FEASIBILITY STUDY TO ESTABLISH A PRODUCTION GARDEN ON ALAMEDA BELTWAY

3 SEPTEMBER 2013

STUDY DIRECTOR

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SUMMARY OF FINDINGS

The Alameda Point Collaborative (APC) was asked by the City of Alameda to conduct a study to determine the feasibility of converting a portion of the beltline property into a production garden to serve the needs of clients of the Alameda Food Bank. The Alameda Food Bank is located next to the property in question, and their clientele would benefit through additional access to fresh produce.

APC is a supportive housing program serving homeless families from throughout Alameda County. In addition to providing safe housing and services, APC also operates several innovative social enterprises, including one of the largest urban farms in the inner East Bay. Our experience developing and running the farm greatly informed the feasibility study.

APC conducted an analysis of current conditions; surveyed users of the Alameda Food Bank, and met with other stakeholders including Food Bank Staff and other community groups that expressed an interest in being involved. Based on this work, our findings are:

1) The Alameda Beltline Site (ABL) is a very promising site for use as an urban agriculture and passive use park site.

2) Stakeholder meetings held by the Department of Recreation and Parks indicate strong community support for some type of agricultural use for a portion of the park site.

3) Due to variability of site topography, material and history, it is highly recommended to grow produce in raised beds or containers for any potential urban agriculture project on the Alameda Beltline.

4) Due to high activity interest among users of the Alameda Food Bank, it is recommended to utilize the site as a community garden, with priority given to users of the food bank for garden plots.

DETAILED ANALYSIS

EXISTING SITE CONDITIONS

The Site Analysis for this report includes 3 main components:

1) Analysis of prior documents, specifically the Phase 1 and 2 Environmental Site Assessments (ESA I+ II, by Sun Country Partners LLC, 1999) and Environmental Summary Report (Russel Resources Inc., 2009)

2) Walk-through of the site to identify hazards and feasible garden locations

3) Soil Testing for heavy metals, taking into account the report and site observations mentioned above

DOCUMENT REVIEW

The Environmental Summary Report (2009) produced by Russel Resources, Inc. was reviewed for the purposes of this report. This summary provided a synopsis of past Environmental Site Assessments and recommendations for further action.

Steve Bachofer, Professor of Chemistry at St. Mary's College, also assisted with a review of soil tests conducted as part of the ESA II (Sun Country Partners LLC, 1999) in order to identify locations associated with elevated soil test levels of contaminates. This information was used to guide our garden planning and soil testing locations.

SITE WALK-THROUGH

In addition to confirming the hazards and potential point sources of contamination from the ESA documents and Environmental Summary Report, our walk-through of the ABL yielded three major new observations relevant to the proposed garden:

1) The amount of debris and vegetation on the Eastern end of the ABL is a major barrier to garden construction and will require significant inputs to clean up or level ahead of garden installation. These include, but are not limited to, heavy equipment for excavation, trucking and proper disposal of potentially hazardous materials and soils.

   In addition to the difficulty of classifying all of the various materials present across the ABL, the topography generated by the volume of materials and building debris presents physical hazards for public use of the site. Even if the on-site material is ‘capped’ instead of shipped away for disposal, some leveling of the site and surface debris removal will need to occur, requiring heavy excavation equipment.

2) Across much of the ABL, creosote-treated rail ties remain embedded in the ground. Many of these are not readily visible, but found to exist just below the soil surface in many locations. This precludes any possibility of in-ground food production unless the ties are removed and further soil testing/ remediation takes place. Alternatively, they provide a stable and level surface upon which to construct or place above ground planters or raised bed gardens.

3) The Eastern end of the site is not secure, for example, the vehicle gate locks have been broken or cut on multiple occasions, and continued illegal dumping activity of unclassified soils, materials and liquids are taking place in various locations across the ABL. Over the course of several walks through the site, new dump locations and materials were observed each time. Without knowing what materials are being brought to the site, this activity further complicates classification of contaminates and presents additional hazards to public use and food production.

SOIL TESTING

Soil testing took place in partnership with two environmental chemistry classes from St. Mary’s College. These tests, directed by Professor Steven Bachofer, focused on proposed garden locations at both ends of the Alameda Beltline site. The sampling locations were selected to both acquire representative data from across the proposed garden locations and to pay special attention to the possible point sources of contamination identified in the past ESA I + II.

While these tests used the EPA method 6200 protocol using XRF instrumentation, they were performed by student groups and are not a substitute for trained professional soil testing. Additionally, the XRF instrumentation only measures elemental quantities, in this case, heavy metals. It does not measure the presence of hydrocarbons or solvents that, according to the past ESAs and Environmental Summary, are present on the site. Our study focused on the presence of lead, as it was identified as the most likely heavy metal contaminant present. Arsenic, another heavy metal, is present but was identified as being at or below background levels in all previous testing (Russel Resources Inc., 2009).

The XRF results for the lower and upper region of Alameda Beltway West were all below 250 mg/kg so the values are well below the threshold that US EPA considers a level of concern for residential use (US EPA Preliminary Remediation Goal residential for lead in soil is 400 mg/kg). The sampling density was the highest for the lower triangular portion adjacent to the Food Bank. The five samples collected from the upland portion of Alameda Beltway West give only a limited perspective on this portion of the site. For the samples collected from the Alameda Beltway East portion of the site, the soil lead values show a wide range of values with no discernible trends. The lead-in-soil values range from approximately the instrumental detection limit to 874 mg/kg. Four are above the EPA PRG residential threshold. The Alameda Beltway East portion also appears to contain railroad ties covered with a thin layer of dirt. The XRF results on the soil cores taking measurements of the lowest portion of the core yielded lead values of approximately 100 mg/kg on one core and the other 5 soil cores were below the detection limit. Detailed reports are presented in Appendix 1.

The general conclusions for the Western portion was that the lead in soils did not appear to preclude growing produce in the current soils however the idea of raised beds was typically more appealing. The lower portion of the Alameda Beltway West area had sufficient debris that the site could be difficult to implement a good size garden. The upper portion of the Alameda Beltway had plenty of debris and was so uneven that implementation appeared extremely difficult.

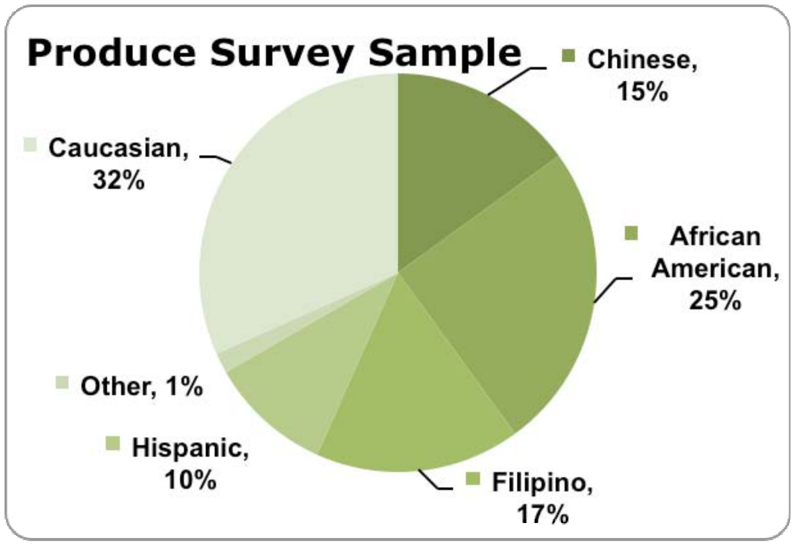
The general Alameda Beltway East area was considerably larger and open to support a larger community garden, yet the major challenge to considering planting in the ground was the apparent existence of railroad ties still present on the site and the highly variable soil lead values, so again this area was more likely as a garden site using raised beds.

USER INPUT

PRODUCE SURVEY

A food preference survey was administered to 60 AFB clients during regular pantry distribution times. In order to broaden the respondent base, this survey was conducted in 3 languages (Mandarin, Spanish and English), utilized images for clear produce identification, and was administered on multiple distribution days over the course of a one-month period.

Ethnicity	No. of Clients
Chinese	9
African American	15
Filipino	10
Hispanic	6
Other	1
Caucasian	19
Total	**60**



The main purpose of this survey was to give patrons the opportunity to select the preferred fruits and vegetables that they would like to be able to access at the Food Bank. The survey was made up of three parts: demographics, food preferences, and client satisfaction and evaluation of the current produce supply of the Food Bank.

Results show that 64% of people surveyed expressed satisfaction with the availability of produce at the Food Bank. The most common request was for more fresh fruits and vegetables. The produce survey did not include common produce items such as potatoes, onions, apples, oranges, and pears, because the Food Bank already procures substantial amounts of these items free of charge through the county Food Bank.

Food Bank clients expressed an interest in a wide variety of fruits and vegetables. Many of the items that were the most popular – including vegetables such as tomatoes, spinach, green beans, and broccoli, and fruit such as raspberries, strawberries, and blackberries are highly perishable or do not have long shelf lives, and are ideally suited for a “grow and eat” situation. Typically, items distributed within the food bank system are either “durable produce”, such as onions, oranges, and potatoes, or they are past their expiration and must be consumed immediately to avoid spoilage.

There was a distinct difference in produce preferences among different cultural or ethnic groups surveyed. A high preference for culturally significant produce items was evident, such as chayote, tomatillo, lemon grass, bitter melon, and collard greens. This demand for a broad variety of produce presents a challenge in designing a production farm to serve a large number of clients.

More detailed results of the survey are available in Appendix 2

ACTIVITIES SURVEY

During the food preference survey process, clients often asked about volunteering to assist with the garden. This led to the creation of the activities survey. The activities survey sought to gauge individuals’ interest in participating in gardening activities, which includes weeding, planting, harvesting, participating with young family members, cooking classes, and general maintenance. A poster was used to demonstrate examples of activities using pictures and explained the survey’s purpose in the three main languages used at the Food Bank. The activities survey was operationalized in three ways: activities of interest, days interested in participating, and how many times per month.

Although the activities survey was outlined in specific ways, providing definite categories to choose from, Food Bank patrons often had to make predictions about future availability, in accordance with various limiting factors or responsibilities. Hence, the findings presented here do not provide an exact prediction for numbers of potential garden activities participants, but can be used, nevertheless, as an indicator of interest.

The most popular activities, in order from most popular to least were: planting, harvesting, cooking classes, weeding, youth participation and maintenance.

The highest number of days interested in participating per month was two, and the most popular day of participation was Saturday. Limitations of work, school and scheduling often correlated to the reported time per month of participation. People without any limitations made up

32% of the group and were more likely than those with limitations to volunteer for 2 or more times a month.

The most cited limiting factor was a physical limitation, such as difficulty standing for long periods of time or poor health. Child-care was the second most prevalent limitation. If the garden adopts certain strategies, these limiting factors could be mitigated. For example, building raised beds could enable a person to sit and work on planting or weeding as opposed to standing or kneeling. Childcare may be less of a barrier for weekend participants. Saturdays were the most popular days for potential participation, when most people do not have work and when children do not have school, and should therefore be considered as the main day for youth participation in garden activities.

The interest in cooking classes led to contacting the county food bank's nutritional coordinator, Catrina Armas from the Alameda Community Food Bank, to see if they would be willing to collaborate with the AFB. Catrina said it was definitely a possibility to work with the AFB to provide nutritional education and cooking classes on the garden.

The nutritional program at the county food bank offers a variety of nutritional education resources to their member agencies and clients. Each quarter they send out nutrition fax blasts to all of their agencies to sign up for nutrition education classes. Their services include: one-time or a series of nutrition workshops, food demonstrations which feature foods and produce that are commonly found at their food bank that are healthy and easy to prepare, mini-nutrition lessons during a food distribution or meal program, recipes to distribute to clients, and a 6-week nutrition and cooking class called “Cooking Matters”.

The AFB's staff have stated that due to a lack of time and space, they never collaborated with the county food bank, however this does not eliminate the possibility for future collaboration. The garden has potential to facilitate the delivery of the county food bank's nutritional services, in the form of cooking demonstrations, to the AFB's clientele.

RECOMMENDATIONS

LOCATION

From our site walk-though and analysis, two potential locations for the Garden were determined; one at either end of the Alameda Beltline Site (ABS). Both of these locations benefit from access to roads from the car gates at either end of the ABS. Utilities exist on either end of the site that could be adapted for use by the proposed garden (Food Bank utilities on the Western end, and Railyard House utilities on the Eastern End).

The Western end of the ABS has the advantage of proximity to the Food Bank, but is limited in scale by topography, significant debris fields and potential contamination from the site of the former railcar maintenance building.

The Eastern end of the ABS provides an open, flat, and uniform gravel lot on which pallet planters could be placed without much preliminary site preparation. The scale of the potential garden on this end of the ABS could be highly variable (due to the large, wide open space), but transportation of produce to the Food Bank facility would require a vehicle. There are also two potential point sources of contamination on this end of the ABS, namely the former railyard house and cement pads which formerly held above ground fuel storage tanks.

Across most of the Northern edge of the site, there is a significant raised berm compiled mostly of construction debris. During our walk-through and soil testing, there were pieces of pipe, insulation, lumber, roofing material, wiring, cement and asphalt in the surface and immediate subsurface across a large area of the ABL.

Across much of the Central and Southern portions of the site, there are still many areas with embedded creosote-treated railroad ties. These are present at or just below the surface at a depth of 1-2 inches and present both a physical barrier to in-ground gardening, and a potential long-term hazard from the chemicals present in the wood treatment.

Due to the sheer quantity and variability of material present (unless significant funding is acquired to remove the debris), it is recommended to cap these materials and grow in the aboveground containers mentioned above. If further soils testing does not suggest that major site cleanup is of legal necessity, then a simple solution could be to lay a woven landscaping fabric across the proposed garden site, then topping this fabric with gravel (substantial quantities of ballast rock already exist on-site and could be repurposed as they were determined to not be high in lead or require further classification (p.3-4, Russel Resources Inc, 1999) or using an organic mulch material (such as woodchips provided for free from tree companies).

DESIGN/ INFRASTRUCTURE

RAISED BED PLANTERS

The recommended method of large scale raised bed plantings can be found by observing examples of “raised pallet beds” such as those used by Urban Adamah in Berkeley, CA (http://www.youtube.com/watch?v=fdhSPEDaTow) and SoleFood Farms in Vancouver, BC, Canada, at their 2 acre Roger’s Arena growing site.

The SoleFood Farms Bed Design (http://cityfarmfood.blogspot.com/2012/11/building-farm.html)

Advantages of the pallet bed designs:

- They are relatively inexpensive and can utilize reused and reclaimed materials in their construction.
- They prevent crop contact with the native (contaminated or unsuitable soil/ hardscape) and allow any site (including paved or gravel) to become productive.
- They are easily moved using a forklift or pallet jack should site redesign, utility work, or relocation of the garden become necessary.
- They provide raised working surfaces that increase accessibility of the garden to individuals who are not able to work at ground level.
- They are modular and can be placed according to site needs/ topography, and are readily scalable based on the capacity of the site.

It is highly recommended for any form of planter design used, they be laid out in a systematized and uniform "block" arrangement. For example: lining up pallet planters 10 to a row and 5 rows per section with 3 ft. paths between rows and an 8 ft. wide 'roadway' between sections. This would allow for maximum accessibility.

COST/ INFRASTRUCTURE

According to the Urban Adamah design video, utilizing a combination of repurposed and new materials, each box costs approximately $8.50/ each + soil. An online search for materials yielded a 'higher-than-advertised' cost per box for this design. (see below)

Cost estimates for the SoleFood Farms grow bed system are not readily available online. A brief online search for materials used in their design yielded the following results:

Per Planter Cost Estimate based on Urban Adamah's Design	
Food Grade Plastic Lining	$2.78/ each
Used Burlap Coffee Sacks	free
Galvanized Hardware Cloth 16' x 100'- $85/ 6 beds	$14.17/ each
Used Hardwood Pallet 48 x 40"	$3.50/ each
Soil (approximately .5 yd/ planter)	$15/ each
TOTAL	**$35.45/ planter**
Per Planter Cost Estimate based on SoleFood Farms' Design	
Dewitt Sunbelt Ground Cover Weed Barrier 4' by 300'- $126/ 75 beds	$1.68/ each
Uline 48 x 40" pallet collar	$50/ each
Used Hardwood Pallet 48 x 40"	$3.50/ each
Soil (approximately .5 yd/ planter)	$15/ each
TOTAL	**$70.18/ planter**

The Urban Adamah planter design has an obvious up front cost savings advantage, but would require additional time and energy to source used materials and construct the more elaborate design. This construction also produces a taller planter; advantageous for both working height (accessibility) and soil depth (plant root zone/water holding capacity). Despite the added labor needs, if volunteers were utilized, significant price advantage and long term labor/ plant health advantages would make this design preferable.

Compost can be acquired through Waste Management or BFI-Newby Island Waste Facility. These companies both process green waste from municipal supplies and have programs to donate compost to non-profit and community organizations. The only cost for this service is for trucking and dumping material on site.

The cost of irrigation is a significant factor, but was not calculated. The cost would depend on whether a drip system to individual boxes, multiple hose outlets, or some other configuration was selected. There are also unknown costs of connecting the system to main water lines.

GARDEN OPERATIONS

In the initial scope of work(Appendix 3), APC was asked to determine the feasibility of establishing a production garden to grow produce for distribution to clients of the Alameda Food Bank. A production garden for the purposes of this study is defined as an urban agriculture facility that places emphasis on volume production of crops. This implies a larger and more intensive agricultural facility than community gardens, which are typically used as much as a social gathering place as they are for food production.

It is our finding that while portions of the site may be physically suitable for a production garden, there are a number of factors that would make the establishment of a community garden a much more sustainable and utilized programmatic decision for any eventual Beltline Park Development.

A successful production farm requires intensive paid staffing or consistent and closely managed volunteers. The Food Bank staff has made it clear that they do not have the staffing or expertise in managing a production garden as part of their programming. Balance this with the high interest among food bank clients in participating in a gardening program it makes much more sense to help build self sufficiency by allowing clients the space to do their own gardening.

Add to this the challenge of trying to grow appropriate amounts of a large variety of produce needed to please the diversity of clients at the food bank, and the production garden would likely not have a significant impact on the supply of produce to food bank clients.

To align with the goal of utilizing an urban garden opportunity to improve the nutritional intake of Food Bank clients, we would recommend that a process be established to provide preference for obtaining a garden bed to Food Bank clients.

POTENTIAL RESOURCES FOR IMPLEMENTATION

HUMAN RESOURCES/COMMUNITY PARTNERSHIPS

In the course of carrying out this feasibility study, APC was able to enlist a large number of community partners(Appendix 4) that lent their expertise to various aspects of the study. In much the same way it is our belief that a number of community partners and resources could be enlisted to participate in the construction and operation of a community garden.

Alameda County Food Bank

The Nutrition Educator from County Food Bank, expressed interest in teaching in Alameda, however there have been limitations due to facilities access and space constraints. Creation of a new program and programmatic space would open possibilities for further collaboration between County Food Bank Resources/ Staff and the Alameda Food Bank.

Faith Based Organizations/ partnerships

The Buena Vista United Methodist Church has a long-standing relationship and partnership with the Alameda Point Collaborative Farm and has committed itself to local issues around food security, housing and education. In addition to the church body, Buena Vista Community Institute (the organizational arm of the church) has expressed an interest in expanding its involvement in addressing food security issues within the city of Alameda.

BVUMC also has close ties with the Chinese Community United Methodist Church in Oakland's "Chinatown" neighborhood and could be a good resource for community outreach and translation services for workshops

Christ Episcopal Church currently keeps a garden at Ploughshares Nursery specifically for donation to the Food Bank. This work could be translated or transferred to the beltline site with assistance towards providing support to gardeners.

Landscape Architects

Ellen Burke and Claire Napawan have assisted the APC farm in the past through pro-bono design services and can collaborate and to draw site plans with guidance (once we have a defined area for urban agriculture reuse.) These Landscape Architects are also both teachers who have offered to utilize this project as a design studio course to assist in the planning of the space.

Alameda Backyard Growers/ Master Gardeners Program

Both organizations have expressed interest in involvement in the beltline site and have a large network of local "master gardeners" and people interested in urban farming/ gardening and food production. They could be a good resource/ partner for initial construction and community education and support.

FINANCIAL RESOURCES

The Beltline site is classified as a brownfield site, and as such is eligible for clean-up grants and loans. It is however also subject to a number of legal and regulatory restrictions (Appendix 5).

The main page for the EPA's Brownfields Program http://www.epa.gov/brownfields/ links to both cleanup and job training grants (for low-income communities of color affected by environmental pollution) as well as an urban agriculture resource page.

The Center for creative land recycling- CA EPA point resource http://www.cclr.org/resources/CA - also has information on brownfield funding.

APPENDICES

APPENDIX 1

SOIL TEST RESULTS

Alameda Beltway Soil Lead concentration recorded by XRF methods

Portion of Site: Alameda Beltway West
Spectra data was the average of three spectra readings on a given sample.
The XRF spectra were recorded using a minimum 60 second exposure.

Lower	Average		Lower	Average		Upper	
Line 1	Pb in soil		Line 2	Pb in soil		Line 1	Pb in soil
distance	(mg/kg)		distance	(mg/kg)		distance	(mg/kg)
(ft)			(ft)			(ft)	
25	86		25	85		0	144
50	235		50	57		100	117
75	56		75	skipped too rocky		185	116
100	77		100	58		Line 2	Pb in soil
125	33		125	69		distance	(mg/kg)
150	22					(ft)	
175	97					100	223
						200	43

Portion of Site: Alameda Beltway East

Spectra data was the average of three spectra readings on a given sample.
The XRF spectra were recorded using a minimum 60 second exposure.
For the lines A and B, the sample locations were at 50 foot intervals.

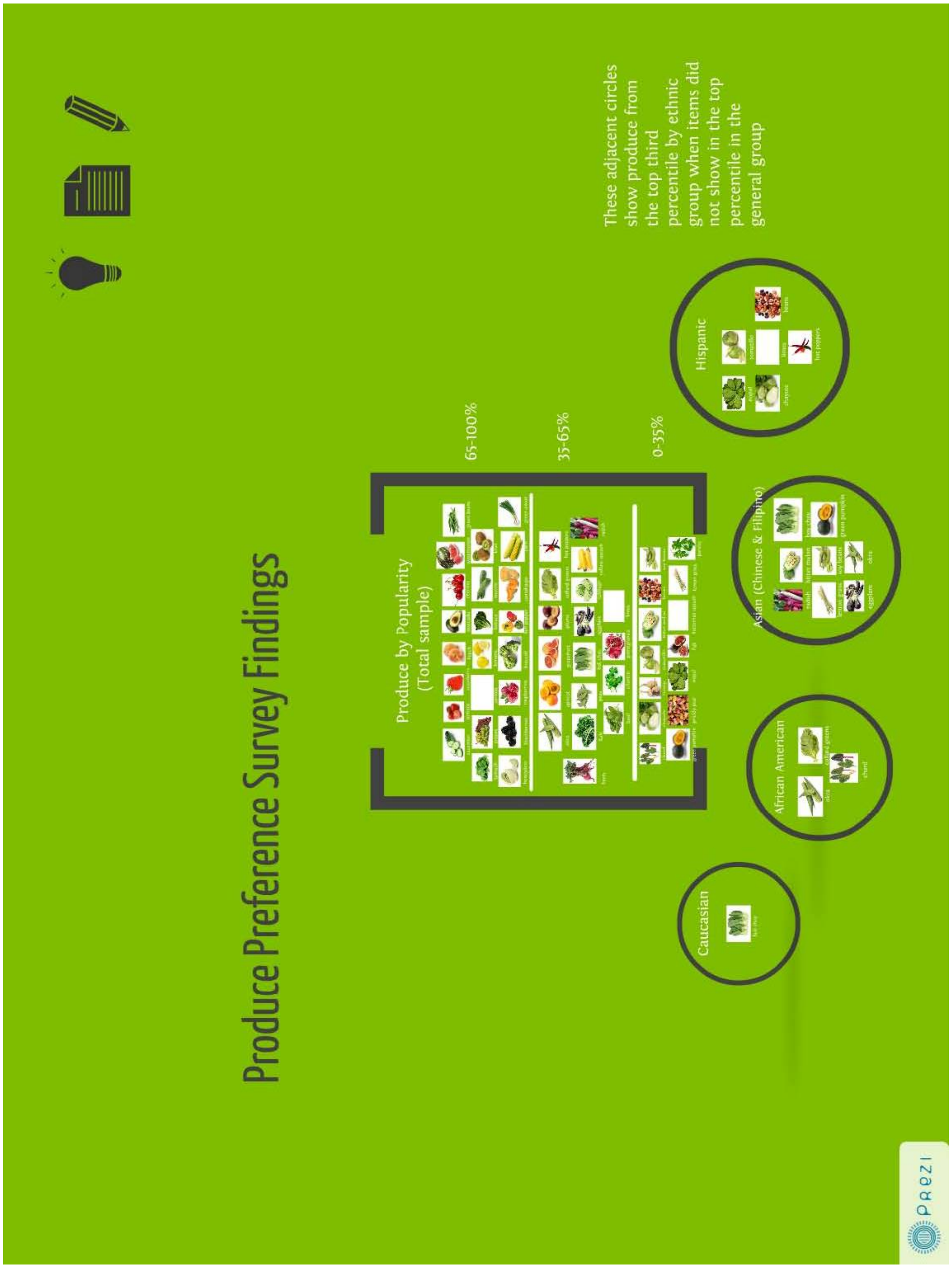
Location	Average Pb in soil		Location	Average Pb in soil
	(mg/kg)			(mg/kg)
A1	36		B1	97
A2	316		B2	137
A3	718		B3	145
A4	402		B4	358
A5	117		B5	262
A6	484			
A7	54			

Location	Average Pb in soil (mg/kg)		Location	Average Pb in soil (mg/kg)
C1	184		D1	371
C2	262		D2	180
C3	118		D3	874
C4	225		Sand	136
C5	259			
C6	90			

Soil Cores	Average Pb in soil(mg/kg)
1L	below detection limit
2L	101
3L	below detection limit
1U	below detection limit
2U	below detection limit
3U	below detection limit

APPENDIX 2

PRODUCE PREFERENCE SURVEY



APPENDIX 3

SCOPE OF WORK

Feasibility Study for Establishment of Production Garden on Alameda Beltway to serve clients of the Alameda Food Bank

Overview

In November 2011 the city completed a draft Urban Greening Parks Master Plan that included recommendations for new parkways. The Alameda Beltline (see map below) was identified as a suitable site for future park development, and recommended that the park usage type was a mixture of "both active and passive recreation, urban agriculture and/or community gardens, and a recreation facility such as a community center."

Urban agriculture is a viable and appropriate use of the space. Urban agriculture is gaining popularity in recent years as a complementary strategy to reduce urban poverty and food insecurity and enhance urban environmental management. Next to food security, urban agriculture contributes to local economic development, poverty alleviation and social inclusion of the urban poor and women in particular, as well as to the greening of the city and the productive reuse of urban wastes.

Given the location of the Food Bank next to the Beltline, transforming a portion of the Beltline into a production garden for the Food Bank would meet the recommendations of the Master Plan, and provide critical resources for the increasing number of clients facing hunger in our community.

A production garden for the purposes of this study is defined as an urban agriculture facility that places emphasis on volume production of crops. This implies a larger and more intensive agricultural facility than community gardens, which are typically used as much for both food production and a social gathering place.

Scope

In order to determine the feasibility of a production garden, the consultants will assess:

- Existing conditions (necessary to determine garden configuration and special requirements such as a soil barrier)
- Demand for produce from Food Bank clients (type and volume of produce needed to be provided in order to have a significant impact on food security for the clients)
- Requirements the Food Bank would have for ensuring that produce is provided in a condition that will be safe and useable
- Appropriate models and structure for managing the garden.

The work plan will include site surveys, meetings with Food Bank staff, surveys of Food Bank clients, and convenings of various stakeholders that might be willing to take on a level of responsibility for the farm.

The deliverables of the project will be:

- Results of soil samples
- Conceptual drawings of a production garden and processing space that takes into account site conditions, topology, need for access, need for processing space, accessibility, and efficiency of production
- A cost estimate for the cost of all materials and labor needed to build the production garden
- Results of client surveys that will provide information on demand

- A planting program that will lay out crops and planting patterns that will meet the demand from clients
- A list of community stakeholders that have indicated a willingness to participate in the construction and/or maintenance of the production garden
- Recommendations on a management model for sustaining the garden

Qualifications

The feasibility study will be undertaken by staff of the APC Growing Youth Project. The Team Leader is Evan Krokowski. Evan has served as the Farm Coordinator for APC for the last four years, and has been responsible for overseeing the establishment of a one acre urban farm that include seasonal and perennial produce, fruit trees, bee hives, chickens and a solar powered aquaponics system. Evan managed the work of thousands of volunteers to make the farm a reality, and at the same time has developed the capacity and skills of a group of APC youth to carry out many of the day to day activities of the Farm.

As an agency, APC has significant experience in place making in an urban environment. In addition to the farm, we have over the last decade transformed 200 units of Navy housing into a supportive housing community for homeless families; installed two playgrounds, established a community garden, and implemented social enterprises, including Ploughshares Plant Nursery and Cycles of Change Bike Shop. APC is adept at utilizing all its resources to end homelessness, and as such is well suited to design a sustainable and effective production garden program to serve the food bank.

For much of the outreach, and surveys, APC will utilize members of the growing youth team – trained advocates who have travelled around the country making presentations and gathering information on food security. As needed, APC will bring in outside assistance for translation to ensure that a broad cross section of Food Bank users have the opportunity to provide input.

APPENDIX 4

SHARED EXPERTISE

This project would not have been possible without the collaboration and coordination of multiple institutions, professionals, professors and students from throughout the region. In addition to the ultimate benefits to the project, the process undertaken highlights the potential value of this proposed urban agriculture site as a learning laboratory and community resource where individuals and institutions with various interests and expertise can contribute and benefit. Thank you all for your time and effort.

THE FOOD BANK SURVEY PROCESS

Spearheaded by:

Lily MacIver - undergraduate student in Community and Regional Development and McNair Scholars Program participant, UC Davis.

Lily was responsible for the creation and administration of the Food Bank Survey Process and helped communicate with the Food Bank to establish, setup and administer the surveys. Additionally, she compiled and analyzed the data into the Activities and Produce Survey sections of this paper. Her work was invaluable for receiving input from Food Bank clientele on the use and production of the proposed Garden site.

With guidance and participation from her professors and peers, including:

Advisors:

Jonathan London- Community and Regional Development Department, UC Davis

Claire Napawan- Department of Landscape Architecture and Design, UC Davis

Student Survey Assistants for in-field data collection:

Taylor Gendron, Anila Mehmood and Daniel Davis- undergraduate students of Community and Regional Development, UC Davis.

This survey process also could not have moved forward without the direct input, time, and accommodation of the Alameda Food Bank (AFB).

The Food Bank Staff helped to guide the survey's design and methodology, and provided additional data on Food Bank clientele, AFB's current food supply chain and usage.

Staff and volunteers of AFB also assisted with encouraging clients to partake in the study and altering their operations and physical layout to accommodate participation.

Special thanks to:

Hank Leeper, Executive Director, Alameda Food Bank

Samantha Kahn, Program Manager, Alameda Food Bank

THE PHYSICAL SITE/ SOILS ANALYSIS

Spearheaded by:

Steven Bachofer, Professor of Chemistry at St. Mary's College

Steven involved two of his undergraduate Environmental Chemistry classes in the process of mapping, sampling, and lab testing soils from both ends of the Alameda Beltline (ABL) property to determine potential risks involved in food production. Steven also assisted with a site walk-through and review of the previous Phase I and II Environmental Site Assessments (ESAs) to identify potential areas of interest/ contamination for our research and testing focus. His work and analysis make-up the Soil Testing sections of this report. His and his students' work were necessary in analysis of the site as a safe and healthy place to grow food, and helped guide decisions around the growing methods and infrastructure recommended in the report.

COLLATING PAST REPORTS AND DOCUMENTATION

Assisted By:

Ellen Burke, RLA, principal of Grow City Studio, a registered landscape architect and instructor of landscape architecture at Academy of Art University

Ellen helped to compile information from past consultant reports, site studies, community meetings and city documents/ regulations. She highlighted the past consultants' reports and grounded the study in the community meetings and input process undertaken prior to our research. Her design practice focuses on green infrastructure, urban ecologies and agricultural landscapes, and she has submitted a proposal to the Academy of Art for a future collaboration with students in a design studio/ lab centered on garden design for the ABL.

INFORMING THE RECOMMENDATIONS

Special thanks to the residents of the Alameda Point Collaborative, who through their participation as end users, volunteers and on-the-job trainees have provided valuable insights into the importance of participatory programming as a means to build self sufficiency.

APPENDIX 5

BROWNFIELD REMEDIATION "KEY COMPONENTS":

From http://www.cclr.org/101/#/remediating

Legal and Regulatory Framework-

There are a myriad of regulatory and legal considerations at the federal, state, and local levels for land recycling and brownfield redevelopment. Because state and federal statues are administered by a number of different regulatory agencies, it is important to understand these regulatory bodies. Establishing a strong working relationship with regulators and maintaining open communication throughout the redevelopment process is key for a successful project. It is highly beneficial to obtain appropriate legal advice and guidance early in the planning process to develop an effective strategy for enhancing cost effectiveness and minimizing project risks.

Phase I Environmental Site Assessment (Phase I ESA)-

Evaluating a site for potential contamination is an important first step in approaching a brownfield redevelopment project. The Phase I Environmental Site Assessment (Phase I ESA) is a widely-used, industry-accepted approach used to assess environmentally challenged properties. The Phase I ESA relies heavily on site visits, interviews with relevant parties, and historical documents and public records. The goal is to understand previous site use to help determine whether and what kind of contamination may exist. A Phase I ESA is required in order to qualify for federal liability defense protections and certain state protections. A Phase I ESA must be conducted by a certified environmental consultant.

Phase II ESA-

Conducting a Phase II ESA is useful in filling remaining data gaps when recognized environmental conditions are identified. This assessment further characterizes a site in terms of the nature and extent of contamination. Phase II ESAs rely on direct field-based sampling and analytical techniques to identify and quantify actual concentration of contaminants in soil and groundwater. They additionally provide background information necessary to develop a cleanup strategy and estimate costs. A Phase II ESA is typically conducted by a certified environmental consultant.

Cleanup Phase-

Following completion of environmental assessments, project managers typically work with environmental consultants to determine a remediation or cleanup strategy. Results of a Phase II ESA typically include a site conceptual model determining contaminant exposure pathways. Contaminant clean-up goals are then identified based on existing regulatory guidelines and statues. Additional analysis and a variety of additional reports may be necessary based on the regulatory agency and complexity of the cleanup. An appropriate cleanup plan is then designed, taking into account unique site features. Cleanup may involve soil or groundwater removal or safe encapsulation of contaminants on site. Regulatory agencies may provide guidance throughout the process. In some cases, final approval from a regulatory agency certifies the cleanup process is complete. In other cases, there may be additional requirements to ensure safety from any residual levels of contamination, which were not technically or economically feasible to remove.

Environmental Insurance-

A major challenge faced when approaching a redevelopment project on environmentally impaired sites is unknown risk. Environmental insurance assists sellers, buyers, developers, and lenders in defining the costs associated with known and unknown contamination at a site. It can also serve as a powerful risk transfer technique. Understanding the project’s financial and timing constraints, as well as stakeholders’ risk tolerance drives the selection of various risk management and insurance solutions. Input from legal, engineering, and risk professionals should be sought early in the redevelopment process to allow maximum flexibility for your project. Environmental insurance is an effective tool bridging the risk gap on complicated brownfield redevelopment projects.