DESIGN & OPPORTUNITY ANALYSIS OF SUSTAINABLE URBAN FARM + FOOD PANTRY PROTOTYPE

In Conjunction with Northern Illinois Food Bank and Greater Chicago Food Depository (Not Sponsors)

Faculty Advisor: Andy Metter
**ABSTRACT**

Most of the existing large scale urban food depositories / pantries are based on a model of food production and distribution which has not changed in the last forty years. It is essentially the same model used by large private grocery chains, involving off-site food acquisition (either through production or donation) and dissemination to large distribution centers. In some cases, these distribution centers are then accessed by either individuals or organizations which truck the goods to smaller, local urban distribution points. In other cases, patrons are required to visit the large facility, which it typically in a less accessible location.

Moving forward, this model will be unsustainable and requires rethinking and redesign, including food production techniques, locations, and more innovative, mobile, and finer-grained distribution strategies.

This IPRO proposes to examine this issue, through the design of a prototype urban farm / food pantry which will examine design options with regard to three issues:

1. Food production
2. Food distribution
3. Scalability

**FOOD PRODUCTION:**

From technical issues associated with food production, such as hydroponics, inflatable greenhouses, waste heat reuse, and recycled buildings for farm use to soil remediation. We will examine technical constraints on urban farming proposals.

**FOOD DISTRIBUTION TOPOLOGY:**

From fixed sites such as urban infill lots, to mobile distribution centers via existing urban network systems such as the CTA, alternative, finer-grained distribution networks will be explored.

**SCALABILITY:**

From vacant infill lot, to corner urban condition, to the recycling of existing building stock, to entire City-wide infrastructural systems, such as median farm boulevards, the scalability of these proposals will be explored.

The final IPRO product will be a prototype urban farm/food pantry design which will be serviceable and sustainable for an urban population, and flexible enough to adapt to local demographics and needs.
TEAM INFORMATION

The IPRO team roster along with each individual’s strengths, skills, and expectations can be found in appendices A & B.

TEAM PURPOSE

IPRO 315 will work together to leverage existing rail, water, and roadway systems, infrastructure and networks to help efficiently distribute food from the bank to the food pantry.

TEAM OBJECTIVES

- Make food more accessible to the hungry
- Promote more equitable distribution of food
- Create sustainable urban farms
- Utilize less energy in per pound per person in poverty
- Explore the physical requirements of the existing infrastructure requirements
- Explore model of food pantry
- Investigate crossovers/nodes between transportation networks
- Maximize efficiency by leveraging system overlap and delivery methods between systems

BACKGROUND

HISTORY

In 1978, Tom O’Connell collaborated with Robert W. Strube, Sr., Father Philip Marquard, Gertrude Snodgrass, Ann Connors and Ed Sunshine to set up a food bank called the Greater Chicago Food Depository. The City of Chicago provided a start-up grant, and Strube Celery and Vegetable Company donated warehouse space. The Food Depository distributed 471,000 pounds of food from 22 food donors to 85 agencies in its first year of operation.

By 1998, the Food Depository’s distribution topped 25 million pounds. In that same year, the food bank founded Chicago’s Community Kitchens, a free, 12-week culinary training program for unemployed and underemployed adults. In 2001, the first Producemobile, a farmers’ market on wheels, began distributing fresh produce to low-income communities.

Today, the Food Depository distributes 58 million pounds of food, including more than 12.8 million pounds of produce, to 650 pantries, soup kitchens and shelters in Cook County. Nearly 142,000 men, women and children turn to the Food Depository’s network each week, and nearly 678,000 people turn to the network annually.

CURRENT ISSUES

According to the Greater Food Depository quadrennial report, hunger in America, 1 in 8 Cook County residents use one of their services (food pantries, soup kitchens, shelters) every year, about 700,000 people annually. Of those, 37% are children, and over 60,000 are under the age of 5.

- Overall, 45 percent of children missed a main meal in their last 24 hours:
- 15 percent of children did not eat breakfast.
- 23 percent of children did not eat lunch.
- 15 percent of children did not eat dinner.
In no main food group (fruit, vegetables, grains, dairy, proteins) did even half of the children meet the recommended daily allowance (RDA) established by the U.S. Department of Agriculture.

7.8 percent of all children met the RDA for both fruit and vegetables.

Only 0.7 percent met the RDA for all five food groups.

Overall, food served through the out-of-school program was healthier than that served at home, and out-of-school programs had a significant positive impact on fruit and vegetable consumption.

54 percent of the children were food insecure

39 percent of the children were food insecure without hunger, meaning that they report reduced quality, variety, or desirability of diet, but little or no indication of reduced food intake.

Nearly 1 in 6 children were food insecure with hunger, meaning that they report multiple indications of disrupted eating patterns and reduced food intake.

Clearly, immediate attention by accomplished professionals is required.

### TEAM VALUES STATEMENT

#### DESIRED BEHAVIOR

We believe that there are essential values that must be agreed upon to effectively work together as a team.

- Collaboration with the Greater Chicago Food depository, Northern Illinois Food Bank, IPRO leaders our overall team and sub-groups.
- Communication with each other to share information, express ideas and concerns and to listen to others.
- Working effectively toward our team and sub-groups goals.
- Mutual respect
- Accountability

#### CONFLICT RESOLUTION

When a conflict arises, our team has agreed to draw from a relational model by:

- Understanding your own biases and triggers
- Bring up problems as they arise
- Using active listening skills by restating what you have heard
- Express your concerns using facts and “I” statements
- Managing the conversation with patience and respect
- Arranging a solution that works for the team
PROBLEM SOLVING PROCESS

Our team has decided to break into 3 sub-groups, each focusing on 2 different aspects of the problem. We come together as a group twice a week to report and update the entire group on progress made.

TEAM STRUCTURE

- **Administrative Group**
  - Madeleine England
  - Carolyn Kos

- **Road Group**
  - Justin Miller
  - Kristen Kolanowski
  - Nick Boin

- **River Group**
  - Alan Pang
  - Jon Skinner
  - Erika Wenzler

- **El Group**
  - Daniel Aronberg
  - Andres Lemus
  - Carolyn Kos
  - Lulu Al-Awadhi

- **Food Desert Demographics**
  - Document existing network systems of pantry location & distribution methods
  - Design concept for food distribution using specific network systems
  - Select specific site and develop prototype

- **Program Spaces**
  - Document existing network systems of pantry location & distribution methods
  - Design concept for food distribution using specific network systems
  - Select specific site and develop prototype

- **Urban Farming**
  - Document existing network systems of pantry location & distribution methods
  - Design concept for food distribution using specific network systems
  - Select specific site and develop prototype
EXPECTED RESULTS

DELIVERABLES

A prototype design for an urban farm / pantry which will be documented in a user manual, outlining prototype options, dependant on certain variables, including demographic profile of the area, physical site constraints and programmatic scale of the desired service area.

POTENTIAL OBSTACLES TO PROJECT SUCCESS

A clear project manager has not surfaced. This may cause problems when it comes time for decision making and responsibilities. A lack of general knowledge of the food bank and pantry system needed to be understood before the project could get underway; this makes the delivery dates of the project solution difficult to deliver on time. Scope creep is a major concern.

BUDGET

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost</th>
<th>Description</th>
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<tbody>
<tr>
<td>Food</td>
<td>$100</td>
<td>Random afternoon snacks for sustenance</td>
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<tr>
<td>Print / Supplies</td>
<td>$100</td>
<td>Costs for printed materials</td>
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<tr>
<td>Transportation</td>
<td>$10</td>
<td>Trip to visit GCFD</td>
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<tr>
<td>Total</td>
<td>$210</td>
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DESIGNATION OF ROLES

iGroups Moderator: Madeleine England will be responsible for ensuring the the IPRO deliverables are completed on time and uploaded. Carolyn Kos will serve as backup.

Agenda Maker: Andres Lemus and Alan Pang will jointly make the weekly agendas

Time Keeper: Alan Pang will be the time keeper

Minutes Taker: Carolyn Kos will be responsible for taking minutes and collecting minutes from individual and group meetings
## IPRO 315 – Roster

<table>
<thead>
<tr>
<th>Team Member</th>
<th>Major</th>
<th>Contact Info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al-Awadhi, Lulu</td>
<td>Architecture</td>
<td><a href="mailto:luwaloo@gmail.com">luwaloo@gmail.com</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="mailto:lalawad@iit.edu">lalawad@iit.edu</a></td>
</tr>
<tr>
<td>Aronberg, Daniel</td>
<td>Architecture</td>
<td><a href="mailto:daronber@iit.edu">daronber@iit.edu</a></td>
</tr>
<tr>
<td>Boin, Nicholas</td>
<td>Civil Engineering specializing in environmental engineering</td>
<td><a href="mailto:NBoin@iit.edu">NBoin@iit.edu</a></td>
</tr>
<tr>
<td>England, Madeleine</td>
<td>Information Technology Management, specializing in web development, minor in psychology</td>
<td><a href="mailto:mengland@iit.edu">mengland@iit.edu</a></td>
</tr>
<tr>
<td>Kolanowski, Kristen</td>
<td>Architecture</td>
<td><a href="mailto:kkolanow@iit.edu">kkolanow@iit.edu</a></td>
</tr>
<tr>
<td>Kos, Carolyn</td>
<td>Biomedical Engineer</td>
<td><a href="mailto:ckos2@iit.edu">ckos2@iit.edu</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="mailto:carolynkos@gmail.com">carolynkos@gmail.com</a></td>
</tr>
<tr>
<td>Lemus, Andres</td>
<td>Architecture</td>
<td><a href="mailto:alemus@iit.edu">alemus@iit.edu</a></td>
</tr>
<tr>
<td>Miller, Justin</td>
<td>Architecture</td>
<td><a href="mailto:jmille28@iit.edu">jmille28@iit.edu</a></td>
</tr>
<tr>
<td>Pang, Alan</td>
<td>Architecture</td>
<td><a href="mailto:apang1@iit.edu">apang1@iit.edu</a></td>
</tr>
<tr>
<td>Skinner, Jonathan</td>
<td>Architecture</td>
<td><a href="mailto:jskinne2@iit.edu">jskinne2@iit.edu</a></td>
</tr>
<tr>
<td>Wenzler, Erika</td>
<td>Civil Engineering, minor in entrepreneurship</td>
<td><a href="mailto:EWenzler@iit.edu">EWenzler@iit.edu</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td><a href="mailto:erikawenzler@gmail.com">erikawenzler@gmail.com</a></td>
</tr>
<tr>
<td>Team Member</td>
<td>Strengths</td>
<td>Weaknesses</td>
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<tr>
<td>---------------------</td>
<td>----------------------------------------------------------------------------</td>
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<tr>
<td>Al-Awadhi, Lulu</td>
<td>Graphic design, communication, problem solving, Design</td>
<td>Poor time management</td>
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<tr>
<td>Aronberg, Daniel</td>
<td>seeing the big picture, graphics, hands on</td>
<td>focus, business modeling</td>
</tr>
<tr>
<td>Boin, Nicholas</td>
<td>Critical thinker, creative, motivated, not an architecture major, science</td>
<td>Disorganized, sleepy, not good with graphics programs such as photoshop</td>
</tr>
<tr>
<td>England, Madeleine</td>
<td>Program architect and leader. Executive computer skills, Former board president of a nonprofit. Program development/ marketing, operations leadership, staff training and leadership, community outreach.</td>
<td>Programming, networking systems</td>
</tr>
<tr>
<td>Kolanowski, Kristen</td>
<td>AutoCAD, communication skills, listening skills, organizational skills</td>
<td>Verbal presentations, expressing my opinion more</td>
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<tr>
<td>Kos, Carolyn</td>
<td>Organized, data oriented, broad science background</td>
<td>Not visually oriented</td>
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<tr>
<td>Lemus, Andres</td>
<td>Sustainable design</td>
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<tr>
<td>Miller, Justin</td>
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<tr>
<td>Pang, Alan</td>
<td>Computer related skills such as AutoCAD, 3ds Max, Adobe Products. Note-taking. Researching. I'm diligent, punctual and organized.</td>
<td>Easily discouraged</td>
</tr>
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<td>------------</td>
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<td>------------------</td>
</tr>
<tr>
<td>Skinner, Jonathan</td>
<td>Computer graphic skills, Organized, Punctual, Diligent</td>
<td>Perfectionist</td>
</tr>
<tr>
<td>Wenzler, Erika</td>
<td>I am good at math, I am a people person, I have a background in entrepreneurship</td>
<td>I am not artistic in the sense of making PowerPoint and visual aids. Stubborn.</td>
</tr>
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