INTRODUCTION
Project Design Considerations

GARLAND URBAN AGRICULTURE CENTER
A JOB CREATION MODEL

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URBAN AGRICULTURE — A DISRUPTIVE TECHNOLOGY HAS ARRIVED JUST IN TIME TO SAVE LOCAL ECONOMIES AND RESTORE THEM TO PROSPERITY

We usually think of disruptive technologies as new technologies that change the direction of the world. The invention of the personal computer from the 20th century is one example of a disruptive technology. Urban agriculture has been with humanity since the very beginning of our clustering together in cities. Yet today, it rises up like a phoenix with its promise to radically alter and heal local economies. Even hydroponic gardening, a water efficient method that raises large healthy vegetables faster, with higher yields and with 70% less water than traditional methods has been in existence since the 18th century.

When it comes to food production, some claim that we have paved over the Garden of Eden and they are correct. Cities, for the most part have sprung up on or near the most fertile, productive food-growing land. For example, until the late 1950s, Los Angeles County was the largest agricultural county in the USA. Today Los Angeles has the least amount of green space of any city in the USA. Over 50% of it is concretized. We are paving over the land that feeds us.

We keep pushing our food growing operations further away from our cities until today the average grocery store item travels 1,500 from its source to the store where it is sold. Our industrialized food system has drastically reduced crop diversity and made us vulnerable to food shortages and even famines. As Jennifer Cockrall-King points out in her book Food and the City, we only have the illusion of diversity of food choices.

The United Nation’s Food and Agriculture Organization estimates that in the twentieth century seventy-five percent of the biological diversity of our foods has been lost as a result of industrialized agriculture. (Erik Millstone and Tim Lang, The Atlas of Food: Who East What, Where, and Why - Berkeley: University of California Press, 2008; p.58).

We choose between brands that are supplied from the same source. Thus, when a salmonella contamination scare on two Iowa farms in 2010 resulted in the recall of half billion eggs, dozens of different brand names were affected because they originated from one large-scale producer.

Ms. Cockrall-King also points out that another potential for creating food insecurity by supermarket chains is attributable to their sophisticated just-in-time value chain logistics. They manage their inventory so well they only need a three-day supply of food in their distribution system at any given time. When so much of our food comes from an average of 1,500 miles away, what happens when there is a disruption in fuel supplies or a natural disaster blocks access to a city? Three days of food is not enough inventory to ensure food security for a local population.
Disruption in the delivery of food can have disastrous impact on a local population—just ask the victims of any natural disaster. While we don’t want to isolate ourselves from the global, national or state economies, we should still work closely with the leaders of our local governments to better secure and anchor our local economies. In the near future we can expect to see the rise of true city-states as citizens realize the starting point for shaping their government and controlling the quality of their lives truly begins at the local level.

As further proof that our current industrial food system has failed us, 17.9 million households were food insecure in 2011. This count was unchanged from 2010; however the U.S. Department of Agriculture (USDA) reported that the percentage of households with food insecurity in the severe range increased. This is unacceptable for our nation. *(Household Food Security in the United States in 2011, ERS Report Summary US Department of Agriculture; http://www.ers.usda.gov/media/884529err-141-summary.pdf accessed Jan 12, 2013)*

Prevalence rates of food insecurity varied considerably from state to state data for three years from 2007 to 2009. Estimated prevalence rates during this 3-year period ranged from 6.7 percent in North Dakota to 17.7 percent in Arkansas. Texas, Arkansas, Mississippi, Georgia and North Carolina were the states having the highest food insecurity rankings.

*(USDA Hunger Report (word doc) Texas has a 16.3% food insecurity rate, ranking second highest in the country)*

The bees have been telling us for some time that our current industrial food system with its chemical over-fertilization, pesticide-managed mono-crops has failed us. They
are like the canaries sent to the coalmines that die. Yet most of us still are not listening. Our bee population has been falling off significantly over the past 30 years. The presence of honeybees is critical to our food chain. According to the USDA, “One mouthful in three in the diet directly or indirectly benefits from honey bee population.” (Source: “Questions and Answers: Colony Collapse Disorder,” United States Department of Agriculture, Last modified: 10/01/2012, http://www.ars.usda.gov/News/docs.htm?docid=15572 (accessed January 15, 2013)

Studies all over the world are indicating that a cluster of causes are associated with the decrease in the bee population: the varroa mite parasite; poor nutrition due to monocrop farming; and contaminated water sources. Ironically, the countryside (where most of the food that we now eat is grown) has become too toxic to support the life of bees. Rural bees continue to decline while those in the city thrive and produce almost three times the amount of honey.

For example, in the 1980’s a prop worker at the Opera national de Paris put a hive on the rooftop. In no time the hive was full of honey and the bees were happy. Honey from the rooftop of the home to the Opera National de Paris is now among the worlds most expensive. A small four-ounce jar sells for $22. Nevertheless, the 2,500 to 3,000 jars each year sell out.

The owner of the three-star Eiffel Park Hotel in Paris reaps over three hundred pounds of honey a year from just three hives. Paris has been a pesticide-free zone since 2000. Urban beekeepers must register with the veterinarian authority of Paris, and hives must be at least 82 feet from the nearest school or hospital. Swarms do happen; however, honeybees are docile and they are especially docile during a swarm because they are essentially drunk on honey.

**IS URBAN FARMING PROFITABLE?**

The answer is yes, most definitely yes. There is a huge market for organically grown local produce and it is growing exponentially by the day, if not minute. The produce sold by the urban beekeeper of Paris is an example of such enormous profitability potential.

Since the early 2000’s consumers have been vocalizing their concerns over industrial and long-distance food chains and it’s beginning to show up in our local communities. Farmers Markets have made a huge comeback. In 1998 there were 2,756 farmers’ markets operating in the USA. By 2009 the number was up to 5,274. (Steve Martinez et al. “Local Food systems: Concepts, Impacts and Issues,” ERS Report Summary, US Department of Agriculture Economic Research Service, May 2010, p.1.)

Other indications of increased public interest in agricultural production and the food we eat is evidenced by the increase of Community Supported Agriculture (CSA) programs where households pay money up front to a local (usually small-scale) farming operation
in return for a share of the produce in the fall. The United States Department of Agriculture (USDA) reports there were 400 CSAs operating nationally in 2001; by the end of the decade there were more than 1,400.

One of the hundreds of sources researched for developing this plan included accessing the SPIN Farming website. SPIN is an acronym for “Small Plot Intensive.” Urban farmer Wally Satzewich in Saskatchewan pioneered this method of early farming in the early 2000s. After detailing the business plans on how to farm successfully in the city on a patchwork of residential pieces of land, Satzewich began training other would-be urban farmers in his SPIN methodology.

According to the related website, an urban SPIN farmer can gross anywhere from $27,000 to $72,000 on just a half-acre of land in the city, depending on the types of crops the farmer grows. Currently there are estimated to be about 600 urban SPIN farmers in the USA.

The SPIN farming website http://www.spin farming.com/

NOTE: My own personal evaluation regarding this method of urban farming is that it has too many undesirable limitations. The methodology follows along closely that of traditional gardening where the plants are raised in the soil and require all the usual backbreaking work associated with gardening or traditional farming. To their credit they do have a few innovative methods to reduce some of the labor intensive efforts required to produce a crop, and provide information regarding crop rotation and other soil-saving methods, but not nearly as many as those offered by hydroponic, aquaponic, and aeroponic methods which use about 70% less water as traditional farming—a definite selling point for our area. In addition, these water-based farming methods eliminate the headaches of soil borne pests.

Local economies, and ultimately our national economy, would get an instant vitamin shot in the arm if more citizens grew food. Growing food means more spendable income for families because the money they don’t spend at a supermarket chain can be spent elsewhere. For those who own their own homes, growing food can also earn extra income. Some estimates for an annual gross on half an acre are as high as $72,000. Those who don’t own their own homes can make deals with those who do own unused urban land to farm it for a percentage of the crop.

Education is inarguably one of the best “hands up” investments that we can make for the citizens of our community. As most reading this proposal realize, high food insecurity has a self-perpetuating relationship to poverty. The less money one has to purchase food, the more food insecure they become. The proposed Garland Community Urban Agriculture Center can assist in alleviating poverty—not only by supplying more food to food banks, but by also teaching people in the community how they can
grow their own food—not only to eat, but also to sell. As mentioned previously, our primary mission is not to feed the poor as much as it is to lead them out of poverty thereby stabilizing, growing and enriching our local economy.
THE GARLAND URBAN AGRICULTURE CENTER
DESIGN PRINCIPLES

The principles of permaculture (a branch of ecological design, ecological engineering, and environmental design which develops sustainable architecture and self-maintained agricultural systems modeled from natural ecosystems) will be the guiding principles for its construction and ongoing operations.

Guiding Principles for Design

1. **Observe and interact**: By taking time to engage with nature we can design solutions that suit our particular situation.
2. **Catch and store energy**: By developing systems that collect resources at peak abundance, we can use them in times of need.
3. ** Obtain a yield**: Ensure that you are getting truly useful rewards as part of the work that you are doing.
4. **Apply self-regulation and accept feedback**: We need to discourage inappropriate activity to ensure that systems can continue to function well.
5. **Use and value renewable resources and services**: Make the best use of nature’s abundance to reduce our consumptive behavior and dependence on non-renewable resources.
6. **Produce no waste**: By valuing and making use of all the resources that are available to us, nothing goes to waste.
7. **Design from patterns to details**: By stepping back, we can observe patterns in nature and society. These can form the backbone of our designs, with the details filled in as we go.
8. **Integrate rather than segregate**: By putting the right things in the right place, relationships develop between those things and they work together to support each other.
9. **Use small and slow solutions**: Small and slow systems are easier to maintain than big ones, making better use of local resources and producing more sustainable outcomes.
10. **Use and value diversity**: Diversity reduces vulnerability to a variety of threats and takes advantage of the unique nature of the environment in which it resides.
11. **Use edges and value the marginal**: The interface between things is where the most interesting events take place. These are often the most valuable, diverse and productive elements in the system.
12. **Creatively use and respond to change**: We can have a positive impact on inevitable change by carefully observing, and then intervening at the right time.

PROJECT MODULES OVERVIEW
OF THE GARLAND URBAN AGRICULTURE CENTER DEVELOPMENT

All the project modules (inter-dependent businesses) for the Garland Urban Agriculture Center will be located within the same cluster of buildings—a retail campus for urban farming. Holding true to our principles, we will use and value renewable resources by taking over an almost empty shopping center.

1 GARLAND AQUAPONIC FARM
The hub for the Garland Urban Agriculture Center is the Garland Aquaponic Farm described in more detail in Section 1. It is estimated this center will require 20 to 25 employees for its operations. (In addition to the sale of vegetables and fish which are estimated to gross between $350,000 and $400,000 the first year, the Aquaponic Farm will also feature regular tours at $5 a person. Much of the produce from Garland Aquaponic Farm will be sold to local restaurants and to the Aquaponic Café and Grocery. In addition, 20% of the food grown will go to local food banks as along as it is needed.)

2 GARLAND URBAN AGRICULTURE CENTER ROOFTOP GARDENS
The rooftop area of the proposed site is approximately six acres. Much of this space will be used for a rooftop garden as well as to house solar panels.

3 GARLAND AQUAPONIC GROCERY STORE
An area in front of the Aquaponic Farm will be reserved for the Garland Aquaponic Grocery. Produce from the aquaponic and rooftop gardens will be sold in this store as well as locally grown produce.

4 GARLAND AQUAPONIC CAFÉ
An area in front of the Aquaponic Farm will be reserved for the Garland Aquaponic Café. This café will feature meals made from the fish and produce from the gardens. The area has an excellent place for spilling out onto the sidewalk.

5 GARLAND HYDROPONIC SUPPLY STORE
This store will be located right next door to the Aquaponic Farm—when people see the aquaponic farm, they will be hooked on hydroponics and will want to purchase materials to build a smaller version at home.

6 GARLAND COMMERCIAL KITCHENS
This business provides commercial kitchens that entrepreneurs can rent to prepare food to sell commercially. Cooking lessons and other services could also come out of here. Part of it might even operate as a bakery. (The Aquaponic Café and Grocery would be among their commercial customers.)
7 Garland urban gardener Connections store
This business would feature books on urban gardening, classes, garden supplies, perhaps even tours of urban gardens in the area. It could also provide services to match people up with local urban farmers to purchase their produce. It could also provide a service to hook urban gardeners with people who have urban land—urban sharecropping arrangements.

8 Garland urban farmers' market
Ideally this market will be open 7 days a week in the parking lot of the Garland Urban Agriculture Center. Any Garland citizen can bring their urban farm produce to sell here. [Note: This might be monetized so that vendors pay a fee to cover insurance/security expenses. Open for discussion but fees should be small. These are our citizens supplementing their incomes. Most of the money they earn here will be spent in our community.]

9 Garland found fruit company
Here in Garland we have an abundance of fruit that is going to waste. I know because last May and June I walked all over Garland when gathering voter signatures for a ballot petition. I saw so many trees—heavy with fruit, much of which was going to waste, falling on the ground and rotting. There is even a large peach tree in my own neighborhood one block away that no one harvests.

We need a community organizer to get people motivated to find addresses of such trees, contact owners, and get permission if they appear on private property. Then create lists and give to civic groups and/or simply make available on the community website.

Not Far from the Tree
http://notfarfromthetree.org
Not Far From The Tree puts Toronto’s fruit to good use by picking and sharing the bounty. When a homeowner can’t keep up with the abundant harvest produced by their tree, they let us know and we mobilize our volunteers to pick the bounty. The harvest is split three ways: 1/3 is offered to the tree owner, 1/3 is shared among the volunteers, and 1/3 is delivered by bicycle to be donated to food banks, shelters, and community kitchens in the neighborhood so that they are putting this existing source of fresh fruit to good use. It’s a win-win-win situation! In 2012 they picked 12,5212 pounds from 243 trees with 721 volunteering opportunities and 2,180 volunteer hours. The picked black walnuts, sweet cherries, sour cherries, mulberries, serviceberries, apricots, plums, grapes, crabapples, elderberries, sumac, pears and apples.

Food Forward in Los Angeles has picked 434, 269 pounds of fruit in Los Angeles since its inception in 2009 and has given 100% away.

Portland Fruit Tree Project began in 2006 http://wwwportlandfruittreeproject.org
10 Policy that city of Garland might consider if you haven’t already: **Deliberately Planting Edible Landscapes.**

Municipalities are the largest landowners within any city. Cities own a lot of land that will simply never be developed because it’s along a street, in a utility corridor or on a flood plain along a creek or a river (There is such an area right near my home.)

The Des Moines municipal governments parks and recreation parks and recreation staff has planted fruit and nut trees around schools and community buildings. The maintenance on fruit and nut trees is often less than that of a lawn with ornamental shrubs.

Most municipal governments don’t even know how much municipal land is available or appropriate for producing food. Some estimates state that 1/6 of the land mass of most cities is covered with buildings with flat roofs—largely unused space that could be put into use for food production.
**Business model:**
**Locally owned and held**

If we manage the development and foundation of the proposed *Garland Urban Agriculture Center* carefully and responsibly, it will grow into a profit-making community anchor institution that strengthens our local economy, supports the creation of new jobs, attracts new people and enterprises to our community, and serves the people of Garland for generations to come. As Will Allen once said: “Food is a very powerful organizing tool.” It’s also a great product to sell because there will always be a demand for food as long as a human is left on the planet. You just can’t beat good food for a product to sell.

Across the USA we have two primary business models, neither of which is particularly stable for a local economy—the multinational, investor-first corporate business model with its multitude of chain stores, and the Mom/Pop businesses that have less than 10 employees. We need them both and we also need to add another type of business model in order to stabilize our local economy. We need to create companies that are at least 60% locally held by local investors and the 15 to 30 people who also work in these companies.

**Two Primary requirements for all proposed project components**

1) No more than 40% of the Garland Urban Agricultural Center may ever be held by parties who live in excess of 20 miles from the limits of our city borders.
2) All full-time employees who work at these locally held companies are paid a living wage. (All part-time employees are paid the same hourly rate as beginning full-time employees.)

When people earn a decent living, at least a living wage, it benefits us all. And when they don’t, all in a local community are diminished. As taxpayers, we make up the difference in food stamps and other community services that these workers need in order to cover the gap between what they are paid and what is a living wage. The more people a community has who are earning a living wage, the more stable, secure and healthy that economy is. The more businesses a local community has that are locally held by 15 to 30 citizens, the less susceptible it is to fluctuations on the global market.
The Creative Financing Model for the Garland Urban Agriculture Center

The financing for the Garland Urban Agriculture Center will be as innovative as the urban agriculture center itself. One of the side benefits from this project in addition to creating jobs for local citizens, we will also be generating revenue directly for the city. Sources for the financing as well as the actual work to build the center will be:

- Grants from various foundations
- Money raised from the sale of literature related to this project
- Local businesses participation in urban farm center build
- Sweat equity and related products created by local citizens
- Income from the Garland Urban Agriculture Center will make it a self-sustaining and profitable operation that supports the local economy.

Grants

After presentation of this plan to members of the Garland City Council and getting their input, Elizabeth Berry will submit grant proposals to several national foundations.

Sale of Project Literature to Other Municipalities

There are over 30,000 municipal governments in the USA. That’s a large market for sale of literature resulting from documents related to the build as well as documents created regarding the on-going operations of the Garland Urban Agriculture Center.

Note: The sale of these materials on setting up a food-based local economy would be self-perpetuating and could grow exponentially as a revenue builder for our city. Other cities could use this model in their planning process and for their revenue building as well.

Here is how the model works in real world: We approach the professionals in the community who we will initially need to help us build this center. (This team and their responsibilities are described in more detail in Section 1 of this proposal.) One of the “What’s in it for them” as payment for their sweat equity is the opportunity to write or dictate a book on their experience and advice in the building of the Garland Urban Agriculture Center. Videos also could be created to document the work. The city can offer assistance if the citizen volunteers need it in creating the materials.

For example, we will need the services of a local architect to help us in creating many of the modules described in this plan. To engage a local architect, we would approach them with our plan. Their part in the project would be to design the interior of the physical site of a module (or in some cases only part of a module). They might keep a diary or record on tape what they are doing and why as they do it. This would eventually become a document that the city of Garland offers on its website with a fee for digital download. In addition to a 10% of the gross, the architect and his/her firm would also have publicity. Of course, if they wished, they could create and publish the
work as their own and market through a different source, keeping any earned revenues all for themselves.

We should also make a point to seek out young architects and other professionals who are just starting out in addition to more seasoned professionals.

**Local Business Participation in Urban Farming**
Ideally, every rooftop on the downtown square of Garland would have a rooftop garden and would be fitted with solar panels. Becoming energy independent should be among our community goals. Since we are dependent on coal-firing plants located miles away from our city, and owned by others, the citizens of our community depend on the kindness of strangers. As a local community, we need to more quickly move to energy independence.

**Sweat Equity and Related Products Created by Citizens**
As mentioned, part of the “What’s in it for me” aspect of attracting professionals to participate as sweat equity holders in our enterprise is to provide them with the opportunity to add to the knowledge base of this project by creating books and videos of their work on the project that then can be marketed through the Garland City website. In addition to gaining publicity (and in the case of new graduates, valuable experience and credibility) these professionals will share in the profits from the sale of their digital downloaded information with the City of Garland.

Note: This income will be ongoing even after the build is complete. Furthermore, citizens will be encouraged to add to the storehouse of information and products for sale that relate to urban farming. As time goes on, there will be new refinements, new techniques, new products, and new opportunities. The Garland Urban Agriculture Center is a petri dish for those interested in building a stronger local economy.

A further outgrowth of these local entrepreneurial efforts might likely be that some of those involved with the original build might go on to create their own version of products associated with urban farming and set up their own manufacturing facilities in the local area. For example, I can see the development of a manufacturing plant that creates hydroponic reservoirs and medium for growing plants hydroponically.
INCOME FROM THE GARLAND URBAN AGRICULTURAL CENTER

Income generated by sales from the Garland Urban Agriculture Center will make it a self-sustainable profit-making entity. Based on statistics from Will Allen’s Growing Power flagship farm and community food center in Milwaukee, Wisconsin, operations of the Garland Urban Agriculture Center will be highly profitable.

The two-acre Growing Power flagship farm and community food center on Silver Spring Drive in residential Milwaukee in 2011 was producing fresh food for 10,000 of the area residents, generating $250,000 in annual sales and training legions of young, eager urban farmers and community food security activists.

(The goals of the Garland Urban Agriculture Center are perhaps a little more profit-driven than those for Growing Power as one of our missions is to create a network of interdependent business modules that, once the initial set-up work is completed by professional volunteers, will be self-sustaining and profitable enough to pay all workers a living wage and create revenue for the City of Garland as well. If city laws need to be changed to make this possible, then we need to change the laws, perhaps through a local initiative. We the people need to remember that we are the government and act accordingly in our own best interests.)

Note: The proposed urban farm model for the Garland Urban Agriculture Center is approximately 6 acres (counting rooftops).

Our expected annual sales are $750,000 from the Garland Aquaponic Farm and Rooftop Gardens.

Additional income is also expected in the Aquaponic Grocery from the sale of produce from offsite local urban farmers as well as from food served in the Aquaponic Café.

Some income is also expected from the space rental at the Farmers’ Market located on site.

In addition, all the other modules of the Garland Urban Agriculture Center are anticipated to produce income as well. [For more detail, please see the individual module description for each component of the Garland Urban Agriculture Center.]
MARKETING

Marketing is important to the success of the Garland Urban Agriculture Center. However, as with the rest of this project, marketing professionals associated with the project will be providing their professional skills on a pro bono basis—at least initially throughout the build.

If we are not able to entice an established marketing firm to assist us in these efforts, then we will talk to professors in our local universities and ask them to identify promising marketing students in their last year. As with all professionals assisting us in achieving success with this project, we will be sure to offer them the opportunity to produce documentation of their work on the project to sell as a digital download on the City of Garland website (sharing proceeds with the City of Garland).

The site selected for the Garland Urban Agriculture Center is ideal and helps to ensure marketing success because of location. It will be very easy for people traveling north on Lavon (on their way home from work or on their way to Firewheel Center 1.8 miles) to stop into the center. Also there are several stores even closer to the center (Hobby Lobby, Big Lots, Tuesday Morning, Home Depot and Kohl’s). The proposed location makes it easy for the shoppers and employees of these stores to visit the Garland Urban Agriculture Center.

SEGMENTS OF THE MARKETING CAMPAIGN

The marketing campaign for this project will be divided into many segments. Most likely we will need a team of marketing professionals/students with one person heading up each of the project modules and one person overseeing and coordinating all the elements of the campaign and the various module chiefs so we don’t end up with a hodgepodge of effort and styles. (The estimated number of volunteer marketing personnel needed is a team of ten.)

As part of the marketing effort, the marketing professionals may have to be educated first regarding the details of urban agriculture, its various techniques such as hydroponic and aquaponic farming, and its implications and interdependencies in building a strong local economy.