

Community Board 3 - Consolidated Edison Task Force
Letter of Inquiry – ConEd Settlement Fund
Moving on Up Vertical Garden Initiative

Introduction

Loisaida Center requests a \$75,000 grant from ConEd's Settlement Fund to develop our scalable *Moving on Up Vertical Garden Initiative*, in partnership with GOLES and Plaza Cultural Community Garden. The vertical garden initiative will be an effort to promote healthier living, and air quality improvement entwined with advances in scientific understanding, infrastructure, building materials and technologies. The project would disseminate ecologically-focused practices that take into account the limited availability of green space and attendant vegetation as a result of the unchallenged over-development of the neighborhood. It would also supply the currently under-represented Latino residents with:

- 1- a culturally sensitive source of locally-grown fresh produce attuned to the culinary tastes of the community;
- 2- creation and use of the vertical garden as an asset to provide cleaner air to a population with alarming asthma rates;
- 3- a framework to develop the project within a scalable model to provide a Do-it-Yourself methodology for indoor or outdoor areas.

Our plan is to start the initiative on a smaller scale using cultivated relationships already established by GOLES through garden stewardship programming. Beautification, plating and events throughout the community have led to more resident engagement within green and open spaces with a focus on intergenerational activities.

We plan to start with two edible vertical gardens, the largest located within the internal courtyards of the newly renovated Loisaida Inc. Cultural and Community Center's premises. A smaller garden would be located within La Plaza Cultural Community Garden.

This second vertical garden –at Plaza Cultural- will provide the added value of capturing the imaginations of residents and visitors, promoting an empowering and creative ethos of healthier living through pragmatic, well-rounded solutions to the environmental issues within a high-density urban setting. This second garden at Plaza Cultural, and in step with Plaza's organic-only goals, will use only organic material and compost to grow plants, herbs and produce.

We plan to use hydroponic growing unit for the vertical gardening system to increase the fruit and vegetable yield while decreasing the garden space needed in constricted environments. It will also form part of the Loisaida Center's S.T.E.A.M. program for prototyping the automatic irrigation system and create popular understanding about the growing cycle of plants.

Benefits

Vertical gardens may provide a new supplemental hyper-local food source that can be made available to local restaurants, local community gardens, CSA's, and farmers' markets, etc, all of which can stimulate secondary and tertiary economies. They also help with the improvement of air quality and help with storm-water control and management. Studies have also proved that vertical gardens contribute to combat the urban heat island effect (UHIE), especially in high-density locales, while helping mitigate sound pollution and promoting and increasing regional biodiversity. Vertical gardens have proven helpful in reducing energy demands of buildings given their shading effects and their creation of micro-climates, and also reduce costs by sheltering the surfaces of buildings exposed to inclement weather. Finally, we esteem that these gardens might possess therapeutic advantages, helping some of the most disadvantaged and fragile sectors of our neighborhood's population (the elderly, economically challenged and the ill) by connecting them with nature and living things that need tendering and care.

Our vertical gardens will also be a public beautification project, as a vector that "physically connects built structures with nature". Holistically, the vertical garden will aim to promote a more sustainable and environmentally conscious lifestyle, while improving public health, energy efficiency and the aesthetic appeal of urban areas (Urban Blooms, 2013).

Organizational Overview

The Loaisaida Center is the only Puerto Rican/Latino based multi-use facility downtown which aspires to build a connection between community, learners, artists and scholars in S.T.E.A.M. (Science, Technology, Engineering, Arts and Mathematics) design and everyday life. Its multi-purpose space aims to become an incubator for self-sustainable artisanal, technology, and culinary arts entrepreneurial initiatives.

Devoted to collaborative art practices, social engagement and community building through culture, our approach celebrates the environmental initiatives of urban surroundings, grassroots invention and the immigrant spirit of the Loaisaida neighborhood in its dedication to celebrate Latino cultural vitality and its contributions to NYC.

A main value is to embrace and support both historical awareness and innovation that is culturally sensitive by developing and advocating for frameworks that provide residents with equitable, accessible and entrepreneurial opportunities. Essential in realizing this value is to avail the general community with experiences that reflect real world problems, and require dynamic, well-rounded solutions and literacies.

Our just opened multi-use facility will provide Lower East Side's under-represented Latino community with access to a nurturing cultural and community center, a welcoming place of belonging and a habitat that offers them interest-based, production-centered learning and wellness opportunities for trans-generational audiences.

Good Old Lower East Side (GOLES) is a 501(c)3 that has served the Lower East Side of Manhattan since 1977. Areas of work include issues of housing, land use, environmental justice, disaster preparedness, healthy aging and economic equality. Over 10,000 residents are reached every year through services, workshops and special events. To cater to the growing senior population, the GOLES Healthy Aging Program (GHAP) was created and implemented in 2012. Since its inception, it has identified nutrition and healthy living as its primary focus areas. Through partnerships, gardening emerged as a major focus area, owing to its many benefits, including physical fitness, environmental stewardship, caring for the community, and its potential therapeutic qualities. GHAP elders became active in several Lower East Side community gardens that add to the vibrant cultural character of the neighborhood, cleaning up gardens devastated during Hurricane Sandy in order to create open spaces for creative programming during the spring and summer and improving air quality through planting of trees and plants. GOLES hosted a series of Summerfest events in June, July, and August, each one focusing on a different theme relevant to healthy aging and environmental justice on the Lower East Side.

La Plaza Cultural Community Garden was formed from vacant neighborhood lots in 1976 by local residents and green space advocates, the 0.64 acres² of La Plaza have served this community for more than 35 years as a green open space, community garden, wildlife refuge, open air theater, community composting site, urban farm/community supported agriculture site, and environmental education venue.

La Plaza was incorporated as a 501(c)(3) public charity in 2011, and is governed by a Board of Directors elected by its approximately 75 members, and a Board-appointed Executive Director. La Plaza raises an annual budget of approximately \$3,000 from member dues, which is supplemented by donations received for hosting events and occasional grants for specific Garden-improving projects.

Costs

As of early 2014 \$60-160 per square foot is generally a good range for commercially-available, modular exterior vegetated wall systems. This would include basic internal irrigation, plants, and costs of installation, and likely not include maintenance plan or plant replacement costs, and not include support structure (i.e. a wall) for the vertical garden.

Although there is no universal formula given the distinct qualities of each specific project, the above rough square footage estimate (and its range) partially reflects some unavoidable facts related to this type of project, such as: project size and system type, design, location of the

gardens (including access), complexity of the proposal, installation costs, timelines/schedule, short-term maintenance and the plants to be used.

The walls planned for the vertical garden within Loisaida Center's courtyards measure 12' x 20' (240 sq. ft.) and 18' x 20' (360 sq. ft.), for a total of 600 sq. ft. within Loisaida Center. We foresee the vertical garden at Plaza Cultural being a little smaller at around 150 sq. ft. (although obviously more visible).

Secondary/Ancillary program components

- 1- **GOLES Healthy Aging Program:** the vertical garden initiative will be linked with this GOLES program that stresses health education in areas such as, but not limited to: physical activity, healthy eating, weight management, sodium intake awareness as well as metabolic syndrome, diabetes, cholesterol, high blood pressure, pain management and general community development and improvement.

GOLES already works the aging/senior population in ways that would organically link with the aims and purpose of the vertical gardens initiative, engaging seniors in seniors-only and intergenerational activities that promote community stewardship and leadership development. GOLES also manages The Green Seniors Corps., an initiative that offers intergenerational programming to create and maintain Lower East Side community gardens;

- 2- **Understanding the interrelationship of food systems and land use issues:**

The distribution processes/networks for food are complex and pose serious questions, challenging us regarding the knowledge we have about our food and its path to our table. The vertical gardens initiative will try to integrate and investigate these processes as to learn and encourage better urban planning and design practices.

There also is some cultural rethinking of whether communities need access to all fruits and vegetables regardless of the season of the year. Author Barbara Kingsolver, in her book *Animal, Vegetable, Miracle*, chooses to live all year on her own land, adhering to the food cycles of a farming life. The vertical gardens initiative will introduce the community to this kind of ideas through an experiential process.

As urban areas increasingly focus on how climate change will affect day-to-day lives, public officials and leaders need to think more proactively and creatively about the ways they can deliver services and food more efficiently because of the way the environmental cost of transportation affects communities. All these issues, taken together, form the basis of arguments for people to take back their connection to fresh food, and energize our idea of a vertical garden initiative.

3- Play

A great deal of research has proved the importance of incorporating play and leisure amenities into public settings including areas other than parks. Social infrastructure amenities will include:

- Trees and vegetation that provide protection from the elements and access to natural materials for play, while also providing habitat for local fauna.
- Shade-providing elements (shelters, trees, tents, etc.) that protect users of the space from the elements.

These environments have shown to foster socialization and a sense of community membership, provide important opportunities to learn skills and competencies, increase self-sufficiency and independence to community members and increase understanding of the physical world.

The physical environment of our two adjoining residential/building courtyards can be used to develop settings for play that are based on the context of the multi-use facility, not just mimicking existing playground environments, thus locating play in unconventional and surprising locations which can contribute to the existence of play pockets easily accessible from the street context. Our vertical gardens being near (or adjacent) to formal play and recreation facilities like parks, playgrounds, schools and community gardens are also conducive to providing further or expanded play opportunities.

Measure of success

In order to develop a comprehensive assessment of the project, our multidisciplinary vertical garden team will pursue an informed analysis of the sustainable outcomes of the vertical garden. The project will include a study of energy efficiency, an evaluation of plant horticulture, and determination of the social outcomes and spillover effects of the project. A major component of the project design, the Arduino Based Microcontroller System, will comprise the majority of the automated irrigation system, which will maintain the gardens' health and provide data for our assessment. The Arduino Microcontroller gives the ability to control irrigation through the use of moisture and temperature sensors in the vertical garden, and logs temperatures of surfaces exposed to the sun and surfaces behind garden. Using the data stored on the microcontroller's SD card, it is possible to make a case for energy savings provided by the vertical garden, illustrated by temperature disparities between vegetative surfaces and exposed building material.

Applicability to Current ConEd Settlement Fund Criteria

The *Moving on Up Vertical Garden Initiative* fits neatly with Con Edison's Settlement Fund Criteria. Both its energy/sustainability component as well as its health components addresses the fundamental purpose of the program of benefiting the area's air quality and the residents' quality

of life and health. Through the implementation of green space in unexpected places and facilitating the collaborative efforts of organizations with deep and substantive local ties to the area, residents living closest to the vicinity of the East River Complex will benefit from this project immediately. The initiative also invigorates community participation and local ideas, helps build equitable opportunities to food needs by teaching about local food sources in vacant urban walls, opens up possibilities of economic opportunities to local business and residents, and incorporates a cross-sector approach and systemic solutions to problems of urban constriction with the goal of improved health and wellness.