



Microgreen Container Farm in the East End of Bridgeport

Background

Bridgeport's East End Neighborhood Revitalization Zone (NRZ) has been working diligently to identify sources to provide fresh vegetables to its 8,000 residents year-round, create entrepreneurial opportunities to serve the regional fresh produce market, and support a healthier lifestyle for its community. As the 2019 National Winner of Aetna's Healthiest Cities Challenge and the recipients of the Aetna Foundation's \$250,000 award, the East End NRZ have been seeking solutions to end a four-decade food desert in one of Connecticut's most underserved neighborhoods. With very limited access or no grocery stores, citizens must rely on corner markets that lack fresh produce and other healthy food options.

Working with the over fifty grassroots partners including Bridgeport Legislative Delegation, The City of Bridgeport, Yale New Haven Health / Bridgeport Hospital, The UCONN Extension Service, Bridgeport Landing Development, LLC., and the Bridgeport Regional Business Council, we have identified a three phased approach to boost local food production and availability, provide critical nutrition education programs, and create locally owned indoor farming businesses. Our first step was to open a 1,200 square foot Popup Market & Café in the summer of 2019. The Market sources fresh vegetables from farmers' markets across Connecticut each week and makes them available for sale, conducts nutrition education programs to support a healthy lifestyle, and has delivered thousands of meals to community residents during the COVID-19 pandemic. We are now working to explore growing vegetables and microgreens 365 days a year in indoor growing environments in our community. Our Phase 2 project below will retrofit insulated shipping containers to create indoor growing environments able to produce hundreds of pounds of fresh microgreens each week and make them available to community residents, schools, hospitals, restaurants, and grocery stores. Our Phase 3 effort will be to develop an economically sustainable hydroponic farm on the two sites on Central Avenue owned by the City of Bridgeport, and made available to the East End NRZ through a long-term lease.

Goals

The goal of our food security effort is to provide Bridgeport residents, especially those living in the East End community with healthier food options while improving local fresh food availability, providing workforce development opportunities, and creating viable business models.

To achieve this goal, the following general objectives have been set:

- Counter food insecurity and food deserts by increasing the availability of fresh food produced locally.
- Promote healthy eating habits by promoting consumption of fresh food produced locally.
- Provide workforce development opportunities with the intention of creating jobs and designing targeted training opportunities for at risk populations.
- Create entrepreneurial opportunities for local job creation and business ownership in the food production sector.

Indoor Urban Agriculture

Urban agriculture is on the rise across the United States. Entrepreneurs and community-based non-profits are utilizing older buildings and empty lots to help meet the fresh produce needs of underserved populations. While a variety of growing methods are being employed, the value of indoor farming appears to fit our needs. It allows for up to 90% more efficient use of water; production yields increase 3 to 10 times in the same amount of space. Vertical farming in climate-controlled environments mean farms can produce year-round in places where weather and soil conditions are not favorable for traditional food production. Because many of these controlled environment agriculture sites are closed systems, limited pest control products are needed when operating such a system. Research shows several crops can be produced much faster in a well-managed indoor system. This decreases the time between harvest and consumption, while increasing the nutritional value of the end product.

There are challenges to managing these types of operations including; early and significant cost outlays, training the local workforce in growing vegetables, and learning the technical needs of water, air and energy systems is required. These can be mitigated with the appropriate and experienced resource partners we have and educational support networks to achieve a well-designed business plan.

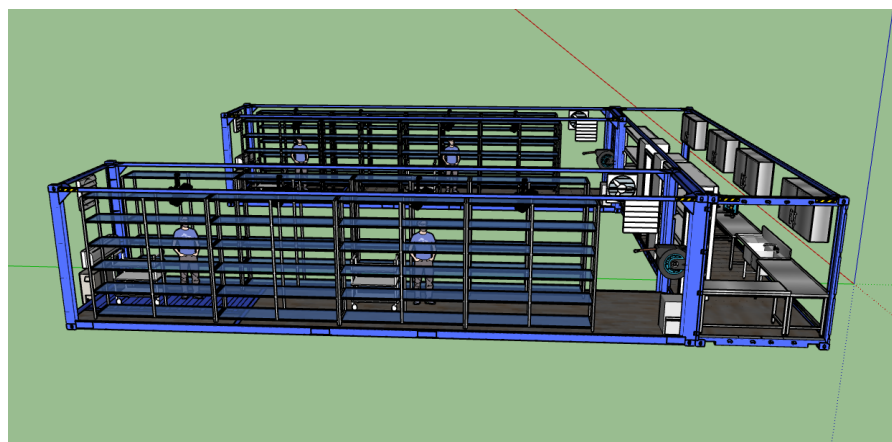
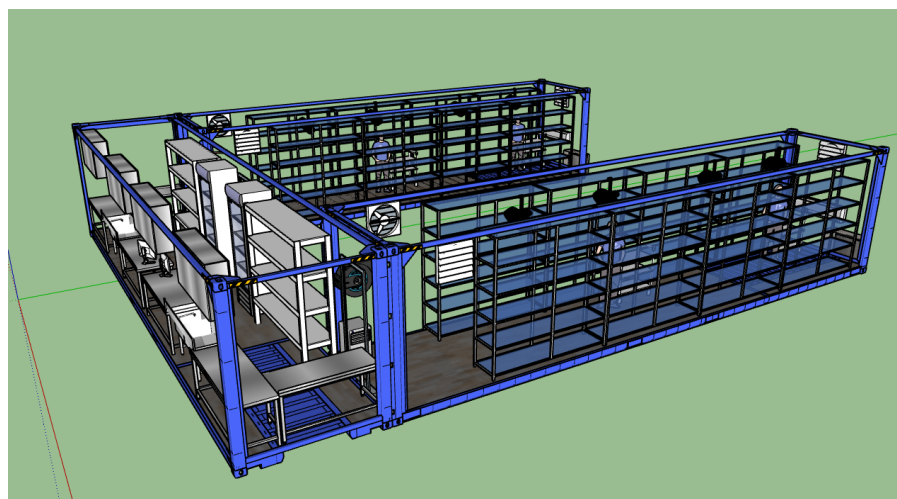
Microgreen Shipping Container Farm

The proposed facility will be built in the heart of the East End Neighborhood on a vacant lot on Seaview Avenue owned by Bridgeport Hospital, a major supporter of the East End NRZ Market, as well as this initiative. The facility will be built with (3) 40'L x 8'W x 9.5'H refurbished shipping containers attached together forming a "U" shape structure. Two of the containers will be climate controlled indoor growing environments, and the third container will be a mixed-use area for planting, germinating, harvesting, packing, cleaning, and storage of materials. The indoor growing environments will be heavily insulated, contain high efficiency, temperature and humidity controls, automated watering systems, proper ventilation and airflow, LED lights, sensors, WIFI, and farm management software. The growing methods to be used in the farm have been established through research and development in

the prototype farm in Ridgefield CT and have proven to result in consistent yields and high-quality products. The developer of this system, High Ridge Hydroponics, is working in partnership with our NRZ to commercialize the system and replicate it in other neighborhoods in the State and region. As a result of this partnership, the CT Department of Agriculture has awarded our project a \$49,999 seed grant to create this innovative indoor farm.

The combination of technology and innovative vertical production methods can generate hundreds of pounds of microgreens on a weekly basis in a facility less than 1,000 square feet and we can add units as demand increases. The fresh, organic, local produce grown in the farm would then be for sale to members of the community year-round through the East End NRZ Market & Cafe and other sales streams including; local farmers markets, school systems, local hospitals, area restaurants, food stores and other businesses using fresh produce. This new facility furthers the mission of our partners by using a creative approach to grow and distribute fresh produce in a low-income community starving for high quality, nutritious foods in their neighborhood.

Below are 3-D renderings of the proposed indoor farming facility to be built this fall.



Outcomes

The outcomes of the initiative are primarily focused on improving community cohesiveness and food security within the East End neighborhood. This initiative is designed to provide training and employment opportunities to veterans, second chance citizens and harder to employ members of the community to manage and work in the facility and grow the vegetables, and over time, to transition the project to community ownership. Our goal is to employ 4-5 full and part time residents in year one who live in the neighborhood to help manage and operate the farm. Additionally, this project is designed in a way that can be replicated in other urban food deserts across the state and nation. From day one of production, the farm will be using farm management software to record and document its data, processes, and create a template for others to replicate. We will seek worker input to identify recommendations for future development of innovative community-based vegetable production. The East End NRZ will use this model and the experience it gains to develop Phase 3 of their food security plan . . . the creation of a 1-3-acre hydroponic farm on environmentally impaired properties in the neighborhood.

Additionally, this initiative will further advance the development of High Ridge Hydroponics' (HRH) entrepreneurial activities and business plan whose ultimate mission is to provide affordable solutions for low income urban communities that struggle with food security. HRH plans to do so by manufacturing turn-key shipping container farms and working with communities throughout the region to find better ways to integrate this socially conscious urban farming model into areas of need. With the State of Connecticut and the City of Bridgeport's support, the project will create a set of permitting and land use documents to help other communities create similar facilities in urban areas. Lastly, and most importantly, once the facility is constructed and operational, the project will network and collaborate with schools and programs like 4-H to develop better nutrition, increase familiarity with plant science, horticulture, urban farming, and STEM educational programs through in classroom, virtual learning and field trips to the farm. And most importantly, the East End NRZ Farming Initiative will expand and enhance the ability to bring fresh vegetables to our community.