HI-LAKE CENTRAL GARDEN TRANSIT COMMUNITY

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## CONTENT TABLE 1

### HI-LAKE CENTRAL GARDEN TRANSIT COMMUNITY

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PROBLEM STATEMENT</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Failing Food System</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>IMPETUS</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Danger of Disconnect</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Local Momentum</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Alternative Redevelopment</strong></td>
<td>6</td>
</tr>
<tr>
<td><strong>Precedent Studies</strong></td>
<td>7-12</td>
</tr>
<tr>
<td>- Alternative Farming</td>
<td>7</td>
</tr>
<tr>
<td>- Alternative Development</td>
<td>8</td>
</tr>
<tr>
<td>- Farming Incentives</td>
<td>9</td>
</tr>
<tr>
<td>- Integrating Agriculture</td>
<td>10</td>
</tr>
<tr>
<td>- Initiatives &amp; Education</td>
<td>11</td>
</tr>
<tr>
<td>- Agriculture Re-use</td>
<td>12</td>
</tr>
<tr>
<td><strong>Site Analysis</strong></td>
<td>13-51</td>
</tr>
<tr>
<td>- Site Selection</td>
<td>13-14</td>
</tr>
<tr>
<td>- Context + Location</td>
<td>15</td>
</tr>
<tr>
<td>- Site History</td>
<td>16</td>
</tr>
<tr>
<td>- Site Contamination</td>
<td>17</td>
</tr>
<tr>
<td>- Site Linkages</td>
<td>18</td>
</tr>
<tr>
<td>- 2011 Key Features</td>
<td>19</td>
</tr>
<tr>
<td>- Site Photos</td>
<td>20-28</td>
</tr>
<tr>
<td>- Geology + Soil</td>
<td>29</td>
</tr>
<tr>
<td>- Land Use + Cover</td>
<td>30</td>
</tr>
<tr>
<td>- Vegetation</td>
<td>31</td>
</tr>
<tr>
<td>- MN Local Farms</td>
<td>32</td>
</tr>
<tr>
<td>- Urban Gardens &amp; Markets</td>
<td>33-34</td>
</tr>
<tr>
<td>Topic</td>
<td>Pages</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Urban Food</td>
<td>35-36</td>
</tr>
<tr>
<td>Recreation</td>
<td>37-40</td>
</tr>
<tr>
<td>Transportation</td>
<td>41-44</td>
</tr>
<tr>
<td>Demographics</td>
<td>45-49</td>
</tr>
<tr>
<td>Users + User Shed</td>
<td>50-51</td>
</tr>
<tr>
<td>Clients</td>
<td>52-56</td>
</tr>
<tr>
<td>Hi-Lake Residents &amp; Stakeholders</td>
<td>52</td>
</tr>
<tr>
<td>Gardening Matters</td>
<td>53-54</td>
</tr>
<tr>
<td>Midtown Farmers Market</td>
<td>55</td>
</tr>
<tr>
<td>City of Minneapolis</td>
<td>56</td>
</tr>
<tr>
<td>Design Guidelines</td>
<td>57-62</td>
</tr>
<tr>
<td>MN Produce Seasonality Chart</td>
<td>57-58</td>
</tr>
<tr>
<td>Garden Typology</td>
<td>59-60</td>
</tr>
<tr>
<td>Garden Sizing</td>
<td>61</td>
</tr>
<tr>
<td>TOD Principles</td>
<td>62</td>
</tr>
<tr>
<td>Project Proposal &amp; Extent of Intervention</td>
<td>63-64</td>
</tr>
<tr>
<td>Concept &amp; Program Development</td>
<td>65-68</td>
</tr>
<tr>
<td>Master Plan</td>
<td>69-94</td>
</tr>
<tr>
<td>Illustrative Master Plan</td>
<td>69-70</td>
</tr>
<tr>
<td>Program Summary</td>
<td>71</td>
</tr>
<tr>
<td>Central Garden Illustrative Plan</td>
<td>72</td>
</tr>
<tr>
<td>Central Garden Section + Perspectives</td>
<td>73-83</td>
</tr>
<tr>
<td>Greenway + Market Plaza + Med Density</td>
<td>84-88</td>
</tr>
<tr>
<td>22nd Avenue + Hi-Lake Transit Plaza</td>
<td>89-94</td>
</tr>
<tr>
<td>Final Words</td>
<td>95</td>
</tr>
</tbody>
</table>
The growth and consumption of food is one of the most quintessential needs for human survival, yet we are now more distant from the food we eat and its origin than we have ever been in history. While suburbanization and greenfield development in America has brought many former urban residents physically closer to rural communities, their connection to the land, culture, people, and food of these areas has never been weaker. Another serious urban problem is the compartmentalization of land uses which further distances people from the activities needed to sustain a healthy and productive urban society. Prior to WWII, urban neighborhoods existed as centers of activity and trade, functioning as places for social and civic engagement. The compartmentalization of post war suburbs has created a myriad of problems stemming from this fragmentation. In our current era effective and thoughtful urban planning efforts are enabling communities to reintegrate all the important activities of their daily lives. While things like transit oriented development, LEED certification, stormwater management, mixed-use development, and the principles of new urbanism lead the way towards sustainable urban communities, one of the most primal systems, that which supplies us with sustenance, remains severely disconnected, dysfunctional, and unsustainable. Therefore to create truly sustainable urban places steps must be taken to reintegrate food, farming, and gardening back into the framework of urban planning and community development.
Despite America’s rank as the fourth largest agricultural producer in the world and one of the largest exporters of agricultural goods into the global economy, our cultural connection to the farm is nearly lost. While many Americans struggle with the moral, ethical, economic, political, and social issues of the American food and farm system, millions of Americans face serious uncertainty regarding food security, accessibility, and nutrition. Perhaps even more concerning is the rapidly increasing rate of obesity in the U.S. and the costs, impairment, and mortality associated with these trends.

To solve the issues of quality, economy, equity, environment, access, efficiency, safety, health, conservation, and sustainability we must demand transparency and interaction with our food at every stage. In large part this disconnect can be traced to policy changes in Farm Bill legislation which enabled and promoted the globalization and industrialization of the American farm. Policy changes, suburbanization, and a restructuring of commercial food distribution networks has drastically lengthened food supply chains, compromising food safety, reduced food quality and diversity, and causing farmers (quoting Earl Butz former head of the USDA) to “get big, or get out!”

The past century of evolution in American agriculture has seen the elimination of local food networks in favor of an industrialized global production system. This system was in part meant to address the issue of security for farmers which arose during the dust bowl and great depression. The industrialization was also meant to provide reliable food supplies for citizens and the military and as an economic weapon during the Cold War. Today corporate farmers, commercial interests, and agricultural lobbyist maintain the Farm Bill as a support structure for the industrial farm.

This detrimental emphasis on increasing production has carried the United States into an era of economically and environmentally unsustainable agricultural production. This system has created a scenario where most traditional farmers rely heavily on federal subsidies. While the subsidies provide minimal support for family farmers, corporate farms collect millions in subsidies and agribusiness giants capitalize on cheap commodity prices. These forces combine to create a dysfunctional food system which promotes land degradation, unhealthy eating, corporate and political corruption, profit taking, food borne illness, corporate monopolies, and climate change.

(1) The Oil We Eat, Manning. 2005  
(2) http://attra.ncat.org/attra-pub/consfuelfarm.html, NSA. 2005  
(3) Omnivore’s dilemma, Pollan. 2006
Impetus

In the past two decades, local and slow food movements have been slowly gaining momentum behind concerns over many of the issues outlined in the previous section. Much of this energy has come from people asking questions about where their food is coming from. They are concerned about where their meat, grain, dairy, and produce originates, how it is being produced, and how these inputs affect the quality and safety of the food they consume. The explosion in number and popularity of farmers markets, farming cooperatives, community gardens, and CSA’s (Community Supported Agriculture) across America (and in the Twin Cities) are all excellent indicators of the awareness and energy that is fueling this movement. These mechanisms have sparked a growing interest in urban agriculture, vertical farming, composting, and community activities centered around farming and food. Evidence of growing interest in vertical farming has manifested itself in research and design initiatives in the cities of Minneapolis, Detroit, Cleveland, Seattle, New Orleans, Chicago, Portland, and New York City. Cities like San Francisco and Portland are leading the charge encouraging urban farming and instituting city-wide composting programs. In struggling cities like New Orleans, Cleveland, and Detroit, large areas of abandoned land are being converted into farm and garden plots for community residents.

Vertical Farming: Pertains largely to the process of stacking agricultural activities in buildings and elevated structures to fit a typically space intensive process into urban areas.

(4) Interview with Midtown Market Manager Amy Behrens 2010  (5-7) Minneapolis Home Grown Initiative (2009)
According to the World Health Organization a recent outbreak of a particularly virulent strain of E. Coli has killed 19 people in Europe and infected more than 2,000 in at least 12 countries. With a recent Russian ban on European produce and hundreds of thousands of pounds of produce being destroyed daily, a struggling European economy faces weekly economic losses in the billions of euros. According to one CNN report the Spanish economic losses alone total nearly 300 million Euros a week. Similar outbreaks and scares in the U.S. have seen millions of pounds of spinach, peanuts, lettuce, sprouts, peppers, and other vegetable destroyed, lives lost, and millions of dollars in economic and human costs.

The magnitude and disconnection of the industrial food system in the United States has created a dangerous and unsustainable food system that is vulnerable to unintentional and intentional contamination. Outbreaks of E. Coli and other food borne pathogens have continually proven the vulnerability of industrial scale food production. Chain grocers, distributors, and industrial farms have no mechanisms for quickly and accurately tracing sources of contamination, relying heavily on the government for regulation and emergency response. IN SHORT, OUR FOOD SYSTEM IS BROKEN. A simple and holistic solution to these economic, safety, and security issues is to buy (or grow) your food locally, develop relationships with your local farmers, and support local food systems.
Locally, Minneapolis has seen an explosion in the local food involvement, food advocacy, and general interest, gaining fifteen new farmers markets or farm stands in the last ten years. Today food trucks serve market goers and downtown residents locally grown and prepared fare, micro-breweries sell home brewed local beer, and urban bee and poultry keepers become more numerous by the year. Commercially, local breweries like The Surly Brewing Company, Fulton Brewing Co, Lift Bridge Brewing Company, and Flat Earth Brewing Company, along with others have all carved out a lucrative shares of the market behind the momentum and desire for high quality locally made food and drink. Expanding these local networks, five healthy/local food co-ops and dozens of CSAs, are providing outlets for the small contingents of peri-urban farmers who are creating organic produce, dairy products, meats, and other goods locally.

In 2009, the City of Minneapolis initiated planning and policy actions to create the Homegrown Minneapolis initiative. (8) This initiative is focused on assessing the interest, viability, and impacts of urban farming, gardening, and local food. This assessment is targeted at instituting changes to zoning codes and policy decisions in order to promote farming, gardening, and local food. At the community level the Gardening Matters Coalition is working to establish community support networks, resource centers, education programs, a land trust, and a local lobbying group. These initiatives in conjunction with the Minnesota Grown Program and other community support have created a base from which the local food movement will continue to gain strength and momentum.

(8) Minneapolis Urban Agriculture Plan: http://www.ci.minneapolis.mn.us/cped/urban_ag_plan.asp
Brownfield reuse; and the remediation that often precedes it, is a key interest for developers and cities seeking to promote growth and internal economic development. The challenges associated with brownfield redevelopment include assessing site conditions, contamination, local demand and viability for development, as well as the costs and hazards associated with site clean up. The magnitude of these challenges (and their associated costs) often result in the redevelopment of brownfields as public open space, the typical fallback or default use. This tendency reduces redevelopment options for brownfield sites and has somewhat restricted redevelopment action and innovation in highly contaminated sites. Urban agriculture represents a potential mechanism for recouping the additional costs associated with brownfield redevelopment.

By programming the site with multiple uses, a process similar to a strategy implemented by the City of Vancouver, the developer can reduce its future property tax burden by creating public space; while simultaneously programming the space with additional economic activity. This approach also has the capacity to create a wider range of recreational amenities, increase local aesthetic value, and promotes the best and highest use of all urban lands.

In response to the Green Building Council’s interest in vertical farming as an alternative development type, proposals have been made for high-rise vertical farming structures in Seattle, Portland, and New York City. These design proposals typically consist of single self-sufficient structures which incorporate alternative energy, commercial and residential space, and significant areas of agricultural crop production (typically to be used or sold on site). The problem that plagues all of these design proposals is that of scale and practicality. The technology and science behind these designs is sound, but there is a lack in real world testing at the scale which they are currently being proposed. This lack of precedents makes any vertical farming development risky, particularly for investors and developers. Part of the problem, is the lack of intermediate deployment and incorporation of agricultural elements into current development proposals. Incorporating the technology behind the vertical farm into a more tried and true development type like transit oriented development can provide an injection of much needed legitimacy, financial viability, and flexibility into an urban agriculture project. The following sections outline brief precedents showing how agricultural components can be integrated into urban life and redevelopment activities.

ALTERNATIVE FARMING

VERTICAL FARMING

Valcent Products: VertiCrop
This company manufactures several compact agricultural systems which support vertical farming activities. These systems have many production and space saving advantages similar to aeroponic systems. In test trials the unit increased some crop yields by up to 20 times the normal production volume and only required 5% of the average water used in conventional growing conditions. This is essentially a horizontal conveyor system which manages light, feeding, and air flow to the plant. This technology will be useful in increasing productivity and viability of vertical farming operations for the project. (13-14)

AEROPONICS

Ed Harwood: CEO AeroFARMS
Aeroponic growing technology allows for very compact and efficient vertical farming. It works by growing greens on a polypropylene membrane (reusable) which is feed by nutrient rich water and LED grow lighting. This system has already produced mature corps in just 18 days in test trials. Not only is it fast but the LED lighting and water circulation systems are extremely efficient and product a far superior crop in about one third the time it take to grow salad greens outside or in a green house. (15)

(13) http://www.verticalgardenpatrickblanc.com/#/en/projects/typological
(14) http://www.valcent.net/
(15) http://blog.nj.com/njv_barry_carter/2010/12/ecoveggies_growing_system_entr.html
VERTICAL CENTERS FOR URBAN AGRICULTURE

Mithun: Center for Urban Agriculture
These designs for self sustaining agricultural centers are the premise upon which my agricultural center will be based. These centers combine vertical farming, living space, commercial space, alternative energy creation, and other eco-centric technologies to create a holistic vertical settlement that provides all the basics for urban life. My concept will unpack some of these mechanisms and reassemble them in a more familiar, functional, practical, applicable, and accessible way. (16)

http://mithun.com/projects/project_detail/center_for_urban_agriculture/

ALTERNATIVE ENERGY DEVELOPMENT

IBIS: Florence Lofts, California
This mixed-use development represents a live/work development complex that is both compact and energy efficient. This development is based on a compact plan which harnesses storm and grey water recycling, active and passive solar energy harvesting, heat exchanging, and native planting and has been LEED gold certified. This type of development will be similar in theology to the type implemented in my concept. (17)

http://www.ibisbuilds.com/ibismixeduse.html
CITY WIDE COMPOSTING

City wide composting program: Recology, San Francisco
In the city of San Francisco, a city wide composting program has already reduced the amount of organic waste heading to the landfill by more than 985,129 tons. This represents about 11,000 tons per months on average for a city of about twice the size of Minneapolis. Jepson Prairie Organics, a major composting company for the city, produces about 90,000 cubic yards of compost annually. (20)

SOLE Foods: Downtown Vancouver Gardens
SOLE Foods farm is an urban farming program which is utilizing abandoned lots and commercial structures as venues for ephemeral and permanent gardens. The program trains and employs 12 Downtown East Side residents at wages up to $12 per hour. It produces 10,000 pounds of vegetables and fruit a year, then sells it back at wholesale prices to the community through farmer’s markets and at retail prices through local establishments. Perhaps the greatest incentive is the massive tax break which commercial buildings can receive when their zoning is changed to open space. In one instance SOLEFood negotiated with Astoria Hotel to turn the lot into an urban farm netting a tax abatement that lets the hotel save $130,000 in taxes a year. (18-19)
ROOF-TOP AGRICULTURE (GREEN ROOF)

Bathgate Urban Food Industry Center - Bronx, NY
This company is retrofitting industrial and commercial buildings with large roof areas with roof top farming technology. This system may prove useful for retrofitting local businesses that are still economically viable but are under-utilizing their land area. It will also provide extra financial incentive for local businesses to participate in urban Ag. and potentially may increase productivity of the agricultural center as a whole. (21)

(21) http://www.phbcatalyst.com/index.php/bathgate-urban-food-industry

URBAN AGRICULTURE BLOCK PLAN

Daniel Nairn: Village Green Village Green
This is a block plan for an urban neighborhood centered around an agricultural commons. This concept is similar in ideology to my proposal, but focuses more on conformance to local block archetypes. Principles like bike and car sharing, poultry raising, composting, community green houses, and agricultural/recreational public space are all elements from this precedent that I may incorporate into my design proposals. (22)

CITY-WIDE URBAN AGRICULTURE INITIATIVES

Minneapolis Home Grown Initiative
This program started by Mayor R.T. Rybak is an attempt by the city to identify stakeholders and promote the expansion of urban agriculture in the city. The city is seeking to develop a better understanding of the policy and zoning changes that can be made in order to promote this new area of economic development. They are also interested in the health, social, and environmental improvements that may accompany this movement.

This initiative is also an attempt to better organize the current network of local food organizations, farmers markets, CSAs, co-ops, and the periurban and urban farms that support them. The assessment of parcels for community gardens and the incorporation of urban agriculture into public parks is also an avenue of exploration. (23-24)

There are four primary areas of focus:
• Farmers Markets
• Community, School, and Home Garden
• Small Enterprise Urban Agriculture
• Commercial Use of Local Food

EDUCATION AND AGRICULTURE

Studio One Eleven: New City School, Long Beach
This is a real project focusing on the educational advantages of gardening, agriculture, food, and nature. This combination classroom, garden, and park is designed to stimulate the imagination and facilitate the learning process. The program also includes a kitchen, solar panels, orchard, farm stand, greenhouse, and a chicken coop. This is a great precedent for how education, agriculture, food, and open space can be combined to support learning and community interaction. (25)

BROWNFIELD REDEVELOPMENT

D-Town Farms: Detroit Black Comm. Food Security Network
D-town farm is a 2 acre farm inside Rouge Park which is tackling issues of food scarcity and social injustice. The Detroit Black Community Food Security Network is a local community organization which is dealing with the rampant issues surround land abandonment, obesity issues, improving food quality and access, and increasing community involvement. This is a community empowerment group centered around agriculture as a tool to mobilize and unite black communities; and represents a success story of community centered agriculture acting as a tool for promoting functional economic and social improvements. (26)

STRUCTURE REUSE-CARGO CONTAINER FARM

Farmery: CEO Ben Greene
The Farmery is an attempt to reuse shipping container to provide an inexpensive and reusable framework for vertical farming. The system is stack-able and works as a self contained commercial farm that can fit in the space of a city bus. It is capable of growing berries and greens vertically on the exterior and mushrooms(a very valuable commodity) on the interior. This mechanism can bring agriculture into the surrounding neighborhoods as part of the overall project vision. (27)


(27) http://www.thefarmery.com/
The site selected for the Central Garden Transit Community required the culmination of multiple site characteristics in order to ensure a successful and resilient project. Two key features were paramount in creating a successful project; a site that is well connected and a site which contains non-conforming and outmoded land uses. Additional criteria for site selection included parcels owned or targeted by the city of Minneapolis for (brownfield) redevelopment as a result of proximity to transit infrastructure.

Strong urban transportation links will provide the conduits through which the proposal will draw in resources and project out its benefits. Connections to major roads and highways, pedestrian/recreation networks, public transportation corridors, and commercial streets were important elements in furthering Minneapolis’s vision for multi-modal well connected communities and ‘complete’ streets. These connections also provide intended user groups with equal and easy access to and through the proposal site. Direct connections to public transportation exist at the Hiawatha & Lake Street LRT station and along Lake Street and Cedar Avenue bus lines. Additionally proposals have been made for a public transit connections along the Midtown Greenway (A future transit corridor held by the Hennepin Co. Transit Authority). The Greenway also provides a pivotal pedestrian and recreation link between the site, South Minneapolis, and the Minneapolis Park & Rec network. This connection in conjunction with several north/south multi-modal streets provides access for cyclists and pedestrians, and increases the connectivity of city parks and recreation resources.

A second key feature for site selection was locating a site with latent redevelopment value that was currently underdeveloped. The Hi-Lake site was selected because of the site’s current land use patterns don’t conform with the city’s desire for the best and highest land use. Although much of the land is currently in use, the development is low density, buildings are of low quality or outmoded, some facilities are unoccupied, and many of the industrial operations devalue redevelopment areas near the Lake Street LRT station. Additionally two large municipal complexes contribute to pollution and occupy approximately 5 acres of land with latent redevelopment value. Although current site uses generate municipal tax revenue and provide important jobs, the value of locational assets like the Hiawatha LRT line, Hiawatha Commercial Corridor, Lake Street (the city’s longest commercial street), and proximity to...
Interstate 94 provide the site with significant potential for more sustainable, higher value redevelopment typologies.

Geographically the site is centrally located within the city of Minneapolis. The site is comprised of several blocks and is bound by Lake Street to the south and 26th Street to the North. The Hiawatha Light Rail Line and Hiawatha Avenue act as the eastern boundary and the western edge of the site is bound by Cedar Avenue. The site resides in the East Phillips Neighborhood and shares a common and important boundary with the Corcoran Neighborhood to the south and the Little Earth Community to the north.
During Minnesota’s early settlement period the eastern portion of the East Phillips neighborhood was occupied first by the Dakota (Mdewakabton); and later by the Ojibwe people, a result of the westward encroachment of European settlers into native territory. Although the site has no specific Native American cultural importance, the Mississippi River Valley and adjacent bluffs between St. Paul and Minneapolis contain many culturally important Native American sites. This cultural importance is manifest in a strong presence of Native American’s in East Phillips’s Little Earth Community.

In 1849 Minnesota’s territorial status, Fort Snelling, and wealth of natural resources, and the power of the Mississippi River brought settlers from the east. Soon St. Anthony and Minneapolis were rapidly growing milling and logging towns.

Population growth would explode in the last third of the 19th century with the booming milling industry and the introduction of the Chicago, Milwaukee, & Minneapolis rail line around 1867. The demand for new housing and the adjacent rail line would change the site from prairie to city within a few decades. For the next century this area would be centered around the switching yard that serviced the rail lines, connecting Minneapolis to the rest of America.

The rail lines and switching yard would eventually transform the area into an industrial corridor. Soon industries including a foundry, coal/oil station, and many other industrial and commercial facilities sprung up to take advantage the important rail line. Industrial and commercial activity has persisted to the present day with a foundry, bituminous asphalt facility, Sear warehouse, and roofing supply company at one time or another occupying a large portion of the northern part of the site.

The city too realized the advantages of building on cheap land near what was then the periphery of the city. At one time or another the city has operated a trolley service yard along Lake Street, a storage facility (yard) in the north of the site, and a trash incinerator in the central portion of the site. Of these facilities only the street car facility was replaced and now exists as part of the Pioneer and Soldiers Cemetery.

Throughout the site’s history (post European colonization) the Pioneer and Soldiers (Layman’s) Cemetery has existed on the site since it received its first burial in 1853. This cemetery is now on the National Register of Historic Places and holds many important early residents of Minneapolis including founders, soldiers, settlers, and abolitionists.
Along with the aforementioned commercial and industrial uses there are small segments of the western and north western parts of the site which are low income (mostly rental) housing. On the site’s eastern boundary the rail yards and tracks have largely given way to the automobile. Hiawatha Ave. is now an important commercial corridor for the city. The state’s first Light Rail Transit line also runs along the eastern boundary, with a stop on Lake Street/Midtown. The western line of the railroad has been re-purposed into the Midtown Green-way, an important recreational connection between the chain of lakes and the Mississippi National Recreation Area.

Use of the site over the years has been almost entirely for industry and commerce purposes, although before railroad expansion the area was larger dedicated to rental housing and before that was wild. Some vestiges of this housing stock still exist but currently the sites primary use is still for commercial and industrial activities (sans the cemetery). The exception being the new spurt of redevelopment along Hiawatha avenue bolstered by auto access, the light rail stop, and greenway activity.

Right: 1938 Aerial Composite image of Central Minneapolis
The historic industrial and public works activities on the proposal site have left the site with a wide array of soil contaminants. Contamination for each parcel was approximated by reviewing spill and contamination reports available through the Minnesota Pollution Control Agency. Additional information about historic contaminants was distilled by first identifying historic site uses and then reviewing the typical types of soil contamination associated with each of these land use activities as defined by the US EPA. The primary site contaminants include lead, arsenic, petroleum products, and the by-products of metal work and incineration. Reuse of the site will require extensive remediation or isolation of soil contaminants.

**Likely and existing soil contaminants include** (28-29):

- Polycyclic Aromatic Hydrocarbons (PAHs)
- Diesel Range Organics (DROs)
- Gasoline Range Organics (GROs)
- Volatile Organic Compounds
- Lead
- Arsenic
- Nitrous Oxide
- Sulphur Dioxide
- Carbon Monoxide
- Creosote

Data collected from analysis of historic site usage, (28) brownfield urban ag. contaminant concerns by US EPA: http://www.epa.gov/brownfields/urbanag/resources.htm, and (29) http://pca-gis02.pca.state.mn.us/wimn2/index.html
External links and connections within the site represent important nodes of mobility and activity. Three links along Lake Street represent opportunities for increasing the permeability and connection with the progressive neighborhood of Corcoran to the south. Connections along Lake Street, 26th Street, and The Midtown Greenway provide important connections to the greater Phillips Neighborhoods. Internally the site hinges around a central pivot point at the 28th Street crossing, while several small streets provide opportunities to enhance north to south movement and connectivity.
The current diversity of land use on the site is extreme, ranging from residential to industrial to recreational. The high contrast in land use types have created both opportunities, such as the potential for quick and easy access to local businesses; and hazards like the direct contact between residential and industrial activities. The mosaic of land uses have left the area disjointed and dysfunctional, reducing redevelopment value, property tax value, and local quality of life.
Pictured is the southern gateway entrance of the Pioneer and Soldiers Cemetery. This entrance is no longer used, however historic photos indicate that this was once an important pedestrian entrance for the cemetery. This entrance represents an important gateway into the site and potential pedestrian connection across Lake Street. The spot shows several key features of the cemetery including the deteriorating fence now replaced in several areas with chain link. In the background the omnipresent chimney of the old Minneapolis incinerator is visible through several species of mature trees.
Industry is another prolific use that punctuates the site with construction, manufacturing, metal casting, municipal waste, and other activities occurring within or near the site. Below a panoramic image captures the juxtaposition between the views of natural green space and the industrial facilities experienced while entering the site via the Midtown Greenway. Dusting, smoke, the odor of chemicals, the whir of exhaust fans, crashing of metal and aggregate, and vehicle noise are all pervasive sensory experience one encounters while entering here during the work day. Conversely, during mornings and
evenings, the space is often quiet, insulated from street noise and other urban disturbances. Riding or walking through this space from the north and east, one rounds the shallow curve seen to the right and is introduced to the first glimpses of the greenway quickly sinks below the level city street. The transitional character of this place is also evident in the grade change that begins to happen at this point all the way to the transit station on Hennepin Avenue, near the chain of lakes. The greenway quickly sinks below the level city street, resulting in a series of framed perspective running from this point all the way to the transit station on Hennepin Avenue, near the chain of lakes.
Along 28th Street, land uses collide. The street demarcated a harsh transition from medium/heavy industry to low income single family and multi-family residential use. This proximity creates a suite of dangers which include exposure to toxins, increased conflicts with trucks and heavy machine traffic, and exposure to concentrated dust and particulate matter.

28th street poses its own set of challenges, acting as a major throughway for east bound traffic all along the southern portion of the city, its three lanes of one-directional traffic funneling down to two just prior to entering the site. Several visits
to the site to observe traffic patterns on this important connection highlighted two important characteristics. First, this thoroughfare is extremely important as a conduit for visitors and residents coming from the surrounding neighborhoods, particularly the chain of lakes and midtown areas. Second, the observed speeds during peak hours and the volumes of traffic on this street gave credence to the need for traffic calming measures in the redesign process, a sentiment that was echoed in interviews with local residents and leaders.
This panoramic photo is indicative of the barrier like nature of the industrial activities which separate East Phillips residents from the greenway, cemetery, high school, play fields, YMCA, shops, and transit stops residing just on the other side. Streetscape amenities are extremely limited to just a single crosswalk sign and three foot grass boulevards with no street trees. The limited amenities along this street make little allowance for safe and comfortable pedestrian or cyclist travel. Way-finding amenities in this area are also missing, and with large populations of both minorities and the low income resi-
dents, the city is missing on a real opportunities to connect disadvantaged residents to some of its greatest recent transit investments.
Three panoramic photos of the 28th Street and Hiawatha Avenue intersection. This area represents the site’s multi-modal character with an intersection of multiple modes of transportation including pedestrian, auto, bus, light rail, and bicycle. In the foreground the Eco-Enterprise Center is framed by a small prairie restoration planting. In the background, the old chimney of the city incinerator caps a building now used as a Minneapolis Public Works building.
To the left is the bridge transition of the Hiawatha Light Rail Line from the east to the west side of Hiawatha Avenue. To the right Smiley’s Clinic and several other small businesses occupy a prefab single story commercial structure. Pictured in the center is one of three connections from Hiawatha Avenue to the Midtown Greenway along the heavily traveled 28th Street conduit.
The subterranean geology of the Lake and Hiawatha site is relatively homogeneous, with the majority of the underlying bedrock consisting primarily of the Platteville-Glenwood Limestone formation with small areas of sandstone and shale in the south. Site geology is uniform and is rooted in river outwash activities from the glacial era. The glacial flow of the Mississippi River has left behind a deep layer of well sorted primarily sandy soil which sits atop a deep layer of bedrock. The deposition of well sorted materials is largely a function of the site’s position in between the upper and middle river terraces.
Current and future land use patterns fit well in the context of urban farming. Commercial farming will likely be guided into light industrial and industrial areas as recommended by the Minneapolis Home Grown Initiative and Urban Ag. Plan. Proximity to residential land use, particularly dense residential use is also important for providing an appropriate amount of users for agricultural retail. The majority of the site is built and highly impervious with small fragments of natural/native plant communities. This condition implies that the majority of the site is highly disturbed and likely contains a large amount of construction fill soil.
The pre-settlement vegetation patterns of the site are entirely rooted in Native Prairie, a characteristic that would have created deep and rich layers of fertile soil prior to the urbanization of the site. Today the soil composition is convoluted at best, likely being comprised largely of ‘urban soils’ which can be a poorly sorted amalgam of rock, peat, sand, clay, construction waste, gravel, and other unknown materials. A nod to the once prolific prairie of the area is the prairie restoration planting near Hiawatha Avenue as part of the Eco-Enterprise Center. The examination of the pre-settlement vegetation and soil surveys also indicates, with a relatively high degree of certainty, that the site soils are probably high in sand content, making them very well drained and raising concerns about the mobility of site contaminants.
Farming in Minnesota is one of the most important economic activities pumping millions of dollars into the state and local economies. With this in mind it is logical to assume that most of the produce consumed in the Twin Cities comes from local farms. According to USDA estimates however, approximately 66 percent of all food consumed in Minnesota comes from out of the state, and much of the in-state consumption consists of meat, dairy, and corn based products as opposed to fresh produce and products made from produce. Knowing this, it is important to develop a fuller picture of what small farming looks like surrounding the site. Data from the Minnesota Department of Agriculture shows what appears to be a dense cluster of local produce growing farms within 50 miles of the site. The concentration breaks down as follows (30):

- 175 Farms 50-26miles
- 116 Farms 25-11miles
- 12 Farms 10-2miles
- 1 Farms 2<Miles

However this clustering represent less than one tenth of one percent of the total farm land surrounding the Twin Cities, a figure which can only a fraction of the food needed by Twin Cities residents. This was estimated using the 1.25 acres need to feed one person estimate created by the U.N. (31)

(30) http://www.localharvest.org/search.jsp?map=1&lat=44.974363&lon=-93.305344&scale=9&ty=0&co=1&nm=&zip=55405
More than ninety community gardens of varying sizes and types dot the city of Minneapolis. These gardens total more than 792,000 square feet with an average size of 8,600 square feet. If divided into one hundred square foot garden plots the total number of garden plot spaces would be close to 8,000. Of the 92 gardens, twenty-two are within a mile, seven are within half a mile and only one is within a quarter mile of the site. The concentration of gardens within a mile of the site indicates a strong and centralized community interest in the benefits of community gardening. Conversely there is a serious lack of gardens within a quarter mile (the generally accepted metric for a five minute walk) of the site, indicating a need for increased garden access for local residents, especially those who may have mobility issues. With a city population of 377,392 there are only enough garden plots for one out of every forty-seven total residents, indicating a serious deficiency in gardening spaces for community residents.
Farmers markets in Minneapolis are exploding in prominence and size, with the total number of farmers markets growing from one too more than thirty markets in less than twenty years. These markets represent the most direct outlet for locally grown produce and other locally produced food stuffs, providing a direct conduit to healthy, safe, and environmentally sustainable food. This conduit also injects money directly back into the local economy, creating jobs, increasing the tax base, and forging connections between growers and consumers.
The site’s proximity to Hiawatha Avenue and Lake Street provides the area with an abundant access to retail stores selling produce and food. Unfortunately these source can be expensive and the produce they stock can be dangerous.

Community kitchens are well distributed throughout the city, but the site has no community kitchens within a quarter mile, making it difficult for residents with limited transportation options to access this important resource.
Soup kitchens, like community kitchens represent an important city-wide food resource for low income families, and the Hi-Lake site has limited access to this important source of stability and nutrition.

CSA drop off points are another important link between local farmers and their products to community residents, establishing another important link in the local food supply chain. Two exist currently on site, showing at least some local demand for local food.
The Mississippi River Critical Area is the central green-space destination and connecting strand of the city’s park network, anchoring and linking the eastern edge of the city’s vaunted park and recreation network to the rest of the park system.

Minneapolis is the ‘City of Lakes’, and connecting to this network of waterways will be a critical step in making the site an important component of the city’s larger recreation network.
Hanging on the network of waterways is the ‘Grand Rounds and community parks of the Minneapolis Park system. The site’s central location could make it a node of recreational activity in this system, showcasing its latent potential.

The network of pedestrian and bicycle lanes, walks, greenways, and trails will play a central role in funneling users into the Hi-Lake site, increasing the modal accessibility of the site.
The collective Minneapolis Parks and Recreation network forms a ring of green space surrounding the city, with a multitude of smaller spaces interspersed throughout. This ring is bisected by the Midtown Greenway, a critical recreation link connecting the Uptown and Chain of Lakes areas with the Mississippi River Critical Area. This site is a central node along this important link and this; combined with its central location, positions the site as an ideal point for investment in a new central garden.
At the site level, there are several green spaces of varying quality and type surrounding and within the site. These green spaces range from cemetery to traditional park to high school ball field. The Midtown Greenway, slice through the middle of the site, represents a critically important connection to the greater parks and recreation network in all four cardinal directions. The transformation of the site into a mixed use park and garden space would functionally link the internal and adjacent park spaces into a more contiguous central park space, fostering a more diverse program of uses and users. This new park space would also provide an important transitional park between the large eastern and western park strands of the city’s Grand Rounds Network.
The site is centrally located and well connected to several important high frequency public transportation routes, including the Hiawatha LRT line and the number five, twenty-two, and fifty-five buses. Historically, the site has been an important node for public transportation, serving several historic city street-car lines. This historic transit use is an important link with the newly proposed Midtown Greenway Street Car Line. (32)

High-Frequency Public Transit Routes

Minneapolis Historic Street-Car Network

(32) Interview with Theresa Nelson of the Midtown Greenway Coalition (2010)
The Midtown Greenway, along with the Hiawatha LRT line, are the two most important links to the rest of the city, acting as conduits along which users may travel to and from the site.

City streets, collectors, and nearby highways allow for easy access and efficient commercial transportation to and from the site. This connection will be central in facilitating accessibility and creating/sustaining commercial redevelopment value.
Generally speaking, the city’s multi-modal transportation network to some degree represents a hub and spoke configuration, making a central location (one close to the Downtown District) advantageous for those with mobility limitations. With the program seeking a city-wide user base, addressing these connections will play a central role in ensuring the success of the site as a central garden and park.

Map data acquired from GIS map layer available through MetroGIS Data Finder
Centrality and links to the larger transportation networks creates the opportunity for improving the equity and multi-modal access for all city residents interested in exploring the site. As the city grows and smaller networks like the bicycle network continue to expand, those who rely on alternative modes of transportation will be increasingly able to access this centrally located site. The linkage to a wide range of transportation networks also makes the site an ideal place to locate businesses which rely on transportation for moving goods and customers.
Large and growing populations of Hispanic and Native American residents, as indicated by blacks and dark grays on the maps, live on or near the site. In addition, significant populations of African American and Asian American populations make East Phillips and the surrounding neighborhoods exceptionally diverse. This diversity will be a key consideration when programming the site with amenities, housing, and other activity features.
The economic characteristics of East Phillips and surrounding neighborhoods are generally not very favorable. The maps to the right, with dark colors indicating areas with the highest respective levels, demonstrate the low levels of income, high poverty levels, and relatively high unemployment rates in and around the site. These converging factors place neighborhood residents in unfavorable circumstances, making the potential positive impacts of community gardening on reducing food costs a potential boon for surrounding residents.
Generally the site and the surrounding neighborhoods are very young, with only a nominal population of retired people. Age is an important consideration when developing the program for the community garden. Having a well rounded program which provides activities for a wide range of residents will ensure the garden and park have a vibrant and consistent regime of use, promoting safety and interaction among age groups.
Rentals are generally concentrated in the core of the city, with a very high concentration in the East Phillips neighborhood. While the number of renters is high, housing value and rent are both low, a phenomenon that can be attributed at least in part to elevated levels of local crime and an inharmonious mix of land uses. These characteristics are important because renters, especially low income renters typically have limited to no land on which to garden. This in concert with limited resources makes access to affordable and easily accessible land for gardening that much more important.
Yet another important characteristic of the city and neighborhood is the propensity of residents to walk or take transit to work. According to a recent bicycling survey, Minneapolis cycling is on the rise, growing by 34 percent from 2007 to 2010. (33) The two maps to the left show that there are great concentrations of people who choose walking, bicycling, or transit as their primary mode of conveyance. This increased level of alternative transportation use would indicate a willingness of potential garden users to take these mean, rather than drive to the site. This fact reinforces the importance of creating and bolstering multi-modal connections and facilities within the site.

(33) http://www.bikewalktwincities.org/news-events/bicycling-walking-counts
The concentration and size of gardens by neighborhood is an important citywide characteristic to understand when assessing an area’s potential to generate garden users. The analysis map to the right, with circle size representing relative garden size, shows a high concentration of gardens in the area. It should be noted however that these gardens are relatively small in comparison to other city gardens. This seems to indicate both interest and demand for gardening in the East Phillips neighborhood.
Using each of the demographic characteristics, a conservative weighted value was calculated for each neighborhood to determine how many potential gardeners each neighborhood would potentially produce. From these calculations, determinations about program amenities, the number and sizing of garden plots, and the characteristics of potential gardeners were estimated. These figures were ultimately used to allocate space to each programmatic element.
MINNEAPOLIS HOME GROWN INITIATIVE
The City of Minneapolis has identified through its Minneapo-
lis Home Grown Initiative more than 100 stakeholder groups. They have subdivided these groups into four key focus areas (34):
- Farmers Markets
- Community, School, and Home Garden
- Small Enterprise Urban Agriculture
- Commercial Use of Local Food

GOVERNMENT AGENCIES
Local, city, and state agencies have all expressed a distinct in-
terest in bringing agricultural practices back into the city. The following agencies have an interest in an agricultural develop-
ment projects in Minneapolis (34):
- Minnesota Department of Agriculture
- Minneapolis Home Grown
- Minneapolis Community Planning and Economic Development (CPED)
- Minneapolis Department of Health and Family Support
- MetroTransit (MetCouncil)

TARGETED STAKEHOLDERS
Other potential local stakeholders:
- Midtown Greenway Coalition
- Minneapolis Phillips Community Group
- Phillips Neighborhood Network
- East Phillips Improvement Coalition
- Midtown Phillips and Ventura Village Groups
- Second Harvest Heartland
- Nice Ride Minnesota
- Eureka Recycling
- Farmers Market Representative (David Nicholson)
- Minnesota Food and Justice Alliance

(34) Minneapolis Home Grown Initiative (2009)
Gardening Matters is a nonprofit community based organization dedicated to promoting and preserving community gardening across the Twin Cities by connecting gardeners to each other and to the communities in which they reside. They provide training and resources to support community gardeners in achieving community gardens that are successful and sustainable. Several meetings with Gardening Matters board members, concerned citizens, gardeners, and activists revealed a host of concerns; chief among which was land access and permanency. Knowing that access to permanent and protected gardening spaces is critical to supporting gardening in Minneapolis, a central garden would provide a collective, city scale gardening venue which could function as the central hub for Gardening Matters and their operations.

Additionally, a central hub facility would provide space for classes, meetings, research, demonstrations, experiments, and other garden activities, put on by Gardening Matters and other community organizations. A central gardening hub would concentrate resources, and create a confluence point were gardening knowledge and techniques can be shared and traded, improving the collective gardening ability and productivity of all gardeners. A central garden, managed by Gardening Matters would also ensure proper security and safety provisions, and would ensure that common garden spaces were properly maintained and secured. Furthermore a central space would provide a great venue for gardening and local farming trade shows, city scale events, and spring gardening events like seed and seedling distribution and education sessions.
Currently 10 cals of petroleum energy yields 1 cal of U.S. food energy (35)
20% of U.S. fuel use goes to growth, processing, & distribution. (37)

Area of Ag. Land in Minnesota: 26,917,000 acres (38)
Area of Small Farms/Organic Ag. Land in MN: 133,393 acres (38)
Area Needed to Feed 1 Person (MEAT): 1.25 acres/54000sq-ft (39)
Area Needed to Feed 1 Person (VEG): 0.17 acres/7500sq-ft (39)

Twin Cities Population (MSA): 2,968,806 (40)
Area to Feed 1 Person (MEAT): 3,206,310 acres
Area to Feed 1 Person (VEG): 504,697 acres
Local Food Gap 2,197,806 persons

State of MN Population: 4,919,479 (40)
Area to Feed 1 Person (MEAT): 5,313,037 acres
Area to Feed 1 Person (VEG): 836,311 acres
Local Food Gap 4,148,479 persons

Persons Feed by Small Farms (VEG): 771,000 persons

The Midtown Farmers Market is an important community event providing local residents with easy and affordable access to a wide range of locally produced vegetables, fruits, food stuffs, and other goods. With more than 55,000 market go-ers annually, and several thousand per week, the market represents a significant commercial and community resource. This market is one of only a few farmers markets in the city running a Market Bucks (EBT) test program where low income residents get double money for spending EBT vouchers on market products, creating an incentive for residents to spend there EBT money on healthier food options while simultaneously supporting local businesses. This thriving market needs a more permanent, and pedestrian friendly location, with more vendor spaces and easier multi-modal access. The Central Garden Transit Community proposal would provide a wide range of spaces for the market to occupy as well as complementary businesses to supplement niches not filled by vendors.
Minneapolis and its neighborhoods have developed a series of iterative visions for the development and growth of the Hi-Lake LRT Station area over the past few decades. These plans, including community development plans for the Corcoran neighborhood and the Minne-Hi Corridor CPED plan were both important points of inspiration and guidance for the redevelopment program. Creating connections across Hiawatha Avenue and Lake Street was one of the important connecting components that emerged from this research, driving the form of street and pedestrian connections across these transit ways. The city of Minneapolis Hi-Lake plan played a significant role in guiding density, land use configuration, and building standards. These studies also provided a significant source of community input on what residents would like to see future redevelopment look like. These plans were also useful in identifying existing amenities, important community resources, danger areas, points of conflict, and historic and culturally important components. They also provided key contact resources for community groups, residents, local businesses, and invested organizations like the Midtown Greenway Coalition and Corcoran Neighborhood Organization.
The seasonality of produce is a hugely important issue facing both farmers and gardeners in Minnesota. Harsh winters and hot and humid summers produce temperatures and weather regimes that can fluctuate wildly, and in some cases unpredictably making the growing of local produce a much more difficult task. Chief among seasonality concerns is the inevitable onset of winter, and the low temperatures and limited sun this three to four month long season can bring
To combat seasonal change, extend the growing season, and ensure proper planting configuration, understanding the seasonality of produce and how to extend the season became a crucial point of influence on design. The calendar below lists some of the most commonly grown types of produce in Minnesota, and the length of time they can be grown, both naturally and through the use of poly tunnels, greenhouses, and other season extension methods. (41)
Choosing the appropriate garden typology and understanding existing Minneapolis garden types was an important for determining plot size, providing amenities and resources, and determining the over scale of the project. Understanding the spatial and aesthetic character of each garden type, aided in creating hybrid garden, which combine several smaller

<table>
<thead>
<tr>
<th>Typology</th>
<th>Number of Users</th>
<th>Plots</th>
<th>Sizing(ft)</th>
<th>Character</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Family Garden</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>EX:</td>
<td>Examples all over the world.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1 - 4 Gardeners</td>
<td>1 - 16 Supported family members</td>
<td>1-3</td>
<td>10’ x 10’</td>
<td>These gardens are typically individually or family tended for recreation, therapy, food, or some combination of these. They are private and usually less the 400 square feet in total size. Typically found in back and side yards.</td>
</tr>
<tr>
<td><strong>Pocket (Plot) Garden</strong></td>
<td>10 - 75 gardeners</td>
<td>10-50</td>
<td>50’ x 20’</td>
<td>Within 10min walk(1/2mi), Users are acquainted with each other. Collective efforts are common, with public space and shared facilities a principal component. Food production and recreation most common use.</td>
</tr>
<tr>
<td>Block Garden</td>
<td>3 - 10 Gardeners</td>
<td>3-10</td>
<td>10’ x 30’</td>
<td>This garden type services 1-2 blocks. Food and decorative plantings are popular, often there will be a small public space. Found in pocket parks, side/rear apartment yards, and empty lots.</td>
</tr>
<tr>
<td>Block Garden</td>
<td>6 - 40 Supported family members</td>
<td>3-10</td>
<td>50’ x 20’</td>
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<tr>
<td>EX:</td>
<td>Marra Farm, Seattle, WA</td>
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<tr>
<td></td>
<td>Ascension Comm Garden. Minneapolis, MN</td>
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<tr>
<td>EX:</td>
<td>Bradner Gardens Park. Seattle, WA</td>
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<tr>
<td></td>
<td>Hub of Heaven Garden. Minneapolis, MN</td>
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<td></td>
<td>Bryant Unity Development. Minneapolis, MN</td>
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</tbody>
</table>
garden types into a larger contiguous central garden, allowing the massive garden to maintain an approachable character. The table below lists several garden types and their characteristics. This chart was used to design the central garden into a city sized garden with human scale features and neighborhood scale garden areas.

<table>
<thead>
<tr>
<th>Typology</th>
<th>Number of Users</th>
<th>Plots</th>
<th>Sizing(ft)</th>
<th>Character</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Community Garden</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>EX:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Danny Woo Comm Garden</td>
<td>50 - 150 gardeners</td>
<td>50-100</td>
<td>50' x 100’</td>
<td>Successful gardens in this class are well connected multi-use spaces with several program elements. Proximity to population and/or easy access is paramount. Hierarchical organization and a regular pattern/form is typical.</td>
</tr>
<tr>
<td>Interbay P-Patch, Seattle, WA</td>
<td>100 - 600 supported family members</td>
<td>50-100</td>
<td>100' x 100’</td>
<td>Largest garden type in America. Typically associated with a large local park and several other program elements. Also typically tied to permanent park building(s). Multi-modality is key to a successful garden of this size.</td>
</tr>
<tr>
<td>Thistle P-Patch, Seattle, WA</td>
<td>200 - 1200 supported family members</td>
<td>100-250</td>
<td>125' x 200’</td>
<td>This garden type is uncommon in America, more typical of the densely urbanized cities. These gardens are typically a supplemental food source for large populations in the city, typically poor families.</td>
</tr>
<tr>
<td>Magnuson Comm Garden, Seattle, WA</td>
<td>&gt;250 gardeners</td>
<td>&gt;250</td>
<td>200' x 300’</td>
<td></td>
</tr>
<tr>
<td><strong>District Garden</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>EX:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dowling Comm. Garden, Minneapolis, MN</td>
<td>100 - 300 gardeners</td>
<td>100-250</td>
<td>100' x 100’</td>
<td></td>
</tr>
<tr>
<td>Interbay P-Patch, Seattle, WA</td>
<td>200 - 1200 supported family members</td>
<td>100-250</td>
<td>125' x 200’</td>
<td></td>
</tr>
<tr>
<td><strong>City Garden</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>EX:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Havana City Gardens, Havana, Cuba</td>
<td>&gt;250 gardeners</td>
<td>&gt;250</td>
<td>200' x 300’</td>
<td></td>
</tr>
<tr>
<td>La Salle Comm Garden, Minneapolis, MN</td>
<td>500 + supported family members</td>
<td>&gt;250</td>
<td>200’ x 300’</td>
<td></td>
</tr>
</tbody>
</table>
This graphic provides a spatial measure of the appropriate scale of a garden relative to a typical urban block pattern. Assuming a generic rate of participation of twenty percent of block residents, user numbers and garden sizes can be more broadly extrapolated. This process is useful for determining the size and extent of reach of the central garden project, as well as allocating land resource to garden plots versus redevelopment activities. The blocks on the bottom and left represent the size of a garden relative to the amount of blocks served and the number of parcels per block.
One of the most important elements to come out of city and community planning literature reviews and interviews was the importance placed on the creation of Transit Oriented Development as depicted in the graphics below. This diverse and pedestrian linked land uses provides an environment where pedestrians can live, work, and play all in the same neighborhood.

Links to public transit allow residents and visitors to move freely in and out of the site. A strong mix of housing and other development types creates a multi-use vibrant community teaming with day long activity. Pedestrian centred design provides an environment where pedestrians can walk, shop, and generally use all spaces comfortably and safely while multi-modal streets promote efficient and convenient transportation choices and improve safety.
The Central Garden Transit Community proposes a mixed use transit oriented development hung on a framework of community gardening and urban farming. The proposal would provide a range of rental and privately owned housing options connected to existing transit and recreation ways. Additional connections may come from transit connection opportunities along the Midtown Greenway with the potential to link to the proposed Southwest Light Rail Corridor. The Midtown Greenway further strengthens the proposal with its pedestrian and bicycle connections to the chain of lakes and Mississippi National Recreation Area. A partnership with the Nice Ride MN program would add additional cyclist participation and access to the project.

A second important element of the proposal is an Urban Ag. Center along which the gardens and residential redevelopment will be organized. This center will occupy a large portion of the commercial space allocated in the northern portion of the redevelopment site. Its primary function is as a processing, marketing, packaging, storage, and distribution facility which would target small to medium scale organic farmers in and around the Twin Cities.

The primary intent of the facility is to provide a centralized outlet point for local farmers to access a new market shares in the metro area such as local restaurants, co-ops, small grocery stores, government centers, public and private schools, and social service centers. In addition to improving market access for farmers the development would provide good paying, low and moderate skill jobs with the potential for local residents training programs. This facility will also house a kitchen facility which will serve a dual use function. The kitchen will act as a commissary space for street food vendors looking for a permanent base for storage and preparation operations. Additionally the kitchen will be available for culinary education and community kitchen activities, specifically public classes on canning, cooking, food preservation, seasonality, and garden/crop diversity. This kitchen facility would also have the capacity to serve as a community kitchen during civic and community events held at the center. This facility could also be mobilized to distribute prepared meals in times of emergency.

Another important component of the concept is a public/private garden, greenhouse, and vertical farm. This composite system will provide private garden space for residents, space for commercial farming, and badly needed garden space for local residents who rent or lack space for a garden. This system will also act as the primary landscaping element for the development (most landscaping will be edible or agriculturally themed). Components will also extend into the surrounding neighborhood to connect other developments along the green-way and the existing neighborhood with new development. Subtle extensions of the urban agriculture
theme into the Eco-Enterprise Center and Pioneer and Soldiers Cemetery are also possible approaches for creating additional community connections via agriculture and the landscape.

The area would become the primary location for the Midtown/Lake Street Farmers Market providing an outlet for produce growing in the commercial gardens, greenhouses, roof gardens, and vertical farm as well as produce sourced from local farms outside the metro area. There will also be a small produce store and a launch point for mobile and ephemeral markets associated with the center. This is intended to increasing access to local produce for residents who work weekends, have limited mobility, or have other constraints preventing them from accessing the facility directly.

Additional components of the design include an apiary and honey processing facility, brewery facility (rental space), nursery, greenhouse, chicken yard and pen, goat pens and grazing, composting facility, several alternative energy components, and other urban ag. components as yet to be identified.

Residential units will either have adjoining garden spaces or access to private plots in the garden parcels or roof gardens. Solar (passive/active), wind, and geothermal heating are all potential alternative energy sources for the development. Additionally more unconventional alternative energy systems like a district energy exchange system (a system that links the entire development) or a compost heat extraction system will provide additional opportunities for energy independence. Rain and grey water irrigation and reuse will be incorporated to minimize utility reliance and water quality/usage impacts.

The general vision of the development is that of a sustainable TOD that is a center and launching point for the growing urban agriculture movement in Minneapolis.

Intended Functions:
• PRIMARY: A center for production, testing, education, and innovation in urban agriculture.
• An agrarian learning center
• A creator of reliable living-wage jobs
• A youth education center
• A civic and social gathering place
• A source for healthy produce, meat, dairy, and other local products
• Centralized composting facility
• A multi-modal transportation hub
• A local agriculture distribution center
• A spring board and base of operations for local food based businesses
• A sustainable community where healthy living is a priority
• An icon of neighborhood identity and a center for interaction
The development and linkage of the Hi-Lake Central Garden program elements is the final step in the design process before the conceptual planning can begin. Understanding the links between each element, and the points of confluence and conflict between and among them, is important for configuring the elements into a functional and livable development. There are three primary categories of land use in the development proposal, garden/park, housing, and commercial/retail space. The connections between these larger umbrella categories is important in developing an understanding of how the development will work as a system. Each use umbrella and its components are meant to work together to create space, promote interaction, and facilitate movement and use.

The graphic to the left shows the relationships between key project elements and was used to guide the configuration of each use type relative to the others.
Because the idea of connectivity has remained central throughout the design process, nodes and paths of travel guided the placement and configuration of land uses. In the diagram the connection of the southern and northern portions of the site has been identified as the most important point of intersection and movement. This same point represents the confluence of at least three modes of transportation, walking, biking, automobiles, with the potential for public transit in the near future. From this point comes a line bisects the site north to south, a line which will be used to resolve the broken street grid and bring back a historic path through the historic cemetery. Other important nodes run the length of Lake Street, and represent key pedestrian connections between the design and the Corcoran Neighborhood. Movement through the site will obviously be more complex but this diagram provides a more generic look at the movement hierarchy that drove design decisions and how land uses and program elements will be hung around this system of movement.
The design of the Central Garden Transit Community plan was created through an iterative process consisting of more than seventy evolutionary iterations of the design from the early configuration seen in the first image to the final plan at the far right. Since the physical structures of the TOD and housing blocks would reinforce the spatial arrangement of the park and garden components,
these elements in concert with the surrounding street alignments were used to set up the initial configuration of buildings and streets within the site. Once these elements were roughly in place, the more flexible garden and park components could be hung around this framework, interlacing each distinct use area into one contiguous green space bound by housing and commerce.
A CENTRAL GARDEN

The master plan for the Central Garden Transit Community details the placement of key programmatic elements and other points of interest. The northern portion of the community is comprised primarily of housing, office space and the central garden.
The southern section of the design consists primarily of medium density housing and mixed use units, event streets, and private and collective gardens. In the south and east, the Hi-Lake transit plaza and vertical farm anchor local commercial activities.
After analysis of the redevelopment potential of the site, a strategy for program selection soon became clear. An appropriate mix of development types was critical to the successful development of a plan for the Hi-Lake wedge. This meant that the project would need to include a mix of housing, recreational elements, garden and farm oriented commercial space, and plenty of retail square footage to ensure an active streetscape and provide for the needs of local residents who may rely on the proximity of shopping and services.

With analysis pointing towards a neighborhood need for quality affordable housing and the site’s natural fit to retail and commercial space as a major transit hub, it then became a matter of how to fit a functional and financially viable number of housing units and commercial/retail units onto the site in a harmonious way. The idea of a density gradient again became a mechanism for not only buffering the activities and annoyances of the majors thoroughfares and transit ways, but also allowed for an appropriate scale of development to occur. Development density would range from high density near the Hi-Lake intersection to relatively low density near the northern edge of the site, providing a more harmonious and fluid land use transition than the current regime.

Below is a summary of the unit counts as well as some of the other important programmatic elements integral in the overall design program of the site.

Row Houses: 52 units (approx. 1500sq-ft)  
Apartments: 72 units  
Mixed Use: 408 units  
Tool House: 10 units at 600 sq-ft each  
Community Garden: 1,945 plots  
Private Gardens: 155 plots  
Office Space: 51,000 sq-ft  
Mixed Use Retail: 52,000 sq-ft  
Garden Center: 99,000 sq-ft  
Transit Oriented Retail: 20,500 sq-ft  
Vertical Farm: 270,000 sq-ft  
Commercial Farm: 54,000 sq-ft
In the illustrative plan to the right, the garden plots, stormwater network, raspberry maze, soccer field, amphitheater, and many small gathering spaces are organized around a hierarchical system of pedestrian-ways, anchored by the Midtown Greenway.
This view of the Central Garden building and plaza shows the diversity of programmatic activities available to users. Gabion walls provide structure for re-routing one of the approaches to the Sabo pedestrian bridge. Fountain walls in the plaza double as seating elements, while the fountains aerate recovered irrigation water. An amphitheater lies between the two approaches.
to the Sabo bridge and provides a considerable amount of seating for outdoor performances, small sporting events, and education sessions. The plaza building, with its hanging gardens and overlook terrace will house garden and cooking classes, agriculture education sessions, outreach activities, food-bank operation, and would function as an HQ for Gardening Matters.
This section cutting from east to west across the southern portion of the central garden exhibits several key design elements housed in the design concept. In the center of the section the stormwater and irrigation water filtration basin is the final collection and filtration point for any excess water that falls on the site which is not absorbed by turf and gar-
den plots. This water would then be pumped into the salvaged old Sears water tower for re-use as irrigation water during drier times. On the right, a high-design office complexes represent optimal space for businesses that place a premium on the fostering of an environment that enables creativity and innovation, particularly in the green tech and design industries.
Creative play places like the sunflower fountain and sand box provide safe and convenient places for the children of gardeners and park users to play and rest.

In the background the tool houses and 10’ x 10’ garden plots are backed by the garden center and tree-lined pedestrian walk leading to the Sabo bridge.
This view from the garden center’s terrace space shows the aerial view available to those coming off the Sabo bridge and greenway. In addition to the circulation fountains you can see the vertical farming demonstration walls, which can be programmed to educate uses about innovations in farming and gardening techniques where space is at a premium.
This section cut west to east across the green-tech business park and eastern edge of the southern section of the central garden shows the flowering fruit trees that define the eastern pedestrian paths of the central garden. This view also shows a typical back to back garden plot section with a total width of 20’. The system of stormwater collection cisterns is also visible in the section.
The soccer field in the southern portion of the central garden represents yet an important non-agricultural recreation component of the overall garden design. This and other recreation options are intended to program the larger park and garden with a diverse range of activities in order to ensure constant use, a key component to safe and secure gardens and parks.
This section across the western edge of the central garden shows the newly realigned 19th Avenue, a section through the front of a typical row house, and the luxurious garden walk along the western edge of the central garden. This cut also gives an idea of the midtown greenway experience a user can expect as they pass through the central garden.
This section cut through the children’s raspberry maze shows the scale of this dual purpose play place. The maze, like other play amenities is intended to provide an outlet for children and youth that may have parents or caretakers who are utilizing their garden plots. These shrubs will be maintained by the Gardening Matters coalition for safety and functionality.
This perspective gives a clear image of some of the activities that may occur along the newly reconfigured greenway as it slices through the central garden. In the image the provisioning for compost bins at the ends of all plot rows provides a place for gardeners to collect their garden waste and reutilize it later in the season as high nutrient compost.
The section across the greenway prior to its crossing of 28th street shows a cut through the greenway apartments, gardens along the greenway, and the cemetery. It highlights the important standoff distance between the mature stand of trees lining the north edge of the cemetery, the greenway, and the apartment private garden plots to the north, ensuring adequate sun and privacy.
This section across the greenway prior to its crossing of 28th street shows a cut through the apartments and mixed use buildings that bracket the greenway. The section also highlights the storm water swale that drains the last section of greenway before it spills out onto 28th street. It also shows the flowering fruit trees planted on the greenway 28th street crossing and bump out.
This cut through the market court and mixed use complex shows the garden walk separating the cemetery from the re-use and food-bank gardens. The Minneapolis incinerator chimney has been re-purposed as an urban climbing tower and observation platform. The re-use garden on the right is a venue where eclectic objects can be brought and planted by visitors, and then cared for by garden center volunteers.
More of the market court is shown in this section, highlighting the parking lots weekend use as the new venue for the Midtown Farmers market. This venue is punctuated with permanent and movable seating provided by tree planters and objects in the re-use garden. Flowering fruit trees continue to allude to the agricultural nature of the garden.
while Honey Locusts provide dappled light in places where people rest and shop during market activities. Also shown in these two sections are the rain garden and irrigation cisterns which collect rain water on site and filter it and store it for future irrigation use in the reuse and food bank gardens.
This section is cut through the southern portion of the site and shows the scale of the high density residential and vertical farm components and their relation to the streetscape. Stormwater collection basins run the length of the vertical farm complex and collect all the stormwater along the newly created length of 22nd Avenue south from Lake street to 28th street.
This view south down 22nd avenue highlights the character of the retail street, mixed use development, vertical farm (with living walls), and outdoor eating spaces connected to the re-use garden and market court.
A CENTRAL GARDEN
This section across 22nd avenue shows the spatial quality between the transit orient retail plaza, high density apartments, and the TOD drop off point.
This view north along 22nd avenue shows the spacing of street trees along the streetscape. Honey Locusts provide dappled light along the eastern street edge to cool walkers, shoppers, and those sitting at the vertical farm plaza. The western edge of the street will be typified by large mature trees and local-food-centric retail and eating establishments.
This section shows the spatial relationship between the Hi-Lake transit station, the transit plaza, and the transit oriented retail spaces. Cafe seating and shade trees punctuate the plaza space, providing respite space for wherry transit users and 22nd avenue shoppers.
The garden is a common place where people can connect to their city, their neighbors, their food, their bodies, and their world.

GARDENING MATTERS.