day or event can go to your garden. Consider completing the Reciprocal Mapping exercise (see [Appendix F](#)) to thoroughly understand the community partners and entities who will most likely benefit from the development of the community garden; this audience is likely to answer requests for donations and extend these requests into their communities of influence.



*Developing
Partnerships &
Collaborations*



DUG's Collaborative Model



The success of a community garden relies heavily on the partnerships and collaboration created throughout the planning, implementing and maturing phases of the garden.

DUG's community gardens are collaborative by nature. Lasting partnerships between groups, schools, neighbors, businesses and generations are crucial to the long-term success of a community garden. We approach each garden in partnership with the neighborhood and with inclusivity in mind, engaging as diverse a profile of participants as possible. We work very closely with other organizations providing related education programs and human services. We work to recruit construction labor from local volunteer groups, and we look to increase the number of partnerships with corporations and youth organizations. In building new gardens, we maximize our efficiency through collaborations with partner agencies such as low-income housing authorities, local governments, school districts, community centers, and like-minded non-profits that focus on youth education, food security, healthy living and nutrition.

Asset-Based Community Development

Asset-based community development (ABCD) is the process of determining and uncovering the community's existing strengths and assets as a means for sustainable development (Kretzmann, 1995). Asset-based community development works from the principle that every single person has capacities, abilities and gifts that can be utilized to build a web of strong community connections. It focuses upon the assets of individuals and communities, rather than the needs, deficits or problems. Such an emphasis allows positive change to occur from within the community. Assets encompass resources, which may include individual gifts, associations, institutions, land and buildings, but the term has a much broader definition. For example, people in low-income communities may be wealthy in assets, but poor in resources. In the Sun Valley neighborhood in Denver, for example, many immigrants come with assets such as the ability to support family members and/or agricultural skills, but they need resources such as adult English as a Second Language (ESL) classes and an introduction to the Western banking system in order to more fully immerse themselves in their communities.

Partnerships

Service-Based

[Atlantis Community](#)
[Colorado Coalition for the Homeless](#)
[Denver Housing Authority](#)
[The Gathering Place](#)
[Mercy Housing](#)
[Metro CareRing](#)

Faith-Based

[Denver Urban Ministries](#)
[Discovering Opportunities and](#)
[Outreach for Reflection \(DOOR\)](#)
[First Plymouth Church](#)

Health-Based

[Clinica Tepeyac](#)
[Colorado School of Public Health at](#)
[the University of Colorado Denver](#)
[LiveWell Colorado](#)
[Tri-County Health Department](#)

Youth- and Education-Based

[Adams County Head Start](#)
[Boys & Girls Club](#)
[Denver Public Schools](#)
[Mile High Youth Corps](#)
[Rangeview Library District](#)

Municipalities

[Denver, Arvada, Aurora, Commerce](#)
[City, Englewood, Edgewater, Golden,](#)
[Lakewood, Littleton, Sheridan, Thorn-](#)
[ton and Westminster](#)

Denver Urban Gardens intrinsically utilizes the ABCD principles in its basic philosophy and process of garden design and implementation. Healthy communities need time to grow, and essential to this growth is the participation of diverse individuals with varied community-based assets. Below are three main phases in which DUG encourages and helps communities identify their assets.

Organizing

The collaborative process begins with a visioning phase, which assesses the web of potential assets in the garden community. During this phase, DUG helps to identify community members who might serve as volunteer garden leaders and assist in various steering committee roles to help assure smooth functioning of the garden. Not only do we identify the skills already present within the community, we also assist with skill development by offering the help of our Master Community Gardener and/or Master Composter volunteers. By providing facilitators and teachers when requested, DUG equips participants with the skills necessary to establish a successful garden. Denver Urban Gardens seeks to empower others in their own process to develop a sustainable garden.



Actualizing

During this phase, DUG works with volunteer groups, gardeners, community-based nonprofits, businesses and institutions to mobilize and build assets beneficial to the garden. Central to this phase is the concept of allowing the garden to develop slowly, as community capacity increases. Involving a wide array of participants and stakeholders allows gardens to be truly built from the ground up. Gardens depend upon the unique skills and abilities of residents and their willingness to reach out and engage others in a spirit of common unity.

Reflecting

Over time, garden leadership intentionally reflects on the evolution of the garden. From soil preparation, to emerging seed, flower, fruit and eventual winter period of rest, DUG gardens are deeply rooted in the specific goals and objectives of each unique community. Each garden's goals, purpose and day-to-day operation are evaluated, fine-tuned, and driven by community capacity, with a deep respect for cultural perspectives and preferences. This is done by listening to the stories of garden participants, gathering information about how gardens affect members and the surrounding community, and formulating ideas for addressing ongoing and future needs. This allows for opportunities to understand and adapt what works best for each specific garden.

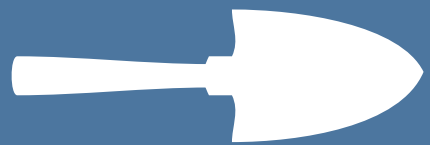
Reciprocal Mapping

Reciprocal mapping is an exercise designed to help communities identify complementary partnerships (Abi-Nader et al., 2005), and, is a natural extension of the ABCD methodology. This exercise asks community gardeners to think outside the garden and identify possible, mutually beneficial partnerships.

In [Appendix F](#), there are two worksheets, one completed and one blank, from the American Community Gardening Association. On the completed worksheet, please note the many ways in which a community garden and the surrounding community can intersect and strengthen each other. Now, look at the blank worksheet. Take time to closely examine the community in which your garden may be located. Think about your community: its informal social groups, churches, schools, libraries, etc. Fill in the blank worksheet with the potential partnerships that may result from increased outreach and organization in your community.

Reciprocal mapping is a tool that will be useful throughout the life of the community garden. It encourages gardeners to ensure the garden reflects and is integrated into the surrounding community.

Selecting a Site



Site Selection

It takes time for a garden to set its roots in a community and to begin to affect the health and wellness of a neighborhood. Finding land that will remain designated for that garden is paramount. To ensure a garden's longevity, DUG carefully looks at the prospective garden sites before we commit to assisting a community in the creation of its garden. Below are the criteria DUG considers before committing to supporting a new project:

Need & Critical Mass

Before active planning begins, we will always assess community readiness: ensuring there is a critical mass of committed participants, broad-based support, agreement from participants on the need for the garden and the multiple purposes it may serve, and the availability of a sustainable, long-term site. Sustainability is at the heart of our community organization process, and community readiness is essential to a solid start.

Identifying Primary Purposes for the Garden

The gardeners must have a clear sense of purpose. Whether the purpose is singular or multi-faceted, it must be easily identifiable and strong enough to drive the viability of the garden into the future. The most enduring core purposes are 1) the need for space to grow food, 2) the desire to educate children in the wonders of nature and healthy food, 3) the desire to build community, and 4) the wish to create an natural oasis in the city.

Need for a Core Group of Committed Gardeners

We take care to ensure that each garden has broad-based interest and support and is not the pet project of one or two people. It is essential to the success of a project that a core group of participants commits to being actively involved in the garden. What constitutes the minimum number of people is subjective, but our experience indicates that 12-15 committed participants is a promising starting point. If a garden is successful in its inaugural season, the number of participants will likely grow to maximize the capacity of the garden. Conversely, if the garden does not have a critical mass of committed gardeners, it is almost sure to struggle.

Developing Long-Term Project Partners

In an effort to strengthen the garden at its inception, it is important that this core group of participants seeks out partners that might have an interest in being involved. As noted previously, this could include nearby churches, youth groups, schools, food banks, as well as organizations serving populations in-need. And it never hurts to have the support of local businesses, restaurants and chefs, and even local artists. The more diverse the outside interests in the garden, the more sustainable a garden tends to be.

As the diversity of a garden's participation expands, so does the potential for long-term partnerships to develop. This in turn strengthens the viability of the garden. For example, a faith-based group may wish to garden a collection of plots to support the local food bank, or a teen youth group might partner with the elementary school to develop an after-school mentoring program in the garden. A garden is especially strengthened when the agency that owns the property is actively involved in the use of the garden.

Characteristics of a Viable & Sustainable Garden Site

There are a several key characteristics of a candidate site that can lead to a thriving, sustainable community garden. DUG evaluates and eventually helps communities select sites based on these key attributes. The first four outline considerations that help determine if land is suitable for a community garden, with the last six specific to the site itself. Please see our website or contact Denver Urban Gardens if you would like further detail on site selection process for community gardens.

Public/Institutional versus Private Sites

DUG typically builds community gardens on institutionalized public land. This allows long-term relationships to flourish without the fear of the land being sold or repurposed.

Based on our experience in maintaining garden sites, DUG gives privately owned land a wide berth. Even if the property owner has a heart for community gardening, in the end they are speculating on their land with the garden ending up as the feel-good temporary use. When the private site is sold for development (we find that this is an eventuality of all gardens on privately-owned land), the garden and its partners lose everything that was collectively invested.

Selecting the right property for a new project, one in which a garden has a greater likelihood to be permanent, such as in a park, along a greenway, next to a community center or on the grounds of a school or library, has become a high stakes process for DUG. Community gardens on publicly-owned land foster greater community partnerships and increase sustainability.

Site History and Environmental Status

Healthy soil creates a foundation for growing healthy food. Thus, it is important to know what the soil contains, from both a horticultural and food safety perspective. Soil testing is of particular importance in an urban setting where industrial contamination is a possibility. Soil tests provide information about the health of our soil and the safety of the food that it produces. Soil testing requirements may vary among organizations and/or landowners with whom you are working. DUG collects and sends samples of the existing soil at each new garden site to the [Colorado State University's Extension Service and Experiment Station](#). A typical test includes a report on pH, salts, lime, soil texture, organic matter, available macro and micro-nutrients. You can also request to test for heavy metals (i.e. arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver) and petroleum. The Extension Service will test soils from individuals starting at \$28 per sample. For gardeners outside Metro Denver, contact your local extension office or try the [Colorado Analytical Laboratories](#), which is located in Brighton, Colorado, but serves people nationwide.

Zoning and Adjacent Uses

When community gardens are pitted against other important land uses, such as an affordable housing project, a health clinic or a soccer field, they often do not fare well, especially since most everyone but the garden participants think that gardens are easily moved at very minimal expense. DUG is constantly faced



The Challenge of Private Land

In Denver's many gentrifying neighborhoods, suitable land is scarce, and more often than not, is well beyond reach. In 2006, the property owners of Capitol Hill's Emerson Street Community Garden put the garden site up for sale for an unattainable price of \$1,200,000, thwarting any efforts of the gardeners and the community to mount a grassroots campaign to save the garden.

with dispelling this stereotype when working to preserve urban space for gardens. The key to this work is changing the perception of community gardens in the eyes of city officials and the public from temporary, easily moved placeholders for higher and better uses to active, healthy and productive open spaces valued by their urban neighborhoods.

Central Location

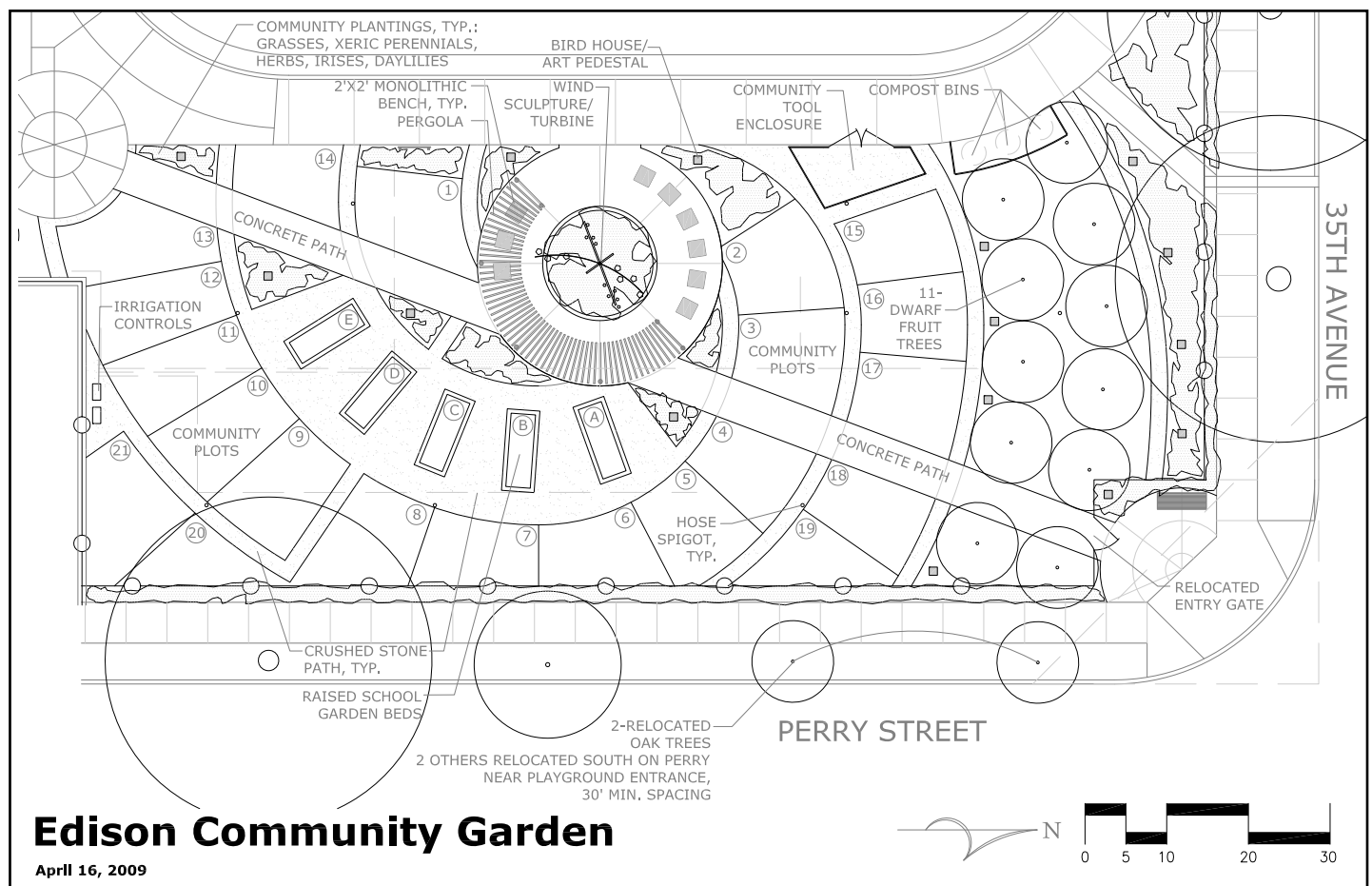
From our experience, it is extremely important that a garden is situated in a highly visible location within a neighborhood. Gardens in the backs or corners of properties, out of the sight of the general public, are typically not as well tended or as well utilized as their centrally located counterparts. It is far better when the garden's permanent home is in a prominent location and part of the everyday landscape of the community it will serve.

Size

A typical DUG community garden has 25 plots and each plot is approximately 10 by 15 feet in size or 150 square feet. While this is the average, community gardens can be designed to fit many different site configurations and sizes. To maintain a critical mass of gardeners, the total garden size should be a minimum of 3,000 to 3,500 square feet and accommodate a minimum of 10 to 12 garden plots.

Access to Water

A garden needs a reliable source of water to thrive. A hose connected to an adjacent building is inadequate to effectively serve a community garden. Multiple gardeners need to be able to water at the same time, without dragging the hose across their neighbors' plots and damaging their plants. When a new garden is going to be located within the landscaped area of an existing facility (i.e. within a park, on the grounds



Credits: Gretchen Wilson and Paul Stewart, AECOM Design + Planning

of a school or library, or as part of the open space of a housing complex), connecting to an existing main waterline is ideal. If the garden site does not have an existing system to which to connect, a new water tap will need to be installed.

Accessibility and Slope

An inclusive garden needs to be easily accessible to all participants regardless of their physical capabilities. Accessibility is increased when the garden site is bordered on at least one side by a 4- to 5-foot sidewalk. It is also useful if a garden is bordered by a parking lot, public street or alley for ease of seasonal garden deliveries such as compost and mulch.

Additionally, it is ideal if a prospective garden site is relatively flat. A sloped site requires terraced walls to establish level garden space, along with the construction of stairs and ramps. These elements can significantly increase the cost of a garden, often by several times the cost of a flat site.

Sun Exposure and Drainage

A productive garden site tends to need direct sunlight for at least six hours per day. It is important to assess the impact that shadows from adjacent buildings and trees will have on the garden. Even in a semi-arid climate, drainage must also be considered to prevent flooding in the event of heavy a summer storm. Drainage features such as swales and French drains should be considered to direct storm runoff toward the garden sites' property lines.

Easements and Setbacks

Prior to confirming that a garden site is feasible, it is critical to research and understand property-related constraints on the garden's design. Major considerations include utility easements crossing the site and/or setback requirements from adjacent properties. These dictate the extent of the garden or the location of garden structures. In addition to following the code-related requirements, consider that an easement protects a utility provider's access rights to repair or upgrade their utility, therefore, anything located in an easement might have to be dug up at some point in time. We recommend designing major features in other areas of the garden.

Other Characteristics Unique to the Site

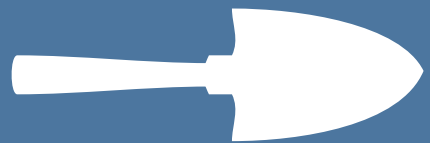
Each new garden site tends to have one or more unique features that inform the design. The shade of a large tree, for instance, is a wonderful place to locate the garden's gathering space. An informal community path across the vacant site may be worth retaining for the main garden pathway. If a garden site is hosted by an organization offering complementary programming, it would be beneficial for the garden to be easily accessible from the building. Also consider orienting the garden to take advantage of a special off-site view or feature.

Use Agreements with Property Owners

From our experience, it is essential to formalize arrangements between the garden's sponsoring organization and the property owner, and in-turn, between the sponsoring organization and the gardeners. As a sponsoring organization, DUG typically develops a Use Agreement with each garden's property owner, which lays out terms such as: the purpose of the garden and the site's allowable uses; the length of time the agreement is enforced and the process for its renewal; the responsibility of each party during the garden's operation, including obligations for the sponsoring agency to carry liability insurance; and remedies if either party is not in compliance with the Agreement. DUG's Use Agreements also reference our relationship with the garden's leadership committee and outline their responsibilities. Having a Use Agreement in place for the garden protects all of the parties involved, helps to create effective lines of communication and responsibility, and goes a long way toward establishing a garden for the long-term.



*Designing &
Construction*



Design Process

Once a site has been selected, there are several very important underlying considerations when initiating the design process for a garden. First and foremost, the site plan should reflect the collective ideas, needs and wishes of the garden participants. Input should be gained in a series of meetings, ideally in the fall before construction begins, in which garden participants, property owners, project partners, site neighbors, community leaders and city officials discuss the desired site uses along with its character.

It is also very useful to have the support of design professionals from the community, or through a sponsoring organization such as DUG. This will help to ensure a garden is 1) well designed, built and organized; 2) affordable, durable and easily maintained; and 3) capable of becoming a unique and cherished place.

Design Elements

In addition to the key [Characteristics of a Viable & Sustainable Garden Site](#) previously described, a summary of important design considerations includes the following:

- Identifying the variety of uses and garden amenities desired, including the potential to accommodate alternative uses in the garden such as hosting community events (i.e. memorials, weddings and dedications)
- Locating and allocating adequate space for the desired uses, and integrating those uses effectively
- Identifying key access points and predicted circulation through and around the garden, informing the layout of a garden pathway system
- Integrating the neighborhood's unique history and character into the theme of the garden
- Infusing art in the garden in the form of murals, sculpture, special paving, bird houses, etc.
- Identifying the type and location for the garden's perimeter fence, entry and service gates (typical DUG fencing: 4 feet tall black vinyl-coated chain-link fence, ideally with a top support wire versus a top rail to make it more difficult to jump the fence)
- Agreeing collectively to a set of material choices for elements such as garden plot edging, pathway surfaces and vertical growing structures
- Sizing garden plots to meet the community's needs, while making them dividable to increase the garden's capacity to engage more participants (plot size range: 100 to 300 square feet; typical: 150 square feet)



- Sizing pathways to promote efficient circulation (main paths: 4 to 5 feet wide; secondary paths: 2.5 to 3 feet wide), while choosing ADA accessible surface materials such as crusher fines (when combined with a bonding/hardening agent) and/or concrete where necessary
- Locating garden spigots strategically to serve four to six plots each, to help gardeners avoid dragging hoses across other garden plots
- Considering the need for drip irrigation zones for common beds (i.e. fruit trees, perennial beds, etc.)
- Locating the best place for the garden sign and message board (typically at the garden's main entry)
- Finding a convenient location for the garden's storage shed or tool box (consider a structure that is weatherproof, secure and size appropriate for garden tools. DUG uses either 10 by 10 feet prefabricated tool sheds or Knaack model 60 tool boxes.)
- Considering the need for raised beds for gardeners with limited mobility and for sites with extremely poor soil (typical DUG raised bed size: 8 x 4 x 2 feet)
- Locating the community compost bin area in an accessible and functional location
- Considering the type, size and location for community gathering spaces (i.e. areas for picnic tables, benches, a youth farmers' market, a children's discovery garden, an art display space, etc.)
- Identifying a location for shade elements in the garden (i.e. pergola, shade trees, etc.)
- Selecting a location for community planting beds if desired (i.e. perennials, herbs, border hedge, cut flowers, etc.)
- Finding a location for a grove or line of dwarf fruit trees (typically on the north side of the garden and spaced 12 to 15 feet apart)
- Determining the need for security lighting (either provided by the landowner or by utilizing individual solar powered lights)
- Considering complementary projects, as capacity and time permits, that would add value to the garden (i.e. bee hives, chicken coops, etc.)



Construction Process

Once the master plan for the community garden has been agreed upon, the next step is to begin the construction process. This process offers a variety of roles for participants and has its own timeline (see [Timeline](#) section). Below we outline some of the key roles for skilled and unskilled labor, as well as requirements to begin the construction process.

Skilled Labor Needs

It is ideal for garden participants to build as much of their garden as possible; this contributes to their sense of ownership and stewardship for the space. That said, DUG finds that most communities need guidance with each step in the construction process, as well as skilled labor to install the garden's basic infrastructure. DUG typically engages a landscape contractor to clear and grade the site, and if necessary, to build retaining walls, install drainage features, install the water tap, establish the water connection, install the garden's irrigation system, and build in-place the garden's tool shed. It is also necessary at times to have a contractor's assistance installing of the garden's perimeter fence. This work can be completed for a significantly reduced cost if a garden's community has skilled and willing volunteers with landscape construction experience.

Volunteers

DUG utilizes volunteers, with our staff's skilled supervision, to complete the other elements of the garden including plot edging, soil amendment, crusher fines pathways, paved courtyards, raised beds, perimeter fencing, common beds and tree planting, bench and picnic table installation and pergola construction. These activities are often completed during scheduled volunteer work days. Volunteer work days are typically in the morning and last three to four hours. Volunteers include new garden participants as well as those wanting to volunteer from a community building motivation.



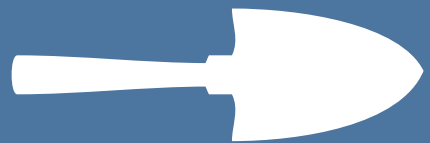
In our experience, gardeners gain confidence in their ability and capacity as they become very capable of completing new improvement projects on their own with limited DUG guidance and supervision.

Required Permits and Utility Locates

Many jurisdictions require permits for a garden's grading and drainage, perimeter fencing, irrigation connection and structures such as shade pergolas. Most jurisdictions do not require a permit for structures under 120 square feet in size, such as prefabricated tool sheds.

For safety reasons, locating underground utilities is required prior to initiating construction. In Colorado, as well as the rest of the United States, calling 811 will direct you to your local operator who will schedule a utility locate with the appropriate agencies. To learn more about this process, please visit the [811 website](#).

*Establishing
Community Garden
Leadership*



Community Garden Leadership

Each community garden site is locally managed by a garden leader or steering committee. DUG encourages management by a steering committee, which allows the responsibilities to be shared so that one person does not become either overburdened or in control of too many decisions on his or her own.



Words of Wisdom

“It’s pretty simple. Whatever success I might have obtained, I would say it’s a matter of surrounding yourself with dedicated people, who are brighter than you are. Responding, listening, being open and respectful, and having a good sense of humor are all important. I’ve also been lucky. I’ve had some wonderful, highly dedicated, passionate people in the garden. I just sat back and tried to bring them all together.” —Dave Conant, Community Garden Leader for 12 years

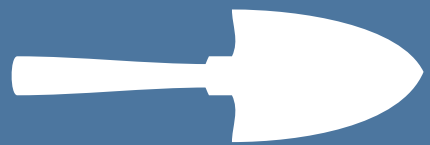
At the very heart of Denver Urban Gardens’ mission is the volunteer work of garden steering committee members. These committed and deeply involved volunteers set the tone for each unique community garden. Steering committee members model a spirit of inclusivity that encourages cooperation, shared responsibilities, and sustainability. They encourage mutually beneficial relationships between gardeners, neighbors and visitors alike. Their work helps to expand local food security in the community and makes the neighborhood safer, healthier and more beautiful.

We encourage all of our steering committee members to promote the following core values as they lead efforts to carry out the majority will of the community garden. From our experience, steering committee members are:

- collaborators who are community-minded and work closely with their fellow gardeners, neighbors and DUG to create deeply rooted community in the garden;
- gardeners, new and/or lifelong, who desire to learn from and with others;
- communicators who provide consistent, clear messages to gardeners, neighbors and DUG about the garden, including expectations and needs. Garden leaders regularly listen to gardeners, gather consensus, and effectively manage expectations in a way that promotes the ideals of inclusiveness and tolerance;
- ambassadors to other gardeners, neighbors and visitors of all ages, backgrounds and abilities. They empower individuals to use their own unique gifts and skills to participate in the garden in meaningful ways, utilizing differences to create a stronger sense of community;
- mediators who understand that conflicts between people naturally arise from time to time, and are willing to mediate minor disagreements between gardeners (DUG is always there to step in to assist with particularly challenging conflicts); and
- organizers who track details including membership, waitlists, work hours and garden budgets and also provide thoughtful coordination of community work days, produce donations and events.

To read through the suggested roles and responsibilities for DUG garden leaders and steering committees, please see [Appendix G](#) and [Appendix H](#), respectively. These have been fine-tuned over the years and we have found them to foster successful community gardens. Suggested steering committee activities by month are included in [Appendix I](#).

Engaging All Community Members



Engaging Gardeners & Non-Gardeners

Although community gardens may be able to provide growing space for a certain number of gardeners, they have the potential to engage and benefit all community members in some way. Community gardens provide a great space for gatherings, community events, picnics and finding peace in a sometimes overwhelming urban environment. The key is making the community feel comfortable to enjoy the garden along with the gardeners. When the surrounding neighbors gain a sense of understanding and pride for the space, the garden is much more likely to be protected and thrive.

Cross-Cultural Communications

A community garden brings together a cross-section of the neighborhood in which it is located. While this provides opportunities to unite over similarities and differences, it can also, with a few missteps, cause and perpetuate miscommunication. Effective cross-cultural communication requires openness, a focus on the inherent strengths, rather than challenges of individuals, and a willingness to promote a culture of inclusivity within the community garden.

When there are multiple languages being spoken, volunteers, both adults and children, help translate and communicate the details of events such as work days and potlucks, into the languages spoken and understood by the gardeners. To facilitate this, gardeners can choose commonly understood words and phrases and avoid the use of slang and acronyms.

Learning to be a competent cross-cultural communicator also requires that one acknowledge all of the voices present and those that are silent (this even means tapping into nonverbal cues). To foster a culture of trust, where all voices are heard, one must step back and ensure that everyone's voice is present. If a gardener is not providing input, it is important to understand why and figure out the type of dialogue that is comfortable for him or her. The remedy for this situation may greatly depend on a variety of cultural characteristics: age, ethnicity, gender, and the gardener's skill level.

It is also important to consider the timing of gatherings. Pre-scheduling events and meetings for a variety of days and times helps to accommodate community members with varying schedules.

Ultimately, when working with any group, particularly a diverse group, it is important to cultivate the principles of Asset Based Community Development: working with the existing strengths and resources of a group. As described earlier (see [Asset-Based Community Development](#)), this provides a solid foundation in which the principles of sustainability and social equity are joined for the benefit of the garden.

Events

Community gardens are encouraged to hold events that are open to the public in an effort to engage neighbors that are not directly involved in the garden. This allows non-gardeners the opportunity to appreciate the garden as a space for community engagement and gives gardeners a chance to share the beauty they have created. Often these events are also a chance for the garden to do a bit of fundraising.

Some examples of events include holding a yard sale, celebrating season's end with a harvest festival, hosting a musician, or creating a space for an art exhibit. We encourage gardens to independently organize and facilitate these events, which allows them to tailor the event to their specific community. Events can be advertised through listservs, discussion boards, social media groups and posting flyers throughout the community, word of mouth and/or local newspapers.



Elati Community Garden Events

Elati Community Garden is located near the Santa Fe Arts District, which is known for opening the doors of the art studios in the area on the first Friday of each month. During the growing season, Elati Community Garden holds an art fair and bake sale on First Fridays to coincide with their neighborhood culture.

On First Fridays, gardeners provide the baked goods, which are sold as a fundraiser for the garden. Gardeners and non-gardeners showcase their art, and local musicians and chefs contribute their talents.

The spirit is festive with many gardeners and non-gardeners enjoying the art, food, music and overall beauty of the garden.

Common Concerns

People who are new to community gardening may have questions about whether the garden will affect the neighborhood in adverse ways. Below are a list of common concerns and the ways in which these issues are addressed. Please contact the DUG office if you have further questions; we are happy to connect you with community gardeners who have worked with their community to overcome these misconceptions.



Theft and Vandalism

We recognize that theft and vandalism are different and may have different motivations. Community-wide engagement is the top priority in preventing both of these detrimental activities. See [Appendix J](#) for a full list of recommendations on how to deal with theft and vandalism.

Odor and Rodents

There are often worries about the potential for unpleasant smells and unwanted rodents associated with garden compost bins. With a well-managed, healthy compost pile these concerns are unwarranted. To avoid these nuisances, it is important to educate gardeners about what is al-

lowed in the compost pile (we suggest garden material only be allowed with, no food scraps from outside sources) and to make sure that the compost pile is covered. In a well-maintained and regularly turned pile, matter decomposes quickly and does not emit an unpleasant odor.

Parking

There are often concerns that garden participants will monopolize a valued segment of street parking in proximity to the garden. While some people may regularly drive to the community garden, many will walk and bike. Community gardens, by their nature, inherently appeal to the immediate neighborhood and typically draw from a base of support within walking distance. Additionally, gardeners have varying schedules and visit the garden as their time permits, limiting the number of parking spaces needed at any one time.

Excessive Noise and Lighting

With a new amenity in the neighborhood, people may have concerns regarding excessive noise and night lighting. Community gardens occasionally conduct group work days, evening potlucks and may host a neighborhood event such as an art opening, an education workshop, a public cooking demonstration, or even a wedding, dedication, or memorial service. While noise and lighting may have been an initial concern for neighbors, we have found that this apprehension dissipates once the garden is in place and events occur. Community gardeners are sensitive to their neighbors and want to enhance the neighborhood; they garden, celebrate and learn in such a way that is not intrusive or unpleasant. Additionally, community gardens will often observe quiet hours: a time by which gardeners are expected to keep their voices down or conclude events and gatherings (e.g. quiet hours may be from 9pm to 7am).

Invasion of Privacy

Concerns may arise about residential privacy, just by the adjacency of some gardens to private yards and outdoor spaces and by the presence of gardeners, especially in the early morning and evening hours. As noted earlier, many gardens observe quiet hours. Neighbors tend to find their initial concerns to be unfounded, as community gardeners end up being a built-in neighborhood watch group.

Aesthetics

There may be a concern that the community garden will become untidy and unsightly. Community gardens, by their nature, can appear eclectic and at times untidy to passers-by (especially in the off-season, November through March). It is our experience that even an eclectic garden will be accepted by the community, if it is constantly tidy. In DUG gardens, all participants are expected to follow our [Community Garden Maintenance Guidelines](#). Community gardeners who do not adhere to the Guidelines may not be asked to return to the garden the following year. (For detailed information on the Guidelines see below.)

Responsibilities & Work Days

A community garden only works if everyone feels responsible for the care and maintenance of the entire space, including individual plots, pathways, herb and perennial gardens, fruit trees and common spaces.

Community garden landowners require DUG to ensure that garden participants keep their garden sites clean, attractive and orderly at all times, including during the off-season. The garden must have a unified and tidy appearance to landowners, city officials and the general non-gardening public. The benefits of a well-maintained garden are at minimum three-fold:

- the Use Agreement for the garden remains in good standing with the landowner,
- landowners, neighbors and non-gardeners enjoy and recognize the community garden as a community asset, and
- your community garden will harbor fewer pests and weeds and will be healthier from year to year.

The community garden is a community responsibility. Ultimately, everyone must help maintain the common areas of the community garden, such as the compost bins, tool shed, waste containment area, fruit trees, flower beds, street fronts and sidewalks, entries, pathways and courtyards.

Each community garden establishes how many hours gardeners are expected to contribute to the care of common areas. The most common technique community gardens use to ensure gardeners are given a opportunity to contribute are periodic group work days. These are generally held twice a month for a few hours. The garden steering committee creates a to-do list and asks all gardeners to join in on these projects. Some of the common projects include weeding pathways, herb gardens and perennial beds; repainting benches; pruning grape vines and fruit trees; compost maintenance; organizing tools and the garden shed and general garden clean up.

Another method gardens have found successful is to have each garden-er sign up for one or more of the garden maintenance committees. These committees could include being responsible for the compost, fruit trees, perennial gardens, herb gardens, general maintenance and event planning. This gives gardeners a chance to help with the task they feel most comfortable with, as well as allow more flexible schedule for accomplishing their tasks.

Besides the actual work that gets done during these times, work days and committee participation are also a great platform for gardeners to get to know one another better. Getting a couple gardeners together to build a compost pile or weed an herb garden creates a perfect opportunity for team building, sharing and accomplishing something together. All of this builds a stronger and more sustainable garden.

It is important to recognize that all gardeners have a significant role and responsibility regarding the physical sustainability of a community garden. Participation in a community garden is a privilege, and all gardeners should be expected to do their fair share of work beyond maintain-

ing their individual plot. While it is the responsibility of the community gardeners to ensure compliance with the Maintenance Guidelines, DUG is committed to assisting a garden with clean-up when it is out of compliance with these guidelines and is in jeopardy of losing its Use Agreement.



Community Garden Maintenance Guidelines

By following the Community Garden Maintenance Guidelines, outlined below, gardeners contribute to ensuring that community gardening continues to thrive. Community gardens can be either positive or negative examples, affecting the ability for others to secure space in other neighborhoods for new community gardens. In DUG gardens, each new gardener receives these Community Garden Maintenance Guidelines. These Guidelines have worked well for DUG, and we encourage other garden networks to consider establishing something similar for their situation.

Garden Plots

Each plot in a garden is expected to be kept clear of weeds, spent plants, debris and trash. We recommend that each fall, gardeners turn compost and organic material into the soil and cover it with a layer of mulch to regulate soil temperature and retain moisture throughout the winter. This makes a garden plot look cared for to passers-by. Any perennials must appear well kept.

Water Usage

Denver Urban Gardens encourages an efficient and wise use of water, which reduces water costs and the proliferation of weeds. This includes using a hand-held watering wand with a shutoff nozzle, rather than a dirp system, and watering at the base of the plant with a low volume spray. The EPA estimates that “manual watering with a hand-held hose tends to be the most water-efficient method, as households that manually water with a hose typically use 33 percent less water outdoors” (*Conserving Water*). See [Appendix K](#) for more suggested water conservation techniques.

Vertical Structures

Structures to encourage vertical growing, including arbors, trellises, tree branch frames, fence sections and cages are only allowed during the growing season if they are functional, orderly, safe and attractive. Vertical structures used for growing must appear in good condition and contribute to the community garden’s overall visual continuity. We require that all growing structures be disassembled and removed during the off-season. Permanent vertical structures in the community garden are allowed to remain if they are approved by the steering committee and DUG, are in good condition, and are attractive from the street.

Shelter Structures

Denver Urban Gardens does not permit the construction or existence of permanent shelter structures within individual or shared community garden plots, including personal sheds, storage, or shade units. Individually constructed shelter structures present safety concerns and are antithetical to Denver Urban Gardens’ community-based approach. If there is a need for additional community storage space, DUG assesses the possibility of installing additional shared storage in the garden. Based on our use agreements with landowners, DUG is required to approve all new structures prior to construction.

Off-Season Storage

The following items are not authorized to be left standing during the off-season and must be disassembled and stored in the garden shed or removed from the site when not in use: chairs and individual benches, shoes and clothes, steel T-posts, buckets, plastic containers, wire cages, fencing, plastic plant pots, tools, wheel barrows, wagons, piping, hoses and nozzles, piles of brick and stone, water containers, bags of compost or leaves and non-permanent garden art.

Compost Bins

Denver Urban Gardens encourages using and maintaining community compost bins. Individual compost bins are discouraged as they distract from the visual continuity of the community garden. To help ensure that compost piles in community gardens are in good condition, DUG offers assistance in building community compost bins as well as free composting workshops throughout the growing season.

All material used in compost bins should be chopped into one- to two-inch pieces before being added. Plastic bags of spent plants, grass clippings and leaves, unopened bags of topsoil, compost or manure are not allowed to be stored in community gardens at any time. To passers-by, they may appear to be bags of trash.

Plot Boundaries

Interior boundary fences around individual plots are discouraged; they are difficult to weed around and can quickly make the overall garden unsightly. The preferred boundary is a weed-free edge between plots and the adjacent path or neighbor. With steering committee approval, plots may be edged with a low-profile (less than 12 inches high) edging material, which is in good condition and well kept. We discourage the use of scrap materials, such as broken bricks and concrete, small fragments of stone or pavers, scraps of wood, metal or plastic edger and white wire fencing. We also discourage the use of pressure-treated landscape timbers: 2" x 6" or 2" x 8" cedar planks are an excellent non-toxic alternative for plot edging. Ideally, the garden steering committee, with input from all gardeners, selects a preferred material for all gardeners to use. This approach contributes to the overall visual continuity of the community garden.



*Denver Urban Gardens'
Complementary Programs*



Programmatic Support

Denver Urban Gardens does not seek to do for others, but rather to provide the necessary tools to individuals and communities who want to learn and do for themselves. Below are brief descriptions of some of the specific programs offered by DUG. The first four programs listed below rely on our large network of gardeners and volunteers and the overarching organization of Denver Urban Gardens to be successful. Produce donation, bee hive and chicken coop programs are more often considered on a site-by-site basis and are easily implemented at a single-garden. Our youth education programs fall under both of these categories. While only briefly discussed in this Handbook, DeLaney Community Farm is also run by DUG staff and volunteers. Please see our website or contact Denver Urban Gardens if you would like more information on any of these programs.

Garden Leader Support

DUG provides ongoing support for our network of volunteer community garden leaders in a number of ways. Annual support includes hosting a symposium for all leaders, conducting mid-season check-in calls, conducting an end-of-season survey, and hosting a garden leader roundtable series. In addition to these events, monthly electronic communication, training upon request, assistance with leadership transition, and gardener mediation are available year round to DUG garden leaders.

DUG's Garden Leader Symposium provides staff the opportunity to share relevant policy updates and other important information with garden leaders, including the variety of free resources available to them as members of DUG's network of community gardens. This is the one time every year when all of the garden leaders convene together for what one community garden leader called "the city's largest potluck." DUG's updated Community Garden Plot Application and Waiver ([Appendix L](#)) that must be collected from every gardener is distributed during this meeting, along with our Community Garden Maintenance Guidelines.

In July and August, DUG's Garden Leader Coordinator reaches out to all garden leaders for mid-season calls to see how the gardens are doing, get feedback on any improvement or maintenance needs, and to offer additional resources as needed.

An end-of-season survey is distributed to all garden leaders near the close of the gardening season (typically October) to gather information and solicit feedback, including number of gardeners, local organizations that accepted produce donations, and comments on various DUG services or trainings provided throughout that season.



In 2012, DUG launched a garden leader roundtable series to provide a forum for leaders to share with each other knowledge and expertise on various topics. At the Garden Leader Symposium, garden leaders suggested roundtable topics. Based on these suggestions, seasoned garden leaders with topical expertise were asked to guide these forums.

Master Composter Program

DUG's Master Composter Program provides integrated education in composting, vermicomposting, solid waste management, and xeriscape basics. After 40 hours of classes, graduates give back at least 40 hours, educating the general public as well as community gardeners about ways in which composting creates healthy soils and decreases water usage. Participants help establish worm boxes at school gardens and work closely with community gardeners to refine their composting systems. Residents in the Denver metro area are encouraged to apply for this program, regardless of DUG affiliation.

Master Community Gardener Program

The Master Community Gardener Program is an 11-week course designed to train community leaders in all aspects of community gardening with a focus on community organizing, as well as basic horticultural knowledge. This hands-on course teaches participants the skills they need to create and maintain strong, vibrant and sustainable community gardens. After completing 35 hours of instruction, participants give back 30 hours of educational outreach, utilizing their skills to assist new or existing community gardens. Program graduates participate in a wide range of projects, including: work days at new gardens (building raised beds, installing fences, etc.), providing basic organic gardening outreach, working with children at after-school and summer garden clubs, assisting at youth farmers' markets, explaining the roles of garden steering committees, and helping to build a stronger sense of community within their own garden. While the public is invited to apply, current community gardeners are given priority in this program.



In Their Own Words

From my DUG Master Community Garden program, I learned valuable principles and guidelines to organize and grow communities. At the core is valuing the individual and recognizing that each gardener has something to contribute. The key is building on those strengths and assets.

—Sandy Peletier, Master Community Gardener

Free Seeds & Transplants Program



In Their Own Words

“This program has been a blessing to me and my family. By growing some of our own vegetables, my family and I are able to eat healthy and save money.”

“This program provides vegetables that are important to my well being that I could not otherwise have in my diet because I could not afford them because I am on a fixed income.”

“This program will help my family spend quality time together, and give us the opportunity to grow our own vegetables to eat.”

—Feedback from Free Seeds and Transplants Program Participants

Each spring we provide free vegetable seeds and transplants to over 6,000 low-income families and fixed income seniors, regardless of their participation in DUG's gardens. Our nearly 40 distribution centers are strategically located to provide greater access to those with transportation limitations. This program contributes significantly to the local food security of program participants. Participants are able to stretch their food budgets by growing their own healthy food and, in turn, utilize budget savings to address other critical needs in their lives, adding to their overall economic stability.

Youth Education

For over a decade, DUG has worked in partnership with Denver Public Schools (DPS), Slow Food Denver (SFD) and Learning Landscapes (LL) to establish gardens at schools. Of DUG's over 120 community gardens, over 30 are located on school grounds, with two to four new school-based community gardens in various stages of planning each year. Most school-based community gardens are located at elementary schools, though we are seeing a new community interest in middle and high school gardens.

DUG is committed to providing alternative spaces and resources for hands-on youth education and supporting each community garden in ways appropriate to that garden's particular needs, including developing a partnership between the school community and surrounding neighbors to strengthen garden sustainability. We believe the lessons offered in a garden are life changing for children of all backgrounds, but in particular, those from disadvantaged neighborhoods. Through the wonders of a garden, students experience hands-on lessons in biology and ecology, horticulture, wellness and nutrition, recycling, composting, and community building. In support of science and health education, we offer an integrated nutrition and gardening curriculum to school communities.

The Curriculum

Our seasonal approach to teaching builds a bridge for students between gardening, nutrition and science. This year-round curriculum provides opportunities for student inquiry and investigation into nutrition and earth and life sciences, with additional relevancy to math, literacy and social studies. Lessons are linked to the Colorado Academic Standards for Science and Comprehensive Health for easy integration into existing curriculum and are written in a user-friendly format accessible to both teachers and volunteers. The curriculum is designed to be flexible enough to be shortened to a set of core lessons that can be used in the classroom, or in an after-school or summer program. Please visit our website to view the [full curriculum](#).



The Volunteers

We believe the effectiveness of the work in school-based community gardens is enhanced when it is supported by a committed group of volunteers, which might include on-site community gardeners, parents, grandparents or neighbors. DUG's Connecting Generations program was created in partnership with the University of Colorado School of Public Health and adapts the Experience Corps® model for intergenerational mentorship, bringing older adult volunteers into schools to support and expand DUG's school garden programming. The broad goals of Connecting Generations are to strengthen school programming around gardens; support teachers and increase use of gardens year round; support school science and health curriculum and improve academic achievement; improve the health and well-being of both the children and adult volunteers; increase fruit and vegetable intake and physical activity; and strengthen social networks in the school community. A research study performed by the University of Colorado School of Public Health found that students who experienced a high level of contact time with these mentors had a greater increase in fruit and vegetable consumption (a quarter serving size) than those students with lower mentor contact time.

Helping Kids Get Healthy: A Workshop Series For Youth Educators

These unique train-the-trainer workshops are designed for teachers and volunteers who work in youth education programs that focus on nutrition and gardening, regardless of DUG affiliation. Offering trainings to educators and volunteers allows us to support a greater number of school communities. In these workshops, participants learn the basics of teaching gardening and nutrition to their students, using the DUG garden and nutrition curriculum as a foundation. Each workshop includes a garden-related lesson, a nutrition lesson and a corresponding snack.

Denver Youth Farmers' Market Coalition

The Denver Youth Farmers' Market (YFM) Coalition is a partnership between DUG, Slow Food Denver and a host of area elementary schools. The Denver YFM Coalition promotes opportunities for schools to bring fresh, locally grown produce to their communities by involving youth in school gardens and markets, thereby promoting healthy eating.

The Coalition collaborates with culinary and nutrition professionals and community residents to provide healthy cooking lessons using the produce offered at the markets. These markets serve as an opportunity to train youth, promote healthy eating and fundraise for ongoing garden programming and infrastructure needs. These markets are not for personal economic gain; therefore, all proceeds from the YFMs go back into each school's garden program. The flexibility of the YFM model allows each school to tailor programs and events to its community.

The Coalition was created in 2008 to provide a practical and effective way to offer the option to our gardens to create a YFM. In the first year, three schools participated in the Denver YFM Coalition. This number has grown substantially and in 2011, 32 sites held a total of 141 market days across Metro Denver. Many of DUG's YFM sites accept Supplemental Nutrition Assistance Program (SNAP) benefits, increasing access to fresh fruits and vegetables to low-income residents. To learn more about specific considerations and developing your own Youth Farmers' Market, see the [Youth Farmers' Market Handbook](#) on our website.

Donation Program

The community garden, through its inherent community building properties, enriches the lives of those who garden and those who live nearby. Creating and establishing a donation program is an ideal way for community gardeners to share produce with those in their neighborhood with limited access to fresh food. A donation program further integrates the community garden into the surrounding neighborhood and promotes a localized food system. Some gardens may choose to have an informal donation program where they give to neighbors, friends and family. Other gardens choose a formal approach where they collectively designate a food bank or hunger relief organization as the recipient of their surplus produce donation.



When establishing a donation program, it is important to plan from harvest to delivery. After a beneficiary of the produce has been chosen, it is important to work closely with the appointed charitable organization to establish protocols for the produce donation. Given the perishable nature of fresh produce, this will help ensure that the food is used, providing much needed nutrition for those in need.

Key factors and practices to consider for a produce donation program:

- Choosing between a formal versus an informal donation program.
- Choosing a recipient organization (taking into consideration availability of refrigeration, storage capacity and ability to accept raw, unprocessed food).
- Being aware of the preferred fruits and vegetables of the intended recipients.
- Knowing if there is a minimum donation amount (poundage) required.
- Scheduling regular harvesting days and delivery schedules.
- Designating a collection point in the garden that will keep freshly harvested produce cool.
- Having a plan for transporting food to the recipient organization in a timely fashion.
- Aligning delivery of the harvested produce to a time when it is convenient for staff and volunteers from the recipient organization to accept/process the produce.

Planning ahead and addressing each of these key considerations will help ensure the implementation of a successful donation program. Given that the Colorado School of Public Health's findings show that most (95 percent) community gardeners give away some of the produce they grow to friends, family and people in need, and 60 percent specifically donate to food assistance programs (Litt et al., in prep), it is evident that many garden leaders and steering committees have worked through the process of establishing a successful community garden donation program.

To tap into this existing experience and knowledge held by DUG's many dedicated leaders, community gardens new to establishing a donation program are encouraged to contact DUG, regardless of where you are located. We look forward to the opportunity to connect those wishing to establish a donation program and those who have successfully done so.



Donation Program in Practice

“In the first year as a community garden, the Ute Trail community gardeners donated 338 pounds of produce from seven community plots and individual gardener donations. In addition to working with existing community gardeners, Ute Trail publicized their collection days to solicit participation from neighbors. Initially, community gardeners resisted participating in Plant a Row for the Hungry (a program that encourages gardeners across the country to plant extra produce and donate it to food agencies in their communities) for fear there would be too little to share given their heavy clay soil. The garden leaders reminded folks that if each gardener donated one row of produce, it would make the idea of a donation program less daunting.

Garden leaders solicited nominations and held a vote for a food bank recipient. The Action Center was chosen because they were very open to accepting anything fresh, making it easy to donate. Also, The Action Center was close to the garden, making it feasible for many gardeners to help with delivery.

Collection days were held once a week. In the beginning of the project, gardeners collected donations throughout the entire day. Because there was no refrigeration at the garden, gardeners took turns bringing coolers to store the produce. Even with coolers, the heat of the summer provided challenges for keeping the produce cool and fresh. Ultimately, the collection hours were shortened and fragile produce, like lettuces, were discouraged from being donated. During the high yield months, the donations filled more than five coolers. Produce was weighed and recorded. Everyone found the quantitative aspect a fun way to document the efforts and participation was met with enthusiasm.

Reviewing the donation efforts at the winter potluck, it was determined that growing heartier vegetables that will withstand a variety of transportation methods and not need refrigeration would be better choices for the next growing season (i.e. mustard greens, spinach, peppers, tomatoes, squashes and cabbages). Gardeners suggested creating a committee to help organize the donation growing efforts and to collaborate with The Action Center to assess the most popular vegetable requests. Helping others eat fresh locally grown food, to supplement canned food donations, promoted a sense of community and pride in the garden.” —Laura Stevens, Ute Trail Community Garden Leader



Bees in Gardens

Just as each community garden makes a small but significant contribution to the health, diversity, and sustainability of the food system, keeping a beehive is a way for a small group of people to make a difference on a larger-scale environmental issue. Urban beekeeping increases the number of beneficial pollinators in community gardens, resulting in the increased production of local, whole foods for residents.

If community gardeners wish to host honey bees, DUG encourages gardeners to either make arrangements with a local beekeeper to place and maintain a hive or two in the garden, or start a hive to be maintained by the gardeners themselves.

For community gardens that are considering bee hives, DUG has developed guidelines for complying with existing ordinances, starting a hive, and maintaining good relations within the garden and with the surrounding neighborhood. To learn more about this process and explore the possibility of a bee hive in your community garden, contact DUG for a copy of our beekeeping policy along with the City of Denver's ordinance, which allows for beekeeping in urban gardens in the City of Denver. We are happy to strengthen the connection between community gardens and these beneficial pollinators.



Chickens in Gardens

As interest in urban homesteading grows, many city dwellers, including community gardeners, want to produce more of their own food not only by growing gardens, but also by keeping chickens for egg production. In late 2010, Denver Urban Gardens, in conjunction with the University of Colorado's Urban Hens program, began piloting an educational chicken coop at the Park Hill School Community Garden. The Park Hill students, principal and surrounding community enthusiastically welcomed the hens, making a community celebration out of the event (Glazier).

To ensure that this celebration was not a one-time occurrence and that the pilot project was successful, a partnership between Park Hill Elementary, Urban Hens, Denver Urban Gardens and the Chicken Coop Co-op (a steering committee composed of parents, students, and neighbors and solely dedicated to the well-being of the hens) was established. Each partner fulfilled a specific role. Below are examples of the Urban Hens' and the Chicken Coop Co-ops' responsibilities:

The primary responsibilities for Urban Hens included leading a coop design process to customize the coop for the school, including participation of Park Hill Elementary School, Park Hill School Community Garden, and Denver Urban Gardens; installing the chicken coop and hens; trading out hens if a problem occurs; providing technical support around the proper care of chickens and the proper maintenance guidelines for the coop; providing instructional support to Chicken Coop Co-op members; and providing or working with co-op members to develop basic messaging and educational materials about the project for the school community and community gardeners.

The primary responsibilities of the volunteer Chicken Coop Co-op members include canvassing the neighborhood to secure ongoing support; providing reports annually as to the status of the project; procuring supplies; providing a method for community feedback; ensuring daily maintenance of the chicken coop; ensuring daily chicken care (including feeding, cleaning, watering, and egg collection and distribution); maintaining internal communication and reports of activities; maintaining communication with community gardeners; and properly maintaining chicken waste/compost.

Maintaining a thriving chicken coop in a community garden requires dedication exceeding that of a traditional community garden. At the Park Hill School Community Garden there are two steering committees: one for the chicken coop and one for the community garden. The Chicken Coop Co-op's leadership is central to ongoing success of this arrangement. A comprehensive review of this pilot project, planned for the winter of 2012-2013 will help determine the feasibility and sustainability of caring for chickens in DUG gardens.

Though this program is specific to keeping chickens at DUG's community gardens, we are happy to forward you our chicken coop policy—what we believe to be the best practices for hosting chickens in community gardens. It explores a multitude of issues to consider before hosting chickens at your community garden. Additionally, if you would like a copy of the City of Denver's zoning ordinances detailing keeping chickens, we are happy to forward those as well.

DeLaney Community Farm

DeLaney Community Farm is Denver Urban Gardens' community supported agriculture (CSA) farm in Aurora, which is easily accessible by bus, bike and major thoroughfares to the residents of Metro Denver. DeLaney Community Farm staff, interns, and volunteers cultivate 1.75 acres of organic vegetables, flowers, and herbs on historic farmland generously provided by City of Aurora's Parks and Open Spaces.

DeLaney Community Farm goals are to:

- Provide healthy, locally produced food for people of all economic levels, including helping challenged populations improve their nutrition and access to healthy food.
- Use and model organic growing practices that protect our environment and reconnect people with the land that sustains them.
- Provide nutrition education to all shareholders and involve them in DeLaney programs as partners in growing, preparing, cooking, tasting, and sharing the produce they grow at DeLaney.

Community supported agriculture is a relationship of mutual support and commitment between a local farmer and the community, in which participants invest in an annual membership, to cover the farm's production costs. In turn, members receive a weekly share of the harvest. This arrangement helps to guarantee the farm has a reliable source of support, while vegetables are grown and distributed in an economically viable and ecologically responsible manner. Ultimately, a CSA creates communities, where farmers and members become partners in the production, distribution and consumption of locally grown food.

DeLaney Community Farm is comprised of a dedicated group of shareholders, nonprofit partners that focus on food security for in-need populations, clients of Tri-County Health's Women, Infants and Children (WIC) program, farm staff and interns, and hundreds of volunteers and visitors annually.

At DeLaney, farm shareholders are involved in nearly every aspect of the farm's operations. Every shareholder contributes volunteer hours during the growing season, assisting staff with planting, weeding, and harvesting. Farm staff and volunteers arrange the weekly harvest in the DeLaney greenhouse for one weekly pickup day.



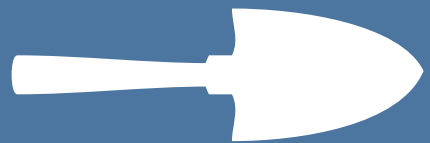
To support DUG's broader service-related goals, DeLaney Community Farm offers an array of programs, including the following:

- Saturday farm stands, which are open to the public and also accept Supplemental Nutrition Assistance Program (SNAP) benefits;
- community partner shares, where businesses, organizations and individuals can choose to monetarily support a share to various organizations that serve in-need, low-income groups and individuals;
- taste testing demonstrations and nutrition clinics for low-income women, infants, and preschool children that participate in the WIC program;
- offering a half share of produce to WIC participants in exchange for one hour of work each week on the farm;
- a refugee farming program, in partnership with Lutheran Family Services of Colorado, which provides Temporary Assistance for Needy Families (TANF) in exchange for volunteer hours;
- internships, tours, classes, potlucks and events.

For more information on the DeLaney Community Farm, please see our website or contact Denver Urban Gardens.



*Supporting a Network
of Community Gardens*



Supporting a Network

Denver Urban Gardens coordinates over 120 community gardens and DeLaney Community Farm. This large network supports programs such as the Garden Leader Symposium and other train-the-trainer programs, creating opportunities to share and build upon existing successful strategies. This, in turn, empowers garden leaders to take the next step and become community liaisons, embodying DUG's vision, mission and principles and sharing them with others.

Our expansive network also gives us a seat at the table to provide feedback and recommendations for policy level decisions. For instance, the City of Denver officially adopted urban gardens as a permitted use in all zone districts as part of the comprehensive update of the Denver Zoning Code. DUG also has been actively providing input to Denver Housing Authority redevelopment sites, serving as a member of the Denver Sustainable Food Policy Council and sitting on the Mayor's Denver Seeds Task Force. Policy level decisions continue to reinforce with residents the importance of community gardens to neighborhoods. Wheat Ridge, Arvada, Pueblo County and Summit County, to name a few, updated current zoning codes to be more permissive for community gardens and urban agriculture.

For those wishing to access our network of community gardens, our main office serves as the initial point of contact. This allows the DUG staff to help interested gardeners find a nearby garden with available space. With a garden (or two) identified, DUG directs the interested gardener to the volunteer garden leader in charge of membership. This system has proven beneficial for many reasons, including the following:

- DUG is able to easily answer questions regarding the overall structure, mission and reach of our organization.
- Inquiries can be made about multiple gardens.
- When a garden is full, DUG's system limits the amount of phone calls a garden leader is expected to return.
- Garden leaders do not have to publicly post their contact information.
- As garden leadership may change, DUG tracks this information and maintains waiting lists in the interim. This decreases the chance that names of potential gardeners are lost during a change in garden leadership.

With our ever expanding network of gardens, we believe it is increasingly important to maintain an organized system to connect interested gardeners with gardens that have available plots.

Denver Urban Gardens began as just a handful of community gardens sprinkled across Denver that grew organically out of the desires of local residents. Organizers of these gardens saw the potential of joining together to create a formal organization. The goals of creating this organization were to connect the gardens, negotiate leases, solicit funding and provide support and resources. Nearly 30 years later, with over 120 gardens in our network, DUG remains a grassroots organization, taking cues from those in the community who desire to create positive, local change through community gardens. With our network of gardens and gardeners expanding each year, DUG continues to focus on our mission to *grow community—one urban garden at a time*, with an emphasis on creating sustainable and inclusive neighborhood places.

Appendices



Benefits of School-Based Community Gardens

A compilation of research findings

Academic Achievement

- A study of third and fourth graders involved in a school garden and nutrition program found that “the school garden **supports student inquiry, connection to the natural world**, and engages students in the process of **formulating meaningful questions**” (Habib & Doherty, 2007).
- Students involved with school gardens generally **take pleasure in learning** and **show positive attitudes towards education** (Canaris, 1995; Dirks & Orvis, 2005).
- Students who have school garden programs incorporated into their science curriculum score significantly **higher on science achievement tests** than students who are taught by strictly traditional classroom methods (Klemmer, Waliczek, & Zajicek, 2005).

Physical Health

- Children who are familiar with growing their own food tend to **eat more fruits and vegetables** (Bell & Dymont, 2008), and are more inclined to continue healthy eating habits through adulthood (Morris & Zidenberg-Cherr, 2002).
- Gardening during childhood **exposes children to healthy food, moderate exercise, and positive social interactions** and can often lead to a lifetime of gardening (Gross & Lane, 2007).

Social and Emotional Health

- The school garden serves as a “safe place” for students. Studies show that large numbers of students report “**that they feel ‘calm,’ ‘safe,’ ‘happy,’ and ‘relaxed’** in the school garden” (Habib & Doherty, 2007).
- Children who work in gardens are **more likely to accept people different from themselves** (Dymont & Bell, 2006).
- A study of third, fourth and fifth graders showed that students participating in a garden program had **increased self-understanding, interpersonal skills, and cooperative skills** when compared to non-gardening students (Robinson & Zajicek, 2005).

School and Community Benefits

- According to Skelly & Bradley (2000), teachers who worked in schools with garden programs had **higher workplace morale and increased “general satisfaction with being a teacher at that school.”**
- The study by Habib and Doherty (2000) showed that “**68 percent of the students shared what they were learning with family and friends** unassociated with the school garden program.” This has the potential for spreading the benefits to a much larger community.
- The American Community Gardening Association attributes community gardens to an **increase in home prices for residences** near the garden, a **reduction in violent and non-violent crime** in the neighborhood, and an overall **increase in the feeling of safety** (2009).
- In a Denver study, **95 percent of community gardeners give away some of the produce they grow** to friends, family and people in need; **60 percent specifically donate to food assistance programs** (Litt, J.S., et al., 2012).
- **In a survey of community gardeners in Denver, 80 percent gardened as children**, suggesting that gardening at a young age has a long-reaching impact (Litt, J.S., et al., 2012).
- **More than 50 percent of community gardeners meet national guidelines for fruit and vegetable intake, compared to 25 percent of non-gardeners** (Litt, J.S., et al., 2011).



I've learned a lot from the garden, but the community garden is also a place where I can just go and breathe in some fresh air. I feel calm and peaceful when I'm in the garden.

— Fifth grade student

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STEPS TO STARTING A COMMUNITY GARDEN

A community garden typically takes three years to build from the time we process and approve an application to completion of all built garden amenities. Over the past ten years, the following steps have been adjusted and refined to achieve successful gardens in committed neighborhoods. It is no secret that the more energy a neighborhood has and the more effort they are willing to put into the implementation of the community garden, the easier and smoother the process becomes, and the faster their vision can become a reality.

Step 1: The garden advocate fills out the application and returns it to DUG. It is important to note that if we receive an application after the first of the year, the community garden in question will most likely be put on our construction list for the following year. In order for DUG to consider a project, the applicant must demonstrate strong, varied commitment, support and need for the community garden (gardeners, schools, churches, council persons, etc.), suitable alternative locations, and access to water in some fashion (even if it means in the short-term connecting to a spigot of an on-site building).

Step 2: Next we determine together the most suitable site for the community garden and arrange a long-term lease signed for a minimum of five years, preferably ten years. DUG has secured leases and use agreements with many different landowners, including Denver Public Schools, Denver Housing Authority, Denver Parks and Recreation, City of Denver (asset management) and corporations. We have a standard lease agreement that we use and must have signed before we can move forward on a project.

We invest more time in garden construction, programs and neighborhood organization than most people realize. Our charter (corporate by-laws) requires that a certain level of commitment must be achieved in terms of a site lease before DUG can comfortably invest grant funds, technical expertise and volunteer labor into a project. We also firmly believe that this step is critical to protecting neighborhood investments of time, energy and hope in their garden project.

Step 3: Together, DUG and neighborhood participants design the community garden. This requires several workshops to brainstorm design concepts and time to draw up the design and revise as needed.

Step 4: The next step is to jointly raise funds to turn the site design into a real community garden. The approximate building cost for a garden ranges from \$20,000 to \$50,000, based on site size and design complexity.

Step 5: Then we begin site preparation with grading and soil testing. Most sites require clearing the site of debris, grading by heavy machinery, and conducting a soil test to determine the composition and volume of soil amendments required. We often lay out and install other basic improvements during the initial on-site work, including fencing, pathways, compost bins, tool shed and community garden entry sign.

Step 6: At the same time, DUG will also invest in permanent irrigation systems for the community garden. This includes making arrangements with the Water Department, installing a tap and backflow prevention, and installing a distribution system to the garden beds and plots.

Step 7: During the second and third years of construction, DUG works with volunteers and community members on organized workdays to install community garden amenities, such as entry gates, benches, walkways, courtyards, murals by local artists, shade arbors, information boards, trees, shrubs, perennial beds, etc.

Step 8: Once a garden is in its fourth year, construction is usually complete, and the focus of work shifts to the neighborhood's efforts to maintain the community garden and full participation.



SUGGESTED CONSTRUCTION START-UP SCHEDULE

The following tasks briefly describe the itemized work efforts to be undertaken for short- and long-term construction of the community garden. The correlation of tasks to months may be skewed depending on when plans are initiated; moreover, the number and scope of projects DUG has in a given year influences the timing of the first planting for a new community garden.

September

- Task 1: Design and Planning
 - prepare layout plan to dimension and arrange physical site improvements
 - prepare schematic irrigation plan for installation
 - prepare planting plan to locate trees, shrubs and seed areas, sizes and quantities
 - prepare architectural details/elevations, as required, to construct vertical structures

April – May – June

- Task 2: Site Preparation
 - stake and install fence to enclose the site
 - purchase or build and install entry gates
 - stake the layout of pathways, food gardens, flower beds, composting area and vertical structures
- Task 3: Irrigation System
 - install hose or pipe and hardware including valves and fittings as required
- Task 4: Garden Plot Prep
 - rough grade garden beds as per grading plan
 - amend soil, as required
 - level and edge pathways in preparation for crusher fines (pea gravel) material
- Task 5: Surface Treatments, Paths
 - obtain crusher fines and sandstone material
 - install crusher fines along primary pathways and secondary pathways

July – August – September (or as funds are available)

- Task 6: Planting
 - stake tree and shrub locations
 - purchase and haul trees and shrubs and obtain perennial seed
 - stake and install trees and shrubs and seed perennial planting beds
- Task 7: Vertical Structures
 - build and/or install tool shed or tool box
 - build and install compost bins
- Task 8: Signs
 - design, order and install entry signs



Steps to Starting a School Garden

*To initiate the garden planning process or for more information contact
Denver Public Schools Department of Sustainability.*

TIMELINE (Nine Months – One Year)

Step 1: Initial Planning/Things to Consider

- primary purposes for the garden
- school garden or school/community garden?
- who to involve?
- is there broad support?
- how to connect the garden with the curriculum?
- campus Master Plan status
- long-term facility plans for the school
- tour of other school gardens
- alternative sites for the garden on your school grounds

Step 2: Project Assessment Meeting

- Denver Public Schools
- school administration
- volunteer leaders
- Denver School Garden Coalition

Step 3: Firm Up Conceptual Plan

- garden purpose
- garden site selection
- organize planning committee
- determine DSGC lead

Step 4: Project Planning and Development

A: Site Planning

- master plan
- budget
- work plan/schedule
- fundraising plan
- soil test

B: Garden Organization

- leadership
- participant committees
- guideline development

C: Programming

- curriculum
- customized programs (see Step 7 on next page)

Design Considerations: prominent location, relationship to school facilities, garden size and features, water source and accessibility

Step 5: Site Plan Approval

Step 6: Garden Construction

Step 7: School Garden-Related Programs

Construction Cost Estimate for a Typical DUG Community Garden

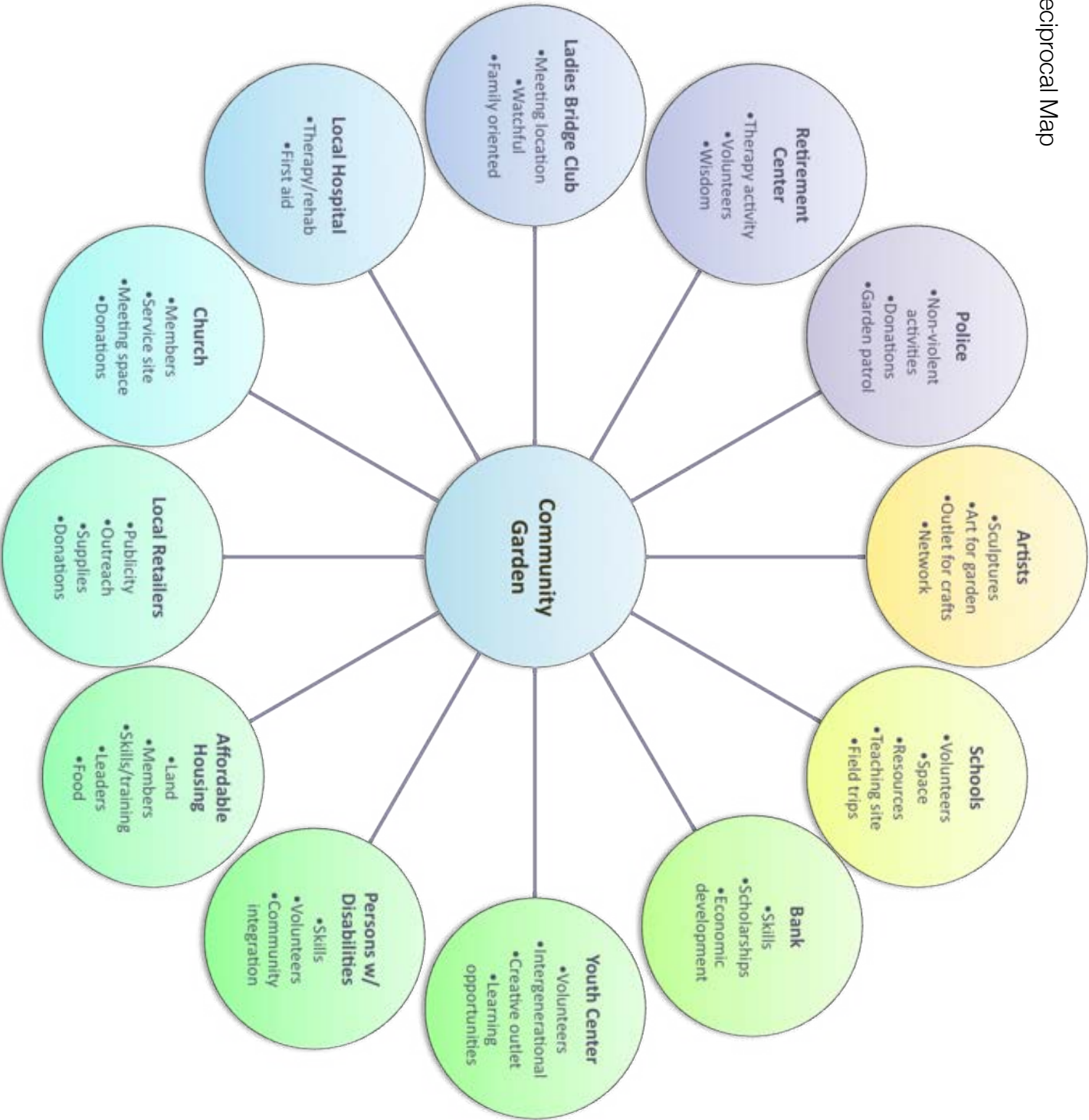
ITEM	QUANTITY	UNIT	TOTAL(\$)
1. Irrigation Connection and Distribution System*			
- backflow and cage/sub-meter/drain/unik drip system	-	lump sum	950
- 1" and 3/4" pvc pipe, couplers and spigots	-	lump sum	200
- hose reel posts	8	\$50/each	400
- <u>distribution system installation</u>	-	lump sum	1,500*
		subtotal	\$3,050
2. Accessible Crusher-Fine Pathways			
- Garden site fine grading	-	lump sum	volunteer
- weed barrier plastic and pins	-	lump sum	200
- crusher-fine gravel for 3,690 sq ft. (delivered)	30 tons	\$20/ton	600
- <u>loading/compaction equipment rental</u>	-	lump sum	400
		subtotal	\$1,200
3. Amended Garden Beds			
- compost (delivered)	20 yds	\$20/yd	400
- <u>rototiller rental and fuel</u>	-	lump sum	200
		subtotal	\$600
4. Perimeter Fencing, Entry Gate and Sign*			
- ornamental iron entry gates	2	lump sum	250
- black coated chain-link perimeter fencing	500 feet	\$30/ft.	15,000
- <u>standard DUG garden sign</u>	1	lump sum	200
		subtotal	\$15,450
5. Tool Shed and Compost Bins*			
- Garden storage shed	1	lump sum	1,600
- <u>Three-section compost bins</u>	2	\$360/each	720
		subtotal	\$2,320
6. Community Features			
- Wood shade arbor (10ft.x10ft.)	1	lump sum	1,000
- Benches	6	\$125/each	750
- <u>Picnic tables</u>	2	\$150/each	300
		subtotal	\$2,050
7. Planting			
- Perimeter hedge	60	\$15/each	900
- Dwarf fruit trees	8	\$100/each	800
- Perimeter perennial beds	40	\$7/each	280
- Compost for hedge and perennial planting	5 yds	\$20/yard	100
- Mulch for the perimeter beds	6 yds	\$25/yd.	150
- <u>Vegetable seeds and transplants</u>	-	from DUG	0
	subtotal		\$2,230
		TOTAL	<u>\$26,900</u>

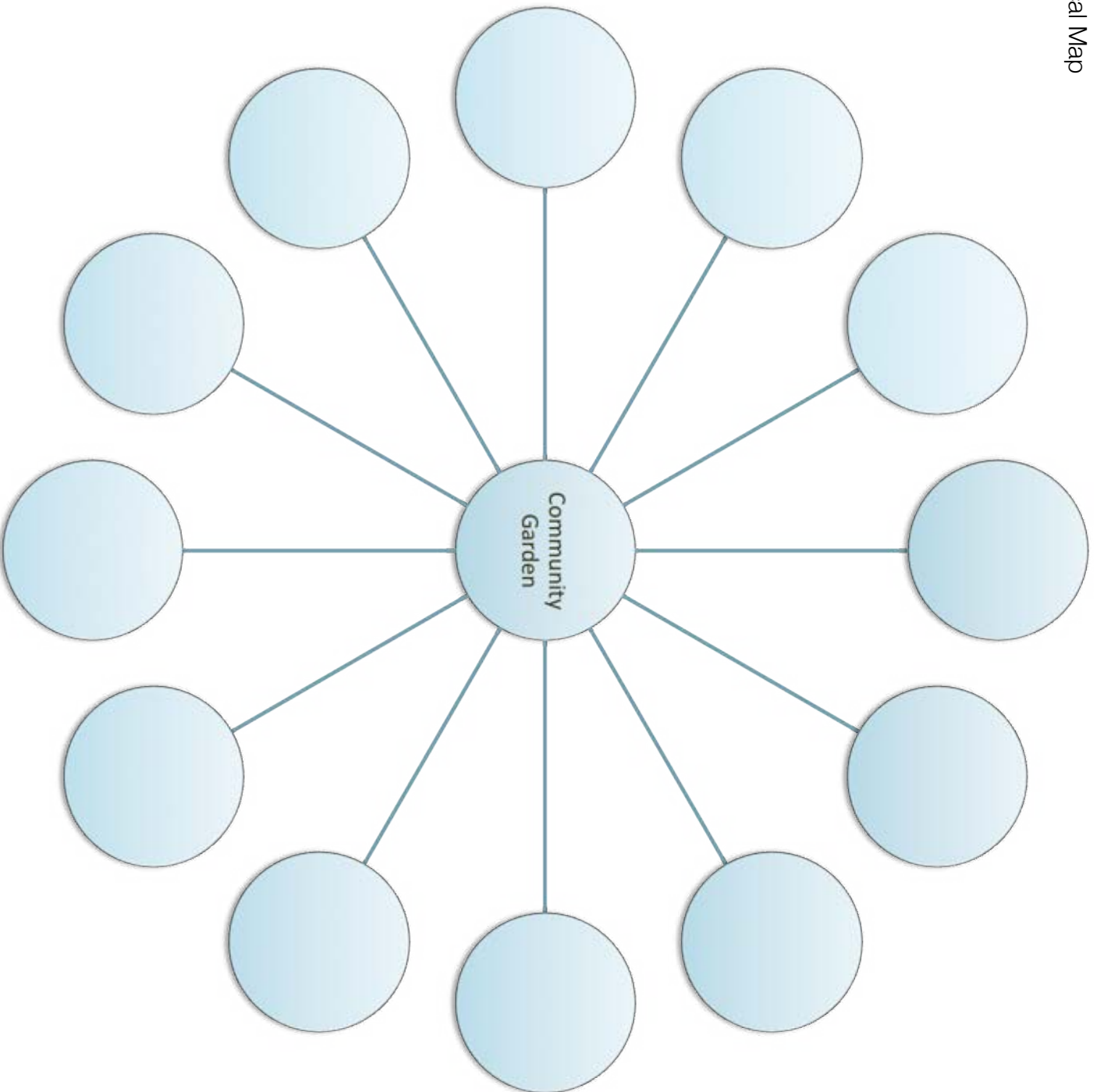
* This cost is for work items typically completed by a contractor. Significant savings can be found by substituting contract labor with volunteer labor. All other costs assume volunteer and DUG staff labor.

Note: If a new water tap is needed, water taps and associated fees may add \$15,000 to \$30,000 to the cost of a garden.



Completed Reciprocal Map





ROLES & RESPONSIBILITIES OF THE GARDEN LEADER(S)

DUG community gardens are created with and for the surrounding community. Neighbors are encouraged to participate in all levels of development and site maintenance. Individuals of all ages, backgrounds, etc. are encouraged to come together in the spirit of community to enjoy the community gardens, whether that entails gardening, resting on a shaded bench or meeting with friends and neighbors in the garden.

A neighborhood garden leader or steering committee locally manages each community garden site. DUG encourages management by a steering committee, which allows the management responsibilities to be shared so that one person does not become overburdened.

The garden leader(s) basic responsibilities include the following tasks:

1. Communicate guidelines and expectations for each garden participant, their household, pets and guests.
2. Be the line of communication between gardeners and DUG. Each season, please notify DUG when your plots are full. Also, please participate in the spring Garden Leader Symposium, mid-season garden leader calls, post-season garden leader survey, end-of-year budget reconciliation calls and other community-wide events that DUG facilitates every year.
3. Secure completed plot applications/waivers from every gardener, every year. Signing the plot application/waiver is necessary for DUG's insurance carrier and required by most landowners to secure the property. The address on the plot application/waiver provides DUG a mechanism to ensure gardeners receive DUG's newsletter, *Underground News*. This provides stories and experiences from other community gardens, gardening techniques, recipes, web connections and best practices for vegetable growing.
4. Determine and collect plot fees. DUG recommends that plot fee prices be set between \$35- \$60 per plot. These fees cover water cost, compost beyond the six free yards DUG provides annually, and can also be used to purchase small gardening tools such as shovels, mulch and hoses, or invest in garden improvement projects. Though DUG serves as the fiscal agent for gardens, the garden leaders are responsible for tracking all funds related to the garden.
5. Coordinate plot assignment. Plots are available to residents regardless of their affiliation with DUG, the Garden Leader(s) or the Land Owner. Typically one plot is available per family unless there are vacancies. Seniority is not a priority over a "waitlisted" household. Nearby residency is not a priority. Maintain an ongoing waitlist and do not clear people from year to year unless they have identified they are no longer interested.
6. Secure background checks when appropriate. For gardens located on school grounds, secure background check forms from every gardener according to the DPS background check policy instated in 2010.
7. Disseminate yearly water restrictions and use guidelines from DUG to the gardeners.
8. Organize community potlucks and work days, (weeding common areas, maintaining the compost bins, etc.) as necessary. DUG suggests scheduling these events at least monthly for social and community building value. Each site is responsible to perform maintenance. Gardeners must decide how to maintain the common areas (paths, lawn, plazas, etc.). Some schedule regular maintenance workdays, others organize committees for specific tasks, others have a sign-up sheet with a minimum number of hours required per month, and still others assign one task per gardener.

ROLES & RESPONSIBILITIES OF THE GARDEN LEADER(S), continued

9. Ask for help when you need it. DUG is available to assist community gardens with the fundamental site elements required for successful garden function: water, plots and pathways, perimeter fencing and tool storage. As our project priority list is constantly in flux, we appreciate a garden's patience when we are asked to support and/or complete garden enhancement projects. Please know that your project is important to us.

10. Educate your gardeners about what to do in case of irrigation problems. If your community garden has a break in the irrigation system, gardeners are asked to find the backflow device or the main shut-off valve and turn off the water. Once the water is off, gardeners should contact their garden leader to determine if the capability exists within their garden to properly complete the repair. If the garden leader requires DUG's assistance and the break is underground, gardeners and/or garden leaders will need to dig up the ground around the break to expose the broken pipe. That includes digging a hole large enough to allow for the repair, including the ground below and on either side of the break.

11. Mediate issues within the community garden. Issues may include neglected/weedy plots, vacant plots (can be planted in pumpkins or a cover crop), watering issues, alcohol, smoking, pets, or harvesting another gardener's produce. As per the plot application/waiver that every gardener should sign every year, DUG is the "final say" if the participants and garden leaders cannot resolve the conflict.

12. Inform gardeners and community members of opportunities DUG provides at the community garden and for the broader community, including workshops relating to composting; basic organic gardening; organic pest and weed control; seasonal, companion and succession planting; soil amendment; and water conservation methods. Post community garden events and general DUG events' fliers in the garden and distribute to gardeners.



SUGGESTED STEERING COMMITTEE ROLES

Steering Committee

As directed by the entire membership of the community garden, this suggested three-person committee is responsible for conducting the business of the community garden and ensuring a positive, rewarding experience for all gardeners. It is suggested that positions are a two-year commitment with the potential for renewal.

- **Administrator** – Provides communication avenues between gardeners, committees and DUG. Other responsibilities include setting monthly meetings and agendas, bringing suggestions/requests to the steering committee, leading meetings, writing minutes, maintaining guidelines and maintaining records and documents.
- **Membership** – Assigns and tracks membership. This includes assigning empty plots, fielding phone/email inquiries, maintaining the gardener waiting list and tracking member work hours.
- **Treasurer** – Manages the garden budget and conducts the financial business of the community garden. This includes maintaining financial records, collecting plot fees, paying bills, preparing monthly finance reports and maintaining records, and facilitating the expense reimbursement process with DUG's garden leader coordinator.

Community Building Committee

This committee provides outreach and community building activities for the community garden. This could include a formal donation program, outreach events including non-gardening neighborhood residents, a garden newsletter, organizing potlucks/social events, etc.

Maintenance Committee

This committee ensures the upkeep of the garden's physical infrastructure. This could include smaller working groups for improvement projects, composting, tools and storage shed, maintaining the perimeter xeriscape beds, the garden irrigation system, etc.

Garden Mentoring Committee

This committee offers training and advice, coordinates workshops with DUG, and educates community gardeners within the community garden. This could include specialty trainings on organic gardening, water wise gardening, composting, mediating garden disputes, youth education, etc.



SUGGESTED MONTH-BY-MONTH LEADERSHIP ACTIVITIES**January - February**

- Go over site plan (call DUG if you do not have one) and determine which gardeners are staying for next season and which plots are empty.
- Prepare a garden budget, including estimated water and compost expenses and new equipment needs.
- Determine plot fees and gardener guidelines (fill in blanks on gardener waiver, located on the back of the gardener application).
- Encourage qualified gardeners to apply for Free Seeds and Transplants Program. Deadline is typically February 1. Visit www.dug.org for more details about how the program works.
- Review the waiting list for new community gardeners. Lists should be rolling and first come, first serve; for instance, a waiting list should not be started new each year to be fair to all.

March

- Organize a spring clean-up day, usually planned for April.
- Go over site plan and determine if any garden structures need repair, repainting or improving.
- Fill vacancies in garden from garden waitlist or call DUG for ideas on how to advertise to community members for new gardeners.
- Water shrubs and trees during warm spells (over 40 degrees). Continue this from March through summer and fall. Drying winds kill more plants than cold temperatures.
- Prune trees, especially any crossing limbs or broken branches.
- Start seedlings indoors. Ideally, use grow lights 2 inches above the seedlings, left on 14 hours/day.

April

- Hold a pre-season mandatory meeting with all community gardeners to discuss guidelines, plot assignments, potlucks, training events and community workday schedules. Make a list of special skills gardeners may be willing to share.
- Do spring clean-up tasks: garden preparation, including tilling plots, composting and staking new plots, and repairing winter damage to common areas in the garden.
- Prune roses. Winter-killed canes should be pruned at a 45-degree angle. The pruned ends can be sealed with Elmer's glue.
- Hold special training or education sessions. Call DUG if you would like ideas or information on Master Community Gardeners coming to your garden to do trainings on various topics.
- Assign garden plots and collect plot fees.
- Gather names, addresses, emails, phone numbers and signatures of all gardeners on the gardener applications/waiver so participants may be put in DUG's database and receive copies of our newsletter, *Underground News*.

May

- Water is typically turned on the first week of May. With over 120 gardens to attend to, DUG asks for your patience. Spring frosts may occur as late as the second week in May.
- Call DUG when all of your garden plots are full so that it can be noted on our website.
- Call DUG to schedule compost trainings. Have participants chop all compost material in 1- to 2-inch pieces ahead of time. Make sure many of your gardeners can attend.
- Hold special training or education sessions. Call DUG if you would like ideas or information on Master Community Gardeners coming to your garden to do trainings on various topics.
- PLANT!
- Hold garden potlucks.

SUGGESTED MONTH-BY-MONTH LEADERSHIP ACTIVITIES, continued

June - July

- Re-assign unused or neglected plots. Call original gardeners before re-assigning the plot.
- Call DUG when all of your garden plots are full so that it can be noted on our website.
- Keep garden information posted or have gardener newsletter to inform gardeners of current happenings.
- WEED! Especially in common areas. Weeding should occur on a regular basis.
- If your garden has sod, continue to mow and water.
- Hold special training or education sessions. Call DUG if you would like ideas or information on Master Community Gardeners coming to your garden to do trainings on various topics.
- Mulch all perennials and trees with chipped branches to conserve water.
- Hold garden potlucks.

August - September

- HARVEST! Try to harvest all produce (other than pumpkins and winter squash) on a regular basis.
- Arrange to distribute extra produce to needy families or agencies. Many gardens organize weekly distribution days.
- Continue weeding and begin cleaning garden plots for winter.
- Encourage food preservation for winter months.
- Hold garden potlucks.

October

- Have a garden clean-up day for everyone to clean their plots and help with common areas.
- Prepare the garden for winter by planting cover crops such as winter rye or winter hairy vetch. All plots should be put to bed by November 1.
- Make sure compost areas are not overflowing and all plant material has been chopped into small pieces.
- Store tools and supplies for winter. Tools should be cleaned, wooden handles protected with linseed or mineral oil and all rust removed with coarse sand paper. No cages or mobile supports can be left standing in the garden.
- Have an end-of-season potluck to celebrate successes.
- Prepare a final report of activities and evaluate the season for next year's improvements.



PRODUCE THEFT & GARDEN VANDALISM: DUG'S RECOMMENDATIONS

Someone is stealing our produce? What can we do?

It's important to remember that most produce theft is not malicious. Often, people that steal produce are hungry and take from the garden if an opportunity presents itself. On rare occasions, a community gardener might be tempted to take produce from another gardener's plot. Recognizing the incredible disappointment when a long-awaited vegetable is taken, seasoned gardeners tend to adopt the attitude that if it were needed that badly, hopefully it was enjoyed.

Garden theft, while frustrating, is usually an act that comes from hunger or misunderstanding. Community gardens, by their nature and location, will always be more prone to theft than home gardens. As a community gardener, you will have a much happier growing season if you anticipate and accept that garden theft may happen, regardless of the steps you take to prevent it.

DUG recommends the following strategies for deterring theft:

Install a Donation Basket: Affix a donation basket to a fence post near the front gate of the garden, where gardeners can easily donate their extra vegetables on their way out of the garden. Ideally the basket should include an informal sign offering the extra vegetables to neighbors in need and requesting that the basket be left in place. It would also be useful to explain on the sign the way the garden works and how to go about getting on a list for a plot. Rather than asking all gardeners to donate surplus to the basket, another strategy is for your garden to designate a community plot, cultivated specifically to provide produce for the basket. Donation baskets make non-gardeners feel welcome and included, and that can go a long way toward creating a sense of community in your garden and neighborhood and in turn preventing theft.

Plant Perimeter Edibles: Plant a row of food along the outside of the garden fence, such as a raspberry hedge, or grape vines, that people walking by can snack from, potentially curbing their temptation to enter the garden and take vegetables from individual plots. It may be helpful to have a sign explaining what is free to pick for the passers-by versus what is grown for individual gardeners.

Educate the Broader Community: Create a flyer mentioning all of the neighboring business, institutions and police officers that are partnering with the garden in an informal neighborhood watch program. The purpose of the flyer is to help spread the word that a community garden is a neighborhood asset and that a garden works best when everyone does their part to help prevent theft and vandalism. The flyer should also explain how a community garden works, how to get involved and that community garden doesn't mean the produce is free for all community members to take. Recently, DUG has developed signage for gardens to attach to their perimeter fence, which asks passersby to respect the garden and the hard work of the gardeners and to please not take produce without permission. To obtain one of these signs for your garden, please contact DUG.

Engage Watchful Eyes: If you seem to have a problem with theft (or vandalism), notify gardeners and neighbors and ask them to keep an eye on things. Make friends with neighbors whose windows overlook the community garden, trading flowers and vegetables for a protective eye. Talk to the community officer in your area and ask them to be sure and add the garden to their daily route.

Confronting Someone in the Act: With every strategy, communication is critical, which means talking to the produce thief if you happen to catch him or her in the act. It's important not to accuse, but rather approach them in a friendly way, explain how a community garden works and that taking produce without permission is not allowed and then invite the person to get involved as a gardener or volunteer. Gardeners are often generous people and they tend to be very willing to share their harvest, but they are especially willing when asked.

PRODUCE THEFT & GARDEN VANDALISM: DUG'S RECOMMENDATIONS, continued

Plan Your Plot to Deter Theft: Consider arranging your plot to be less inviting to theft, including planting potatoes, other root crops, and/or less desirable vegetables at the edges of your plot. Be sure to harvest crops like tomatoes and peppers as soon as they ripen. Other creative ideas include planting crops with non-traditional colors (i.e. purple beans or white eggplants) to confuse opportunistic thieves.

Someone is vandalizing our garden. What can we do?

Vandalism is a willful act of destruction that is often difficult to police or prevent. It has been DUG's experience that most vandals are neighborhood youth just looking for something mischievous to do. The best solution is to be as inclusive as possible and provide ample education about the garden to the surrounding community. DUG encourages community gardeners to invite neighbors and young people to enjoy common spaces in the garden and even to get involved as a participant. Community gardens tend to be left alone when gardeners are present in the garden, when gardeners and neighbors know each other, and when everyone values and understands the purpose of the garden.

In addition to the strategies suggested to deter theft, DUG recommends the following to deter vandalism:

Visit the Garden Often: Encourage all gardeners to visit their garden regularly, including spending social time in the garden. A garden that is continuously populated by gardeners is the best deterrent for vandalism.

Invite Neighbors to Join a Garden Celebration: Host a potluck or picnic in the garden and invite the whole neighborhood, including neighborhood youth. Offer activities at the potluck to interest youth, such as painting a mural together. People who feel excluded from the garden are potential vandals. Also consider inviting local police and community officials to garden potlucks and celebrations.

Be Diligent about Locking the Gate: It is worth locking gates when leaving your garden. While this may not keep out determined vandals that are just as willing to climb a 6-foot fence as they are a 4-foot one, it does have the potential to keep out those that are wandering by just looking for something to do.

Add Lighting: Consider requesting alley or sidewalk lighting from the City, or install a few solar powered low-voltage lights on the interior of the garden.

Have Children Paint a Mural: Arrange a project with the children in the garden to paint a mural on a garden bench back or to hang on the outside of the fence. The mural can include a request for the community to respect and look after the garden, as well as a message about how much the children care about their garden. Often, youth involved in the garden become the garden's best protectors.

Be Thoughtful when Planting Pumpkins: If your garden plans to grow pumpkins, consider making them less visible in the garden in some way, including their location. Their bright orange color and their size become a major temptation for vandals. Consider planting gourds and miniature pumpkins instead.

Involve People in Their Own Process of Behavioral Change: If specific individuals are known to be vandalizing the garden, provide a positive channel for them to get involved in repairing the damage. Have them replant, work on digging in compost to soil that has been compacted or be engaged in making improvements to small areas of the garden. Most people would rather be recognized for acts in which they can show a sense of pride than for those in which they have been responsible for damage.



EFFECTIVE WATER CONSERVATION TECHNIQUES

Gardening in Colorado mandates the conscious use of effective water conservation techniques. We believe community gardens should be models of efficient water use, especially in seasons of drought. Additionally, use of water conservation techniques has several other benefits including reduced water costs and weed proliferation. If the following techniques are applied, plants will respond by growing quickly and by producing an abundant harvest. We've also outlined a set of water restrictions required of all community gardeners in response to the on-going drought. Regardless of the duration of the drought, however, DUG advocates gardeners adopt and incorporate these techniques as a way of life.

Water Plants in the Cool of the Day, especially during the Evening

Watering first thing in the morning or an hour or so before sunset, allows plant roots to utilize moisture more efficiently. Late day watering allows the water to percolate into the soil for 12 hours or more before the sun and wind magnify the effects of evaporation and transpiration from soil and foliage. Mid-day watering is a poor use of gardening time and an extremely inefficient way of watering into thirsty soils. Since plants do a significant amount of their growing at night, it makes sense to provide moisture prior to this critical period.

Water the Roots and Soil, Not the Leaves

Although some plants, such as the broccoli family, and lettuces, don't mind overhead watering and moist leaves, most vegetables prefer watering at soil level. Tomatoes, peas, and members of the squash and melon families can suffer from disease problems that proliferate on wet foliage.

Cultivate the Soil Before Watering

Hoe the soil around plants at least once a week. This serves a dual purpose, cutting off germinating weeds that compete for moisture, and also opening up our heavy clay soil so that water can more easily penetrate to deeper levels. Watering should be done after cultivation, while the soil is loose and airy.

Compost Throughout the Season

Compost should be applied at the beginning of the gardening season, digging two inches of compost into the top 4 to 6 inches of soil, as well as several other times during the summer and fall. Spread a shovel of compost around vegetables, flowers, and herbs, lightly cultivating the soil to incorporate the organic material. Since compost has the ability to hold up to 100% of its weight in water, this allows soils to hold and release moisture and organic nutrients slowly. Having compost-enriched soils is one of the best water conservation techniques available to gardeners.

Space Plants so that their Mature Leaves Shade the Soil Surface

Soil that is in shade, even in conditions of drought, is more capable of retaining moisture and reducing evaporation. The mini-climate that is produced by plants that are spaced so that mature leaves almost touch, provides a shading and cooling effect of the soil surface below. You can extend the growing season of "cool season" plants, such as lettuce, by growing in the shade of taller plants such as pole beans. Their leaves provide a "living mulch" to help cool the roots of surrounding plants and to retain moisture.

Mulch any Uncovered Soil Areas

Mulch conserves water, moderates soil temperature, helps to prevent erosion, and slowly enriches the soil with humus as it decays. Pesticide-free grass clippings that have dried out for a few days, fall leaves or clean straw, are all excellent sources of mulch. Exposed soil areas that are not being used for growing, quickly become weedy and unsightly and are spaces where wasteful evaporation occurs. Mulch warm season crops, such as tomatoes and peppers after the soil warms. Mulch cool season crops, such as lettuce, peas and broccoli several weeks after they have been transplanted or after they have been growing for about a month after germination.

Check the Soil for Needed Moisture

Most vegetables need about an inch of water per week for adequate growth. Poke a stick or your finger 1 to 2 inches below the soil surface to see if water is needed. Soils that are exposed to the sun (with no mulch), and are deficient in organic matter, will be significantly less efficient at retaining moisture and nutrient supplies than those that are shaded and compost enriched.

Wilting Leaves Don't Always Signal a Call for Water

Large leaved plants, such as those in the pumpkin/squash family, normally droop during the heat of the day. Plants are just minimizing the water loss (due to transpiration), and watering them at this time will increase water loss rather than lessen it. It also weakens the plants by promoting shallow rooting structure.

Utilize Efficient Watering Tools

Using a hand-held watering wand with a shutoff nozzle, allows you to water underneath leaves, close to the soil surface. This also breaks the force of the spray and lessens effects of soil compaction and erosion. Water with a low volume spray, as this lets water percolate deeply into the soil. Clay soils absorb water slowly. Watering for a short period of time, allowing the water to infiltrate the top layer, and then remoistening the area is a more efficient watering technique rather than short, intense watering. As an option to hand watering we suggest the use of black soaker hose "snaked" through your garden at the base of your plants.

Harvest Frequently

Harvest crops while plants are actively producing and healthy. Overgrown, insect and/or disease-laden plants should be removed and the area replanted to another type of plant or seeded with a cover crop. When the plant is taking more out of the soil than it returns, it is time to concentrate on soil improvement.





2012 COMMUNITY GARDEN PLOT APPLICATION & WAIVER

Please review and complete both sides of this application and waiver.
Please direct all questions to your garden leader.



Garden Name _____

1. ABOUT YOU:

Each gardener should fill out their own waiver and application, even if sharing a plot.

Print Name: _____

Address: _____

City: _____ County: _____ Zip: _____

Phone Number: _____ Email: _____

Date: _____

☐ I am unable to pay in full the designated plot fee of \$_____, and request a scholarship to cover the amount of \$_____.

2. SIGNATURE:

I have read, understand and agree to the terms and responsibilities as stated in the Gardener Authorization & Responsibilities and Waiver & Release on the reverse side of this document.

Signature _____
(or Parent/legal guardian signature if participant is under the age of 18).

3. FEEDBACK: *(Optional)* Denver Urban Gardens is funded by private foundation grants, individual donations, and support through a competitive grant program from the City and County of Denver. Feedback from gardeners is crucial to future funding for this program, and **we would love to hear what this opportunity has meant to you:**

4. COMMUNITY SUPPORT: *(Optional)* Denver Urban Gardens strives to make our community gardens and supporting programs accessible to residents of all backgrounds and income levels. Community support is critical to our mission of *growing community – one urban garden at a time*, and contributions large and small grow our capacity to provide access to fresh, healthy food to our neighbors in the Denver Metro Area. If able, please consider making a donation to sponsor scholarships: for gardeners who are unable to afford plot fees; to school gardens where students learn hands-on lessons in science and nutrition; or to our Free Seeds and Transplants Program for low-income families.

Yes, I would like to make a donation in the amount of \$ _____

Donation designation (optional): _____

Denver Urban Gardens
3377 Blake Street, Suite 113
Denver, CO 80205
303.292.9900
dirt@dug.org
www.dug.org

please turn over →

2012 COMMUNITY GARDEN PLOT APPLICATION & WAIVER *continued*

GARDENER AUTHORIZATION & RESPONSIBILITIES

The following guidelines outline the management of the community garden and its site property. These guidelines have been established by Denver Urban Gardens (DUG) and are provided to the property owner as a basis for a use agreement between the two parties. In turn, DUG provides gardeners with the authority and permission to use the garden site. We, as a community, have a responsibility to keep our community garden managed effectively. The community garden is a privilege, and everything works more smoothly when people are involved in its overall upkeep. Please also remember to treat your fellow gardeners as you would like to be treated.

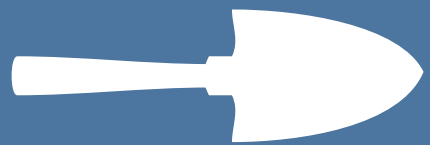
DUG community gardens have a volunteer Garden Leader and are encouraged to form a Garden Steering Committee to collect the plot fees, assign plots, organize maintenance, and coordinate garden related activities. With your signature below, you acknowledge as a participating **gardener responsibility for the following:**

1. Participating in volunteer tasks such as weeding common areas, caring for community plantings and areas, caring for gardening tools, etc. by providing a minimum of _____ hours per month to the community garden. (Failure to contribute your hours will result in the loss of gardening privileges.)
2. Submitting dues for the 2012 gardening season totaling \$_____ for each plot. These plot fees cover a range of services including water, compost, and general garden maintenance.
3. If for any reason you find you cannot care for your garden, you are required to notify the Garden Leader or Steering Committee and make arrangements with other gardeners to water and maintain your plot during your absence. If a garden appears neglected/abandoned (unwatered and/or overrun with weeds), you will be given ten (10) days notice to maintain your plot. After this time your plot will be re-assigned.
4. DUG requires water restrictions and conservation measures be followed. A gardener **MUST** remain on the premises while his/her garden is being watered. The garden cannot allow excess water to drain onto the street or adjacent property.
5. DUG Community Gardens are organic gardens. It is DUG policy to prohibit the use of non-organic pesticides, herbicides and fertilizers.
6. The maintenance of common areas and furnishings, fencing, trees, trash receptacles, compost bins, street and alley right-of-way, and water lines are the shared responsibility of all gardeners.
7. Gardeners must have their plot planted by _____, or the plot will be forfeited and reassigned.
8. Each gardener is responsible for clearing and tilling his/her plot before the close of the season. All dead plants, weeds, trash, tools, sticks and cages are to be removed or stored by November 1 each year. All gardeners must tend their plots in compliance with DUG's Maintenance Guidelines, located in each garden leader's manual.
9. Gardeners may participate in the Free Seeds and Transplant Program. If wanting to do so, they must comply with the application procedures set annually by DUG.
10. Garden Steering Committees shall not discriminate on the basis of race, creed, color, national or ethnic origin, religion, marital status, age, sex, sexual orientation, gender expression, gender identity, disability, or military status in its garden membership and the administration of its programs.

WAIVER & RELEASE

1. I desire to participate voluntarily in the gardening and other activities sponsored and coordinated by DUG on the _____ community garden site.
2. I understand, accept, and assume the risks associated with participation in any and all activities. I also assume the responsibility of conducting myself in a civil manner that is mutually beneficial to all participants. Unacceptable conduct generally includes, but is not limited to, vegetable theft, tool theft, profanity, and any offensive behavior.
3. I assume full responsibility for any injuries which may occur to me, as well as the safety of my family and guests, and do hereby fully and forever discharge and release the community garden site landowner and DUG, its employees, board members, officers, agents, authorized volunteers, representatives, consultants, insurers and sureties, and their successors and assigns (collectively, the "Released Parties") from any "Claims." "Claims," as used in this document, mean any and all claims, demands, damages, rights of action or causes of action, present or future, whether the same be known, anticipated or unanticipated, resulting from or arising out of my presence or the presence of my family members and guests at the garden, activities at the garden, the use or intended use of the garden, and/or participation in activities connected with DUG including, without limitation, any of the foregoing resulting from or arising out of the negligence of a Released Party. Further, I hereby waive any and all Claims against a Released Party.
4. I expressly acknowledge that participation in the community garden is for my purposes and convenience and not for the purpose and convenience of any one or more of the Released Parties.
5. In the event that a dispute arises between gardeners or between a gardener(s) and the designated garden steering committee, and a resolution of the dispute cannot be reached by these parties, I agree to have DUG act as the arbitrator of the dispute, and I further agree to adhere to DUG's decision as final.

Sources



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