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Food Deserts in the Inland Empire: Locating Space for Urban Gardens in Ontario, California

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Locating space for urban gardens in Ontario, California

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View from vacant lot in Ontario at Fourth Street and Vineyard Avenue. Courtesy of www.ontariocarealestate.net.
Introduction

Food insecurity is defined as “a household-level economic and social condition of limited or uncertain access to adequate food” (USDA Economic Research Service 2009). Low-income households tend to be food insecure for many reasons. The first and most obvious would be the access to monetary resources. If a household does not have a sufficient income, it is difficult to keep an adequate amount of food for all household members at all times. Another reason would be that many low-income households cannot afford a car and/or do not have easy access to public transportation or reliable private transportation. If one has to walk to a grocery store, it is difficult to buy an adequate amount of food because of the time and effort it takes to transport it back home. If there is a lack of grocery stores in the immediate area, this could create food access issues as well. It has been noted that a 15-minute walk would be the maximum that a person would be willing to travel to obtain groceries (Algert, et al. 2006).

Urban Gardens and Farming

There are many ways in which people can help themselves to be more food secure. Urban farming, on the household scale or even larger, is a great way to supplement a household food supply and reduce the amount of groceries a family needs to buy. Urban farming is defined as “the production of food and nonfood plant and tree crops, and animal husbandry, both within and fringing urban areas” (Kaufman and Bailkey 2000). Depending on the issues surrounding the land, there are many forms that an urban garden can take. Although in-ground cultivation is commonly seen, sometimes the land is too contaminated, in which case one may use a raised bed, a greenhouse, or hydroponics (Kaufman and Bailkey 2000). Because there are so many different methods of urban agriculture, an urban garden can be located virtually anywhere.
within a city. Urban gardens may be sited on vacant city land, a private backyard, rooftops, or in schoolyards—really, they can be located anywhere in an urban setting where one is allowed and able to grow crops.

Urban gardens can help alleviate food insecurity and create a healthier diet for low-income families who could otherwise not afford fresh produce. For families who have gardens, the more produce they grow, the fewer items they need to buy at the store. This leaves extra money for households to spend on healthier, and often more expensive, foods at the grocery store or other needs, such as clothing or transportation (Mougeot 2000). Localization of food, even if you are not the farmer, means cheaper food due to less transportation costs. Much of the food we purchase in stores has traveled hundreds or even thousands of miles to reach our local grocer (Guptill and Wilkins 2002). Every time our food passes through a distributor’s hands, the cost of those products goes up for both the grocer and ourselves—not to mention that the price for us is higher than the price for which the grocer bought it.

Inexpensive local food products will not only make food more affordable, it will also help low-income families eat healthier. Los Angeles County reported 40% of their middle-schoolers to be overweight or obese. South Los Angeles alone has a 30% poverty rate as well as a 35% obesity rate among adults (MacVean 2010). It is also highly likely that many of these households have poor access to stores which sell fresh, high quality produce. “ZIP codes with larger numbers of people on public assistance had fewer large grocery stores that offer a greater variety of foods than middle-income neighborhoods” (Algert, et al. 2006). According to maps on localharvest.org, most local-grown produce is sold in grocery stores, farmers markets, and restaurants located directly in the downtown or higher-income areas of Los Angeles.
Origins of the Urban Garden

“In times of crisis, like war or recession, growing food in cities has always been essential to urban people” (Deelstra and Girardet 2000). Urban gardens have been part of many cultures for centuries, but the United States has been using them as a means to solve hunger problems for a large part of its history as a country. Starting in the 1890s, larger U.S. cities such as Detroit, Boston, and New York began cultivating vacant lots due to a depression. The U.S. would see other programs such as these after each World War and during the 1930s with the Great Depression. These programs were started due to the large demand versus small supply of food. Urban gardens like community gardens—gardens where many families or individuals participate in farming a small section of the land—popped up again during the 1970s with newfound environmentalism. Since the 1970s the urban garden movement has continued on in the form of community gardens, home gardening, and entrepreneurial urban agriculture, which is just for-profit urban farming (Lawson 2005).

Overcoming the Difficulties of Urban Farming

As noted by Kaufman and Bailkey (2000), there are many problems with urban farming, especially entrepreneurial urban farming. According to their study, there are five categories of urban farming obstacles, four of which are particularly applicable to the Ontario study: site-related, government-related, procedure-related, and perception-related. This study lists in detail what they had found to be large issues within each of these categories and then offer solutions to each problem.

Site-related obstacles include contamination and vandalism. If the land is contaminated enough, it may not be worth cleaning up. But, there are solutions to this problem. Urban
gardens can manifest themselves in many different ways. One way to avoid contaminated goods would be to build a greenhouse or hydroponics system instead of using in-ground cultivation. Raised beds also offer a solution, due to the fact that they do not use the soil from that site. Also, if it is simple enough, phytoremediation may also be used to clean the soil. This may require more money depending on what substance is being cleaned up and what is being used to clean it.

Vandalism is a large problem in areas more prone to crime such as graffiti or stealing. For this, Kaufman and Bailkey suggest that owners of these farms build close connections with their surrounding communities. This builds a tight network of trusty neighbors who can watch over the farm.

Unfortunately, these gardens may never be constructed due to a host of issues. Government- and perception-related obstacles go hand-in-hand when it comes to the construction of urban gardens. Many people may have a negative perception of farming within a city as opposed to farming on the outskirts; many of these people are in local government positions deciding the fate of the land that could become your local urban farm. The job of the government within the city in question is to decide whether or not this land is best used for farming, and if their answer is no, there are few ways to go around their decision.

There are cities such as Cleveland in which green zoning is being used to solve the urban garden problem as well as fixing the problem of increasing vacant land (LaCroix 2009). In these zones, gardening is permitted and encouraged. Although, it would be hard to do in Southern California where cities are growing rapidly, it would be nice for cities within California to adopt this method so that low-income, food insecure communities could side-step the government
issue. Another solution to the government-related obstacle would be to argue that urban
gardens, at least entrepreneurial gardens, actually bring jobs and money into the local economy
(Kaufman and Bailkey 2000). Gardens which are willing to sell their produce at reasonable
prices may attract new restaurants and stores which want to use or sell fresh, organic produce.
If these businesses are already located near the site meant for the urban garden and they show
interest in buying fresh, organic produce, this would also make the garden a worth-while
project. These arguments make it easier to sell the urban garden idea to government
appointees who oversee this site.

The last set of problems is of great importance: procedure-related obstacles. There are
many practical issues that small-scale projects set up by organizations with little money may
come across. First of all, in order to set up a successful entrepreneurial urban agriculture site
the organization needs experienced staff and a sound business plan. Organizations should be
looking for managers who know market agriculture well and can get along with their partners
and community—speaking local languages helps a lot, especially in Southern California where
many people speak Spanish as their first language.

But staffing is not the only procedure-related obstacle. Another obstacle would be
financial resources. If the group does not have the financial resources to afford the start-up
costs, the project may flounder and never make it. One way to save money in this process is to
partner with someone willing to work with the group pro-bono, especially for the creation of
business plans. Close partnerships with other organizations which do have the money can also
help the group out by agreeing to a loan. If there is a sound business plan, companies or other
organizations that are willing to partner with the group will be more willing to offer loans if their seems to be promise in your project.

Although there are many obstacles to getting a for-profit urban garden project off the ground, there are many ways to solve these problems. And beside all of the negatives that costs and social annoyances may bring, proper urban gardening has so many environmental positives—such as food security, healthy organic options, and reduced transportation time, which also reduces greenhouse gas emissions—that it overwhelms the negatives of urban gardening if one has the proper finances for start-up.

Organizing Urban Gardens
One Southern Californian organization has made it a goal of theirs to create urban farming in the Inland Empire. Uncommon Good, a non-profit based in Claremont, California, is an organization which works to improve the local environment and assists low-income households through different educational programs (Uncommon Good 2010). Currently they are working on the Pomona Valley Urban Agriculture Initiative (PVUAI), one of their newer projects focused on urban agriculture. The goal of this initiative is to collect data on food security and local food resources and pricing in order to write grants proposals to the ERS using their Community Food Security Assessment (CFSA) Toolkit (USDA Economic Research Service 2002). This grant money will help Uncommon Good to establish one-family farms where each family will have a secure income and health benefits. Their farms will supply food to local restaurants and farmer’s markets and will be made accessible to low-income families in the area (Mintie 2010). This will, in turn, alleviate food insecurity among members of the communities the farms are located.
Data for the PVUAI is being collected in six cities in the Inland Empire: Pomona, Montclair, Ontario, Chino, Fontana, and Rialto. Previous research and data collection for these cities was conducted beginning in the spring of 2010 with students at Pomona College and Cal Poly Pomona. During the summer of 2010, research was done specifically in Montclair and Ontario on the pricing of produce at large grocery stores in each city. GIS mapping for grocery store locations was set to be done at that time but was not completed.

Mapping the Food Desert

The PVUAI was started due to the assumption that “food deserts” exist in these six cities. A food desert is defined as “an urban area with little or no access to nutritious foods” (Goldsberry and Acmoody 2010), with access meaning accessible both physically and monetarily, i.e. they can get to the food and they can afford it. There are many different factors which are considered when defining a food desert. The lack of easy access to fresh produce is a main factor. If a grocery store is not within a 10-15 minute walk or drive from a household, it becomes a burden for those who do the grocery shopping for that household to go shopping. This is especially true when using public transportation or pedestrian travel. If one has to lug their groceries onto a bus or in a cart while walking, it is difficult for the shopper and it may cause them to buy fewer groceries at a time.

Another factor would be the income of the household. If a family does not have the monetary resources to be able to buy the healthy foods that they need, they are more likely to choose less healthy options such as fast food, which is often located in lower-income neighborhoods with poor access to grocery stores (Algert, et al. 2006). Although it would be difficult to survey each household in the city, an estimate of local incomes can be taken from
census block information. When median household income information is combined with grocery store locations and transportation routes, possible food desert areas can be mapped.

The City of Ontario

The city that I will be focusing on for purposes of this research is Ontario, California, one of the six cities being studied for the PVUAI. This city, unlike many in which people build urban gardens, is no stranger to agriculture. Although growing denser with housing and commercial zones, Ontario used to be home to many farms, but now they are being replaced as the city’s goals have changed.¹

Ontario was founded in 1882 by George Chaffey of Ontario, Canada. He had seen the potential for great agriculture in the land which was to be Ontario. He set up a water company which would help irrigate the land which was already home to so many orange groves. This city, unlike many in Southern California, was a well-planned city. It was set up as an “agriburb,” or a city which had the best of both worlds: agriculture and suburbs (Sandul 2010). As of now, much of this agricultural area that used to cover the southern end of Ontario is now being converted into the New Model Colony (Fiscal Services Department 2009). The New Model Colony is to replace the agricultural area with “mixed retail-housing” as well as parks and other amenities.

Why does Ontario fit this project? The city is located in San Bernardino County, which is the largest and fourth fattest in the country (Mintie 2010). There are few organic producers within this county and few are close to Ontario. Because of the dwindling agriculture within

¹ The number of people working in agriculture in the City of Ontario grew by 201 people between 2000 and 2009, but the number of people working in agriculture as a percentage of the total number of people employed in the city has decreased from 1.75% to 1.45% (Fiscal Services Department 2009).
San Bernardino County, especially Ontario, there will be even less feasible access to local organic foods. This is also true because there are currently no urban gardens located within Ontario except for one community supported agriculture (CSA) project in South Ontario: Amy’s Farm (localharvest.org 2010).

But this is not the only way to get to healthy food. Supermarkets usually carry a variety of healthy foods in the form of fresh produce and other necessary items for a well-balanced meal. As described before, good access to healthy food also means good access to transportation, grocery stores/supermarkets, and monetary resources. I believe that public transportation routes in Ontario do not provide sufficient access to healthy food for residential areas. Beside this, I believe there are too many mini-markets and convenience stores placed in locations convenient to low-income families. These stores provide food, but not the quality of food needed for a healthy lifestyle. And although the median household income for the city is $57,184 which is not below poverty level, 10.1% of the population, or approximately 16,400 people, live below poverty level (American FactFinder 2010). This is a significant amount of people who may lack access to healthy food.

This research will help provide facts as to how many locations in this city may be in dire need of increased access to healthy food by pointing out areas of low income, gaps in public transportation, and locations of grocery stores versus fast food. It is suggested that, in the future, supermarkets and grocery stores be located in areas where these factors converge, and these areas will be put forth as suggestions for new locations for PVUAI farms.
Methods

Geographic information systems (GIS) is a mapping software which takes all types of geographical information and maps it into layers which can be placed on top of one another. This creates an interactive map in which layers can be turned on or off in order to see different aspects of a map. I have used GIS in my research to show multiple aspects of the City of Ontario in order to show where there are gaps in food access. A gap in food access can occur wherever one may have difficulty getting to a grocery store. On a GIS map this can be seen by mapping specific information, such as the location of grocery stores, the median incomes of census blocks, and transportation routes. I will classify an area which lacks good public transportation, has a lower income, and lacks grocery stores within walking distance a food desert, i.e. an area with a gap in food access.

I will be using three maps to determine food deserts. Two of these maps are my own which I put together using layers from different sources, and the other one is a completed map which an individual researcher and ArcGIS user has put together and posted online for public viewing. My maps will include the following layers: public transportation (bus routes), city boundaries, grocery store locations, fast food locations, median household income per census block, a landmark overlay, and a satellite view base map.

Public Transportation

Transportation is a vital resource for access to healthy food. Located on the GIS map are the bus routes for the City of Ontario. For those who do not have regular access to a car or other personally owned automobile, a trip to a grocery store—especially one which is more than a

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2 Transportation and city boundary layers, as well as vacant parcels provided by Robert De Casas, Senior System Analyst for the City of Ontario. Information requested through email, received GIS package on CD.
mile away—can be a large burden. Buses which run close to residential areas make these trips much faster and easier. People without access to a car or a bus which runs in close proximity to their home are more likely to shop once a week or less due to the burden of walking to the store.

**Grocery Store and Fast Food Locations**

Using ReferenceUSA, I searched for stores that sell food, mainly produce, and downloaded them as a dataset. Using the longitude and latitude of each location in an Excel file, I uploaded the locations to the GIS map. Altogether I found 69 stores which sell food. I made sure not to include gas stations which commonly only have junk food (greasy hot food such as hamburgers or sugary food such as candy or ice cream), but I did leave in some convenience and liquor stores which try to carry some food items, like milk. Some locations may also be wholesale distributors and warehouses for these different grocery stores. I included these because some smaller warehouses and wholesalers sell directly to the public and I have not visited these locations in order to rule them out. In order for this to be completely accurate, future studies should visit all food-carrying stores in the city to rule them in or out of the study.

Fast food can be found everywhere, much of which is within walking distance of many households that cannot easily access grocery stores. I included fast food locations on the map in order to see whether or not this was true for Ontario. I weeded out traditionally sit-down restaurants which have food-to-go options like Denny’s or TGIFriday’s. As a result, I located 94 fast food locations throughout Ontario.
Layers Provided by ERSI

Three layers in my maps were downloaded from the ArcGIS site. In one map, I have used a median household income layer as a base map, or bottom layer. This was included to see if there is possibly a link between lack of access to food or transportation and income. My second map uses a satellite view of the area as its base map. This was to show the layout of the city and how the land is used. For example, residential areas are highly visible even when the map is zoomed out because of the high density of small buildings. The airport, warehousing units, and farmland are all generally located on larger parcels and easier to see. On both of the maps I have created there is an overlay which contains city and landmark names. It also outlines and labels freeways and highways.

Additional Maps

Previous studies have shown how GIS can be used to find food deserts and poor access to food within cities (Richardson 2010; Goldsberry and Acmoody 2010). These maps were outcome of extensive research on locations of stores and transportation systems, as well as distances from households to these stores (Richardson 2010). I will use a map created by other researchers as well as my own maps in order to more accurately determine where there may be food deserts.

The map I will be using provides data pertaining to residents’ access to healthy food in Ontario (Herries 2010). It includes data points which show areas which do not have walkable access to healthy food, meaning grocery stores with fair selections of produce.

Vacant Land Locations

Identifying food deserts in Ontario is a large part of this research, but the main idea is to figure out whether or not creating a small-scale, single family urban farm in these areas would be
feasible. This means that there has to be vacant land in these areas. The City of Ontario has provided a table of vacant parcels of land throughout the city. This table includes many categories, but the sections I will be using to determine the location and feasibility are the designated parcel number, address of location, zone, and acreage. Feasibility of these vacant parcels is contingent on whether or not these locations are in or near to the identified food deserts, if they can be used for agriculture, and if the area of a parcel or sum of areas of a group of adjacent parcels is greater than or equal one acre.³

I took the compiled table of vacant parcels and first screened through the acreage. If the area was greater than or equal to 1 acre, I noted the area. If there were a number of locations with areas smaller than 1 acre, but the parcel numbers (APNs) were close in range to one another, I added up the areas to see if they equaled at least 1 acre; if so, I noted these areas as well. I then used the APN search tool on the Ontario Plan Map to locate where each parcel was on the map of Ontario to determine if it was in close proximity to or within the food deserts I had identified (Land Use Plan and Zoning Map). To determine whether or not these resulting parcels were feasible locations for small farms, I then went through the zoning types.

Zoning in the City of Ontario allows for commercial agriculture for crops within the following zones: AR (Agriculture-Residential), RE (Residential Estate), C1-3 (Commercial, not including airport-related services), M1-3 (Industrial), AG (Agricultural Overlay), PF (Public Facilities), and OS (Open Space) (amlegal.com). But, according to the Ontario Plan (2010), land use can be flexible no matter the zoning of the parcel if the intended use “improves livability, reduces vehicular trips, creates community gathering places and activity nodes, and helps

³ 1 acre area of land is per suggestion by Uncommon Good based on their own research.
create identity.” To begin, I will not disregard parcels which are not traditionally zoned for this reason, but I will include the type of zone with the parcel in order to point out that it is possible that this parcel may not be used for agriculture.

Results

Bus Routes

According to Figures 1 and 2 (all Figures located in the Appendix), bus routes, although thoroughly serving main roads and commercial centers, do not pass through many residential areas. There are large gaps that are not served by OmniTrans buses. These buses run along most of Euclid Avenue, some of Mountain Avenue, most of Holt Boulevard, down Vineyard Avenue stopping at Ontario International Airport, and a large stretch of Milliken (with many stops near the mall and adjacent shopping centers). These are just a few, but each of these main routes does not really go through residential areas except for those homes which happen to be located on or near these main streets. South Ontario completely lacks bus routes below Riverside Drive because much of this area was formerly or is still agriculture, and the land that is not agriculture anymore is now warehousing.

Median Income

The majority of Ontario, according to census blocks, has a median income above $41,001 (all data for median income is located in Figure 2). There are some large blocks which have a median income between $0 and $27,000. Most of this is not populated by homes but instead by warehouses or truck lots. These blocks are located off of the I-10, I-15, and CA60 Freeways
and close to railroad lines, all of which are important to shipping. Small census blocks that have a median income between $0 and $27,000 are residential areas located near bus routes.

*Fast Food*

Fast food locations tend to be in clusters on main streets such as Mountain Avenue, Vineyard Avenue, Archibald Avenue, and Milliken Avenue, all of which are main exits from the I-10, CA60, or I-15 Freeways. The cluster of fast food on Milliken Ave. corresponds to the location of the Ontario Mills Mall. All census blocks directly surrounding the mall (not including blocks below the 10 Freeway) have a median income higher than $70,001 (Figure 2). Most of the other fast food clusters or individual locations are located in blocks with an income higher than $41,001.

On 4th Street from Baker Avenue to Vineyard Avenue there are some fast food locations which border a census block with a median income between $27,001 and $41,000. Other such clusters of fast food which are in or border census blocks with an income between $27,001 and $41,000 occur on Holt Boulevard, the intersection of Mountain Avenue and Mission Boulevard, and streets bordering Ontario International Airport. Fast food locations which occur in census blocks with an income below $27,000 are located in the largely industrial blocks between I-10 and CA60 near I-15. There are only four fast food locations located in or near the small, low-income census blocks.

*Grocery Stores*

Grocery store locations, as with fast food locations, are mainly located along bus routes. Although the majority of the stores are located right on the bus routes, there are some locations which lie in between routes. Besides lying directly on bus routes, some of these stores lie within or near clusters of fast food. There is only one market in the Ontario Mills
shopping center, which provides for nearby housing tracts. These houses along 4th Street are between Ontario and Rancho Cucamonga, so many of these households may get their food from stores in Rancho Cucamonga. The small, low-income census blocks mentioned previously have ten close proximity grocery stores, six of which are directly accessible by bus.

*ArcUser Online Maps*

Figure 3 shows how accessible grocery stores are by means of walking. If an area on the map is not within a one-mile walk of a grocery store, it is denoted on the map with a red dot. The green dots in various shades denote areas which have access to a grocery store or grocery stores within a one-mile radius. The majority of the city has very good access to grocery stores and healthy food by means of walking, which is denoted with darker green dots. Lighter green dots are also scattered throughout the city, which means that healthy food is less accessible, but it is still accessible.

There are, however, a few clusters of red dots. One such area is in South Ontario, or the agricultural center. According to Figures 1 and 2, there are no grocery stores in these areas, nor are there bus routes nearby. There is a small section below 60 Freeway near the south-eastern boundary of Ontario that also has poor access to healthy food. My maps indicate that there are three grocery stores near to this area, but not within a one-mile walk. However, there is a bus route running along the nearest main street that runs directly to these stores. Another patch of red dots occurs near the northern border of the city. Figures 1 and 2 indicate that there are nearby stores which should be within walking distance to parts of this area, but they may just be small convenience or liquor stores which carry some, but little food. And the last red-dotted patch within the city limits occurs within the boundaries of Mountain Avenue, Euclid Avenue,
Mission Boulevard, and the 60 Freeway. Again my maps indicate that there are some nearby stores, but they may carry limited food options. Otherwise, this area lacks residential bus routes and all of the grocery stores are located on the main streets bounding this region.

There are also single red dots which do not appear in clusters on this map. These seem to occur in places where there is little residential zoning due to the fact that these locations are near the airport or warehousing units. There are no stores near these individual locations and no easily accessible buses.

Vacant Parcels

The City of Ontario has a substantial amount of vacant land. Location 1 has only three significant blocks of vacant parcels. The first is located on Sixth Street between Baker and Grove Avenues. Here there are 4 consecutive parcels zoned PF with a total area of 14.196 acres. The second block is between Olive Street, Eighth Street, Baker Avenue, and Vineyard Avenue. This block contains 11 parcels with R1 zoning with a total area of 8.07 acres. The third block, which contains 4 parcels, is located on Grove Avenue and Eighth Street. These parcels are zoned C1 and M1 with a total area of 2.8 acres.

Location 2 has many more vacant single parcels or parcel blocks than Location 1. On Locust Street between Oaks and Magnolia Avenues there is a block containing 4 parcels, all zoned AR, with a total area of 2.185 acres. There is a single parcel on Oaks Avenue, off of Ralston Street, zoned AR with an area of 4.847 acres. Another single parcel, zoned AR as well, with an area of 1.871 acres is located on Magnolia Avenue near Locust Street. The next block occurs on Oaks Avenue near Phillips Street. It contains 5 parcels zoned AR with a total acreage of 3.982. More single parcels occur on Mission Boulevard (zoned for commercial uses with a
total area of 2.006 acres) and Grove Avenue (zoned SP with a total area of 2.292 acres). A small block of 2 parcels occurs on Oakland Avenue, zoned R1.5, with a total acreage of 2.42; another 3 parcel block is located on Belmont Street and Sultana Avenue which is zoned M1 and has a total acreage of 3.148; and one more 3 parcel block is on Cucamonga Avenue below Cedar Street—it is zoned M2 and has a total area of 6.656 acres. And there is one last vacant parcel block bordered by Bon View Avenue, Campus Avenue, Cedar Street, and Francis Street. There are 34 small parcels within this block with M2 zoning and a total acreage of 2.475.

Location 3 has so many vacant parcels—large and small—that it is hard to consider them in separate vacant parcel blocks. The area bordered by Riverside Drive, Hamner Avenue, Edison Avenue, and Ontario Avenue contains approximately 25 large vacant parcels (up to 42.99 acres in area), all of which are within SP zoning, some with Agricultural Overlay. There are also a large number of small vacant parcels between approximately 0.04 and 0.125 acres, all zoned SP. Four separate blocks were located beside this large cluster of SP zoning. There is a large 13.73 acre parcel located on Haven and Ponderosa Avenues zoned SP, as well as another single parcel of 19.973 acres zoned R1 on Riverside Drive and Hamner Avenue. A 2-parcel block on Whispering Lakes Lane totals 1.559 acres in area and is within R1 and R3 zoning. The last block is located above the 60 Freeway at Philadelphia Street and Haven Avenue. It contains 3 parcels, is within SP zoning, and totals 10.976 acres in area.

Discussion

Food security requires three main resources: transportation, money, and locations. Where the lack of these three separate resources intersects, we see food deserts. In order to locate each
food desert we must look carefully at each GIS map and analyze where there are gaps in public transportation routes and grocery store locations.

Public transportation in Ontario does not seem to be extensive enough according to Figures 1 and 2. More routes need to cut through residential areas in order for there to be greater access to grocery stores as well as other locations and services which are not accessible. And as for grocery store locations, fast food outnumbers grocery stores, but it seems that fast food is mostly located in areas where either there is no need for grocery stores (i.e. near the mall) or there is already a grocery store.

*Low-income Blocks*

All low-income blocks, except for the large block located near the Ontario Mills Mall where much of the warehousing is located, seems to be serviced by OmniTrans. Also, as mentioned before, these small blocks have grocery stores nearby. But still Figure 3 tells us that these blocks are located in areas where some residents do not have grocery stores within a one-mile walk from their homes. I believe that many of the locations that I had mapped out as “grocery stores” near these low-income blocks may have been small markets or convenience stores which may not carry as healthy of food items as I hope they would. Maps created for food desert studies, such as the one in Figure 3, take into account only healthy foods such as produce, and many of the stores I have mapped may not have produce. Therefore, these small blocks, although they have bus service, may be located in a food desert due to lack of healthy food and the low median household income of their area.

The large low-income block should not be taken into consideration when looking at food deserts. Warehousing, trucking, and airport area make up this block and there is no need for
these industries to access healthy food for the purpose of this study. This will be described in more detail below.

**Food Desert Locations**

Everything south of Riverside Drive and west of Archibald Avenue in Ontario should be disregarded as a food desert, even though it lacks the grocery store locations and bus routes. As of right now all of this area (except a small housing tract located right on the south-west corner of Archibald and Riverside) has been taken by warehousing or large-scale agriculture. Because there would only be the homes of the farmers themselves, this will not qualify as a food desert for purposes of this study.

Another location which will be exempt from food desert status is the large industrial and commercial area east of and including the Ontario International Airport, bounded by CA60, I-15, and I-10. Because this is industrial and commercial, no one lives in these zones. The only people to consider in this situation are those who work in these areas, in which case there are food locations nearby, just not much in the way of healthy food.

Ontario seems to contain at least three food desert locations, all of which coincide with the clusters of red dots in Figure 3. The first (we’ll call it Location 1) is located at the northern border of the city. In Figure 3 you can see a cluster of red dots strewn across this border. Although my spreadsheet indicated that there were in fact some grocery stores near Baker and Grove Avenues, most of these turned out to be small markets which do not carry a variety of foods, and therefore are likely not to carry very healthy foods. There is a bus route which runs on 6th Street directly below the area between Grove and Baker. Unfortunately, this route does not take passengers near any supermarkets or large grocery stores except for Jax Market on
Grove Avenue and 4th Street. This is a smaller chain grocery which carries some produce and healthier foods. But there is no bus route located near Chaffey High School, where the cluster of lack of walkable access continues, nor are there grocery store or fast food locations.

The second food desert (Location 2) location is the cluster between Mountain Avenue and Bon View Avenue bounded by Mission Boulevard and Francis Street. There are two small low-income blocks within this cluster and at least five schools—three elementary, one middle school, and one high school—within this cluster or in close proximity to the cluster. Many of the grocery store locations I had indicated in Figures 1 and 2 are in fact small markets or convenience stores. Because bus routes are located along Mountain, Euclid, and Campus, residents close to these main streets have access to the Cardenas Market as well as Fresh and Easy and Ontario Farmer’s Market (not an actual farmer’s market, but instead a small, family-owned grocery store). Unfortunately there are many people who are not served by OmniTrans because they live in between these streets and are not close enough to merit the walk to the bus stations unless it is an occasional trip.

The third food desert (Location 3) I have located is within the cluster bounded by CA60, Archibald Avenue, Riverside Drive, and Hamner Avenue. This location also has bus service if you are located on Riverside, Archibald, or Hamner. And people within a mile of the corner of Archibald and Riverside are likely not to have food security issues unless they do not have the monetary resources. This is so because there are three large grocery stores or supermarkets which sell produce or healthier foods. But every resident in between bus routes does not have proper access to healthy food, especially if they live off of Haven at CA60 because there are a cluster of fast food locations off of the freeway exit.
Unfortunately, Location 3 is a bit tricky. Although I have designated this area a food desert, the City of Ontario has annexed a large majority of the land below Riverside Drive as “The New Model Colony” (City of Ontario 1999). As I explained earlier, this land was once used for agriculture and will now be used as planned community with mixed retail-housing as a basis. The map included in the plans for the New Model Colony (Figure 4) shows that there will be much in the way of retail near Location 3, meaning that this area should no longer be a food desert in the years to come.

These are the food deserts that I have identified, but there may many smaller areas throughout the city that I have not accounted for. And even though I have identified three areas, I feel that one of them is in more need of healthy food than the others: Location 2. This is due to the fact that not only do bus routes neglect residents between main streets, but there are also low-income census blocks and multiple schools within or very near to this location. Location 1 also should be of high priority compared to Location 3. Although it does not contain low-income blocks, it is also poorly serviced by buses and a large amount of schools are located in the location or in close proximity to the location.

Possible Land for Gardens

I identified a large amount of vacant land within the City of Ontario, much of which actually happened to be near the three food deserts I have defined. All of the parcels or parcel blocks I identified are feasible in the fact that they are vacant, they total 1 acre or greater in area, and they are near a food desert, but what if the zoning is not feasible? Commercial agriculture is only accepted within the zones I mentioned previously: AR, RE, C1-3, M1-3, AG, PF, and OS. If I
were to take into account zoning, assuming that maybe the City of Ontario would not accept a PVUAI farm as exempt from specific zoning, feasible parcels would be as follows.

Location 1 would have two parcel blocks (4 parcels in each block) to choose from. The first has an area of 14.196 acres and is within PF zoning, the second contains blocks of C1 and M1 zoning and totals 2.8 acres. This would be a sufficient amount of land for several PVUAI projects and would help the eastern portion of Location 1 out of a food desert status.

Unfortunately, Location 1 does not have any feasible vacant parcels toward the west side near Chaffey High School.

All parcels identified for Location 2 as feasible are still feasible when zoning is taken into account, except for the single parcel on Grove Avenue (zoned SP with 2.292 acres) and the block of parcels on Oakland Avenue (zoned R1.5 with 2.42 acres). The parcels which are left as feasible cover many different locations within Location 2, which leaves options for PVUAI farm placement.

The aforementioned problem with Location 3—the New Model Colony is being constructed next to it—creates a few problems when looking at the food desert area. Because much of the area has been zoned off for city planning for the New Model Colony, it has been zoned SP and makes almost all of the blocks identified infeasible. The blocks that are not zoned for city planning are residential zones, which are also not feasible within traditional zoning code for Ontario. This leaves no feasible vacant parcels for PVUAI farm use in Location 3.
Conclusion

Although some data suggests otherwise, the City of Ontario has a food security issue on its hands. With the dwindling number of farms and lack of small urban agriculture projects, we are not producing as much local organic food, which makes it harder to provide residents with fresh and healthy foods. Beside this, there is a general lack of actual grocery stores—only 18 large stores or supermarkets for a population of 173,680—which carry large varieties of produce and fresh foods (ReferenceUSA 2010; American FactFinder 2010). When these factors are added to the fact that there is also a lack of public transportation routes through residential areas which may need to use them, food deserts are created.

I have identified three food deserts within Ontario that need help gaining food security. Location 2 is in dire need of fresh produce and large grocery stores, and there is a vast amount of vacant land within this food desert which is perfectly zoned for agriculture. Location 1 is not as lucky in that there is only land available on the eastern side of that food desert where there are at least a few very small stores which carry some food, whether it is healthy or not. And if the western side is not lucky enough to have vacant land available, this location needs food stores and transportation routes in order for the residents to gain access to food. Finally is the unfortunate situation of Location 3. The New Model Colony, which is in progress but not built yet, will bring better food security to this area, but for now the location has difficulties with food access. On top of this, there are no feasible vacant parcels for a PVUAI farm and few bus routes for residents to use in order to access the supermarkets which are not within a reasonable walking distance.
This study, in conjunction with studies conducted since spring 2010, is just the beginning of feasibility studies for the PVUAI. The ultimate goal of the project is still changing with new data and Uncommon Good and their research teams will shift research methods and priorities as these studies progress. Future studies will further take into account the issues of zoning and land quality for these farms, as well as identifying neighborhoods which would be willing to purchase fresh foods from these PVUAI farms. If the PVUAI is granted money to start projects within the Inland Empire, hundreds or even thousands of people will have greater access to food and food deserts may shrink in size and intensity.
WORKS CITED


Mintie, Nancy. Pomona Valley Urban Agriculture Initiative. Project Description.


APPENDIX

Figure 1: Satellite view of Ontario, California including city boundaries, bus routes, and fast food and grocery store locations.
Figure 3: Demographics base layer map including city boundaries, bus routes, and fast food and grocery store locations.
Figure 1: Healthy food access map for Ontario. Adapted from Jim Herries' "Walkable Access to Healthy Food" map found online (Herries 2010).
Figure 4: New Model Colony planned land use. From "New Model Colony Summary," 1999.