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Correspondence and requests for additional copies should be sent to: *Urban Action*, Department of Urban Studies and Planning.

Department of Urban Studies & Planning
San Francisco State University
1600 Holloway Avenue, HSS 263
San Francisco, CA 94132

Phone: 415-338-1178 Fax: 415-338-2391
Email: dusp@sfsu.edu

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Urban Action

Introduction

It is always a privilege to be an academic advisor for the *Urban Action* journal, which is now well into its fourth decade. Every year the dedication and hard work of impressive groups of students brings this journal to life. This year's exceptional team of editors, reviewers, designers, and contributors has resoundingly upheld the high standards of this journal.

Every page of this year's issue reflects the exceptional abilities of this undergraduate team, and the professional approach behind its production. This edition of *Urban Action* stands tall among the best of student-produced journals in any field. *Urban Action* has grown into a portal that not just publishes research done by students from various departments, but now also involves students from several departments in the production process itself. The ongoing evolution of this participatory process that encourages collaborative problem solving is a vital element of the journal's success. Come September, a mostly new group of students embraces the daunting challenge of taking the journal from scratch to completion in a period of about eight months. That most of our students produce the journal while taking a full load of courses and working makes this achievement of theirs so much more impressive.

We salute this year's team for successfully continuing the wonderful tradition of *Urban Action*.

Jasper Rubin & Ashok Das

oto: Chloe Weiller

Examining Alternatives

San Francisco Unified School District School Lunch Program Recommendations

Yumi Felsinger, Nikolara Jansons, T. Michael Liles

America's infatuation with fast food has put the nation's children at the forefront of a national obesity pandemic and has left them ill-equipped for the struggle ahead. It has become clear that academic curriculum in public schools can no longer stick to the simplistic archetype of reading, writing and arithmetic that it once was. Today, school districts must bravely move forward with programs that are geared at implementing a solid foundation of nutritional values that promote healthy eating habits and encourage children to make healthy choices. In *Examining Alternatives*, the authors succinctly present data that paints a vivid picture of the founding ideals behind setting school lunch program policy into action. This article investigates the new Farm to Schools program that has already begun to change the face of school lunches throughout the nation. The authors have outlined key elements in a long overdue inquiry and have begun a conversation that strikes at the heart of American ideals surrounding food.

Executive Summary

Our nation is facing a crisis with regard to childhood obesity and medical costs associated with this pernicious problem. No community has been untouched by the upward trajectory of this epidemic. In the United States, one in three children are well over what is deemed a healthy weight. In San Francisco, that number is twenty-four percent or nearly one in four school children that are overweight or obese as reported by the San Francisco Unified School District (SFUSD) (SFUSD Student Nutrition and Physical Activity Committee, 2010). According to Ferraro, Thorpe Jr. and Wilkinson (2002), it was found that the likelihood of obesity in adulthood was significantly associated with being overweight in childhood. Furthermore, Serdula, et al. (1993) reported that obesity in adulthood is twice as common for obese children than for non-obese children. The economic implications from obesity related medical complications are staggering. In San Francisco alone, the annual cost for obesity related illnesses hovers around $100 million. There is a long established link between healthy eating habits and good health. While this makes sense, most schools have a nutrition curriculum that clearly is not enough to make a difference in the food consumption habits of children. In order to alleviate this epidemic which has pervaded San Francisco, it is crucial that we not only feed our school children healthy and nutritious food, but that we connect children to the process of food production by implementing gardening or agricultural education which could lead to better food decisions.

To better understand the feasibility of implementing the Farms to School program in the SFUSD, it was necessary to locate information regarding their current food and nutrition programs, facilities, staff, and food procurement procedures. In addition, we gathered information regarding best practices found within the state and various locations throughout the country. These best practices were assessed by analyzing evaluations, surveys, literature reviews, and various records from the SFUSD and the City and County of San Francisco.

Problem Definition

The proportion of San Francisco's school-age children has reached the critical stage of one in four who are overweight or obese. Our current practices to promote healthy childhood nutrition habits have been ineffectual at resisting the growing trend of childhood obesity.

Background

According to the National School Lunch Program fact sheet, thirty-one million American children receive the bulk of their calories from school lunch (USDA Food and Nutrition Service, 2010). As stated in the Richard B. Russell National School Lunch Act, our current school lunch policy of the same name was established in 1946 to address the problem of undernourished schoolchildren. This act, signed by Harry Truman, set forth the National School Lunch program which provided nutritious school lunches at reduced or no cost to students who qualified for subsidies ("Richard B. Russell", 1946). While the Richard B. Russell National School Lunch Act supports the health and well-being of the nation's children, this policy lacks measures that could strengthen its intent.

Hayes Valley Farm. Photo: Chloe Weiller

A typical school lunch looked different in 1946 from what a standard school lunch looks like today. According to the United States Department of Agriculture Food and Nutrition Service (2010), an average meal used to consist of items that we would recognize as whole foods such as 2 ounces of protein such as: poultry, cheese, canned fish; ¾ of a cup of canned or raw vegetables; whole-grain bread; and whole milk. A standard school lunch today, consists of breaded and fried chicken nuggets, french fries, corn-syrup laden applesauce and milk or soda. This is not the healthy and nutritious school lunch that Richard B. Russell had in mind when he spearheaded the National School Lunch Program.

Times are changing as we enter a period where there is growing concern in the public and private sphere about the nutritional value of school lunch. In 1946, the idea behind school lunch was to provide much needed calories and nourishment to a population whose only solid meal might be gleaned from a school lunch. Today, the typical unhealthy school lunch is contributing to the epidemic of childhood obesity and its related health problems such as Type 2 diabetes, heart disease and high blood pressure (SFUSD Student Nutrition and Physical Activity Committee, 2010). Many school children rely on schools to provide two meals (breakfast and lunch) thereby compounding the exposure to unhealthy and empty-calorie meals while increasing the risk for obesity.

According to Haskins (2005), many children who rely on subsidized school meals fall into one of two categories: very low income or low-income. In addition to the financial challenges of children growing up in low-income families, poor nutrition impacts childhood development; a child's ability to perform well in school as well as their ability to function successfully in other areas of their lives is influenced by proper nutrition. Alarmed stakeholders from parents, politicians,

educators, corporate food processors and distributors to farmers are now faced with the task of addressing this problem. However, due to their competing interests and the $9.5 billion dollar a year business that school breakfast and lunch has become, change is hard to come by.

Stakeholders

Haskins (2005) also states that school lunch is the second most expensive federal food program besides the $27 billion annual food stamps program. The multi-billion dollar school lunch business has numerous stakeholders such as: teachers, administrators, school nutritionists and food-service staff--who work in the interest of the schools and are represented by groups like the School Nutrition Association and the National School Boards Association. NSBA lobbies to "keep federal mandates to a minimum" (Haskins, 2005) while lobbying to increase funding. The stakeholders in the food and beverage industry are corporations such as Tyson and Archer Daniels Midland whose various lobbying arms are the food processors, distributors, service management companies, soft drink makers and agricultural industries. The mission for the agricultural industry is to "ensure that the government buys food products from its members and keeps schools open to vending machines and a la carte offerings in the school cafeteria" (Haskins, 2005). Finally, there are groups such as the Food Research Action Center and the Center on Budget and Policy Priorities who represent food advocacy and nutrition groups that lobby in the children's interest.

Evaluation Criteria

The policy goals and objectives set to serve the SFUSD were threefold: offer fresh local fruits and vegetables, maintain a manageable budget and promote healthy childhood nutrition habits. The evaluation criteria used to examine the alternatives included analysis of efficiency, effectiveness, equity, implementation and acceptability. As with most public policy, efficiency is a large concern when deciding what program to implement. It is important to examine the costs of each program and decide whether it is practical and fits within the constraints of the client's budget. At the same time no matter how reasonable a program is, if it is not effective in promoting children's healthy habits and improving their nutrition, then we should look at supporting a different program.

San Francisco is comprised of many different neighborhoods with a diversity of people and a wide range of household income. In order to provide the best program for all K-12 students in the San Francisco Unified School District, we have to make sure that the proposed program is equitable for all. It must serve both low and high income schools, but this might require giving low income schools more funding. The SFUSD's mission statement is "to provide each student with an equal opportunity to succeed by promoting intellectual growth, creativity, self-discipline, cultural and linguistic sensitivity, democratic responsibility, economic competence, and physical and mental health so that each student can achieve his or her maximum potential" (SFUSD Student Nutrition and Physical Activity Committee, 2007). The proposed programs must support this mission statement and have realistic goals when implementing the program, especially when considering the SFUSD's current limitations of staff, teachers and cafeteria facilities. The evaluation process must examine whether the program is practical and acceptable to stakeholders such as parents, teachers, school staff, corporations, distributors and politicians.

Alternatives

Some of the limitations identified during our research were the few number of evaluations conducted on the farms to school programs. In addition, due to the programs' inherent geographic specificity, all of the evaluations available to us contained unique sets of variables, which made comparing these programs challenging. We also found that a large number of school districts nationwide used food distribution companies such as Sysco Systems or participated in the Department of Defense Fresh Fruit and Vegetables Program. Participation in these programs make quantifying purchase prices and verifying the amount of local foods purchased complicated.

Despite these limitations, we were able to locate successful farm to school programs and identify several examples of best practices. Examples include the Vermont Food Education Every Day (FEED) program, Santa Monica-Malibu California Unified School District, Berkeley Unified School District, Ventura Unified, the cities of Davis and Winters, California (referred to as Yolo County), and North Carolina. These programs were selected because many of them have been implemented throughout California and have established sound policy practices or have components in their school food nutrition policies that are similar to those of SFUSD.

Identification of policy alternatives came from evaluating several different models of the farms to school program. One of the policy alternatives was to examine the current state of affairs or status quo of the SFUSD nutrition program. The status quo scenario is no longer viable for SFUSD due to regulations contained in the 1997 Sustainability Plan of San Francisco. "As part of the plan's chapter on food and agriculture, one objective stipulated that by the year 2002, 25% of all produce purchased by government institutions, schools, restaurants, and other food-related establishments would come from sustainable Bay Area

Hayes Valley Farm. Photo: Chloe Weiller

sources, while at least 70% of the rest would be acquired from other California sources"(SF Farm, 2003). Therefore, research focused on the feasibility of implementing the five major components contained within the Farms to School program. These five components consist of: improving school lunches using fresh produce sourced from local growers, school gardens where children obtain hands-on experience in growing food, field trips to local farms and classroom visits from food producers. The fifth component combines all of these elements into a nutritional curriculum. Children learn strategies to make healthier choices as well as learning proper waste reduction, composting, and recycling methods. These five components offer flexibility in implementation for the farms to school program, can be implemented individually, thus increasing the economic feasibility of the farms to school program.

Indeed, many of the farms to school programs are economically feasible. Statistics gathered from the Vermont FEED program show that food costs were reduced by an average of $0.10 per meal. Food costs for the locally grown salad bar were $0.77 per meal compared to $0.88 per hot meal (Stewart, 2004). Schools in Yolo County, California, reported an increase in revenue based on the rate of student participation in the fresh fruits and vegetable salad bar. Similarly, Ventura Unified School District transformed a "$231,000 deficit to $80,000 in revenue during the first year of the Healthy Schools Project" (Rimkus, 2004). Additionally, farms to school programs "generated an additional $289,000 in sales for local farmers in 2002" (Rimkus, 2004).

Evidence concerning the overall effectiveness in promoting healthy childhood nutrition habits indicates that children consumed on average .99 to 1.3 more servings of fruits and vegetables per day through the Farms to School program. Santa Monica-Malibu Unified achieved a 500% increase in student participation in the local salad bar over a three-year period (Joshi, 2009). Similarly, in Yolo County, children consumed three times more fruit and vegetables when participating in the farms to school program. Farm to school programs demonstrate a high rate of effectiveness in promoting healthy eating habits.

Assessing equity for the Farms to School program was challenging due to the lack of data available. The University of Vermont conducted a study that analyzed "the correlation between socioeconomic makeup of schools, their likelihood to purchase local foods and how much they spent on local foods" (King et al., 2009). Their research found that the percentage of local foods purchased by high and low-income schools was respectively similar, 74% for low-income schools and 70% for high-income schools. "This means that lower income students may have equitable access to fresh, locally produced food, when compared to higher income students" (Ibid.). Although the percentage of local foods purchased by high and low-income schools was similar, we have yet to locate any empirical evidence that supports the claim to equity.

Recommendations

Based on our findings we recommend the San Francisco Unified School District implement the Farms to School Program. It is consistent with the goals and evaluation criteria established and is flexible, allowing multiple options for implementation. Increasing nutritional food choices "provides each student with an equal opportunity to succeed" (SFUSD, 2007) and meets the needs of our diverse community of students. Further recommendations would be to conduct additional cost analysis of the five steps of the program and to construct implementation guidelines.

San Francisco sits in an abundantly fertile region with a yearlong growing season. This provides an opportunity to enjoy fresh local produce to residents and students. By implementing the Farms to School program, SFUSD can significantly improve the nutritional quality of food choices offered to its students and support local agriculture.

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Navigating the New Fortress

Skateboarding's Constant Answers to an Exclusionary Urban Environment

Will Heywood

Few things are more contested than land-use in an urban environment, even more so in San Francisco. Who rightfully owns it? What can be put there? Who can use it? These are but a handful of the seemingly unending questions that surround debates about urban spaces. One ongoing clash is between skateboarders and city designers. Author Will Heywood's article peers through the lens of both sides. He explores the often misunderstood and vilified relationship between skateboarders and the urban environment all while highlighting the struggle urban designers face when trying to prevent the destruction skateboarding can cause. The article is relevant amidst the current re-envisioning of spaces, particularly neglected ones, that is taking place in cities around the world. As spaces become reconsidered, perhaps so too will peoples' concepts of skateboarding.

Photo: Chris Grady

Introduction

San Francisco, like New York and Los Angeles, is a popular urban destination for skateboarders around the world. Nationally, the street skateboarding boom occurred in the 1980s due to the evolution of the skateboard itself. New technology made it possible to hop up and grind benches, jump down stairs, and slide down hand-railings, which removed the activity from empty swimming pools where it originated (Howell, 2008). Ultimately, being "concrete jungles", the built environment of cities provides the perfect setting for skateboarders to perform their maneuvers.

Three decades of skateboarding has produced physical and social stresses on the urban environment. Skateboard tricks left chipped cement benches and paint-marks on handrails. Cities responded to this damage with defensive architecture. This new form of landscape architecture intended to prevent skateboarding by attaching obstacles along skateable surfaces (Howell, 2001). Street skateboarders are not easily deterred by these techniques. Due to the counter-culture nature of street skating, skaters find ways to utilize defensive architecture to their advantage and adapt to new environments (Borden, 2001). In addition, city officials and planners built skateparks to ease tension among skaters, property owners, and urban designers. These well-intended parks gave skaters their own dedicated space away from city streets but, due to poor design and location, they failed to attract street skaters. Ironically, skaters often take it upon themselves to create rogue skateparks in neglected areas of a city. They seek out a place that is right for them. This is the inherent nature of a skateboarder.

San Francisco skateboarders have a complex tug-of-war relationship with the urban landscape and city politics. Defensive design tactics backfire, urban policies are confusing, policy enforcement is inconsistent, and parks meant to appeal to skaters are in vain. With so many obstacles placed in front of both skateboarders and those who attempt to deter skateboarding, skateboarders still find a way to utilize the urban environment.

"Skate & Destroy": A Brief Ethnography of Skateboarders

Since skateboarding is a relatively new trend, laws pertaining to it are unrealistic. San Francisco's Traffic Code, Section 5, Article 100 states:

> Skateboarding is prohibited on any city street at any time, on any sidewalk in any business district at any time, and on any non-business district sidewalk commencing 30 minutes after sunset and ending 30 minutes before sunrise.

This law's all-encompassing nature creates enforcement problems for the San Francisco Police Department. Since they also deal with pressing urban issues of violent and drug related crime, busting skateboarders is a low priority. The driving force behind anti-skateboarding laws is the property damage that skateboarding causes (Howell, 2008). Skateboard maneuvers on benches, handrails, and stairs leave behind paint from underneath the board, chip away concrete, and leave a black layer of wax on the edges of obstacles. Although there are no statistics compiled that assess the monetary value of public and private damage done by skateboarders, the city of San Francisco has acknowledged that the subject is worthy of a report, as San Francisco Supervisor Ross Mirkarimi claimed in 2008, stating the city is still "composing those figures" (SF Weekly, 2008).

Photo: Bram De Martelaere

Photo: Bram De Martelaere

Skateboarders do not skate because they like to break the law, but what may be appealing is the culture of skateboarding itself that highlights the image of reckless abandonment. The motto of *Thrasher*, a San Francisco-based and world-renowned skateboard magazine, is "Skate & Destroy". Along with this motto, *Thrasher* associates its publication with local graffiti artists and punk music bands, thereby completely embracing the rebel persona of skateboarding. In effect, young skateboarders who idolize the content of *Thrasher* can be influenced and encouraged by its motto to "Skate & Destroy" when they skate, and this obviously leads to property damage. Ocean Howell, a former professional skateboarder and Assistant Professor of History and Architectural History at University of Oregon, summarizes the "Skate & Destroy" theme and overall attitude of skateboarders: "skateboarders consider what they do an art form, they also recognize that skating on street furniture is destructive, but don't feel too troubled by that fact" (Howell, 2001). In other words, while skateboarders knowingly damage property, they find it hard to admit that the harm is something for which they should be apologetic.

Property Damage and Defensive Architecture

Property damage caused by skateboarding produced a new realm of landscape architecture and design called defensive architecture (Howell, 2001). A common form of defensive architecture places metal clips on the edges of benches, planters and other obstacles a skateboarder uses. In the skateboarding community the clips are referred to as "pig ears" or "Nazi knobs" (Howell, 2001; Pulley, 2005). Since enforcement of the skateboarding law in San Francisco is nearly non-existent, defensive architecture is necessary if the city is to have any hope of reducing the amount of property damage.

To get more insight on defensive architecture, a series of interviews with people directly involved with the design process were conducted. The first interview was with Dan Hodapp, Senior Waterfront Planner for the Port of San Francisco. Hodapp seemed to be satisfied that San Francisco has designed a relatively aesthetically pleasing environment, while simultaneously deterring skateboarding on city property. He did mention certain segments along the Embarcadero exhibited a "fortress" feel and that a better job could have been done, as far as the design is concerned (D. Hodapp, personal communication, Sept. 29, 2010). One specific example he cited was San Francisco's Ribbon of Light, located just south of the Embarcadero, an area where long concrete benches are covered with metal clips that make it unwelcoming to even sit down. Mark Brodeur, Landscape Architect and Urban Revitalization Specialist for PMC, a nationwide planning firm, also provided some insights into the process of defensive design. In discussing the decision to incorporate defensive designs, Brodeur explained that "the City expects that as designers, we account for all types of destructive urban behavior. Whether it is street crime, graffiti tagging, or destructive skating, they expect that we think of those things in our designs" (M. Brodeur, personal communication, Sept. 30, 2010). When asked if anti-skateboarding design elements compromised a more aesthetically pleasing landscape he responded, "Absolutely. But so does ADA handicapped compliance, 'crime prevention through environmental design', graffiti control...all of these take a toll on the aesthetics of public space design. They are just a fact of life that we have all had to accept as part of our designs. I see the little metal bumps or tags on the edges of benches, around low walls, purposely bumpy aggregate used in sidewalks...all designed to stop the destruction of public property" (Ibid.). These responses from people directly involved in the design process suggest that skateboarding damage is inevitable and will continue to be a part of city life.

Despite defensive architecture, skateboarders adapt to their environment. Skateboarders see defensive tactics as a new challenge and a new way to practice their craft. For example, Roma Ferry Plaza, across from the Ferry Building in downtown San Francisco, implemented multiple anti-skateboarding elements in its design such as cobblestones and the strategic removal of benches. Not only were the tactics unsuccessful, but San Francisco skaters refer to Roma Plaza as "Skater Island" because it is a favorite spot to practice tricks.

To add more irony to San Francisco's skate culture, in the 1980s the epicenter of the city's skateboarding boom took place along the Embarcadero at Justin Herman Plaza (Howell, 2001). Named after the former head of the San Francisco Redevelopment Agency in the 1960s, Justin Herman was a controversial figure known for implementing urban renewal projects that displaced thousands of African American and Hispanic residents from their homes in the Western Addition and Mission neighborhoods (Hartman, 2002). Years after Herman's death in 1971, the Plaza became a landmark within the skateboard community (Hartman, 2002), which "no doubt…would have infuriated Herman to learn that he had unwittingly created a whole new urban pathology" (Howell, 2001). The original Justin Herman Plaza was torn down, reconstructed, and skateboard-proofed.

"Public" Space

Although skateboarding in most places in San Francisco is illegal and the craft causes property damage, the presence of skaters in public spaces is controversial for other reasons. First, once a specific subset of the population is forbidden to use public space, the space is no longer public. It is exclusionary and the utility of space is controlled by those who develop and maintain the space. Second, skateboarding can make spaces safer and more accessible to the public. According to author and famous urban planning critic Jane Jacobs, safe public spaces should "have eyes on them as continuously as possible" (Jacobs, 1961). This point is illustrated in the issue surrounding the Alcoa building in the heart of San Francisco's Financial District. According to Ocean Howell, this building was known as "Hubba Hideout"– hubba being slang for drugs. "When skateboarders claimed the place they actually made it safer" (Howell, 2001). Eventually Hubba Hideout fell victim to the practice of defensive architecture and destroyed its "self-regulating potential" (Howell, 2001). Ultimately if a group of non-violent, young men inhabit an area and participate in relatively harmless activities, people should feel comfortable to enjoy the space, but whether they mind skateboarders is an issue of personal preference.

"Please Learn How to Build a Park": The City's Attempt to Contain Skateboarding

Both skateboarders and city planners attempt to integrate skateboarding into the urban fabric, but each has their own approaches and solutions. From inven-

Crocker Amazon Skatepark. Photo: Louie Jones

tive solutions such as a city-funded and developed skatepark to skateboarders constructing their own skateparks from scratch on neglected plots of land, attempts by both parties have seen success and failure. This begs the question, is there a viable way to incorporate skateboarding into the public realm?

Despite signs demanding 'No Skateboarding', the constant watch of private security guards, and defensive architecture, the City of San Francisco has shown signs of support for skateboarding. In 2000, the City of San Francisco constructed a 30 foot by 10 foot skateboard park with an estimated cost of $500,000 in the Outer Mission/Excelsior district (Garcia, 2000). Although this gesture was an indication that the City was trying accommodate a segment of the population, it was immediately greeted with disdain by the skateboard community. Even before the skatepark was open, someone spray-painted a happy face along one the ramps with the words, "Thanks construction guys, please learn how to build a park" (Garcia, 2000). While the skateboard community may have shot themselves in the foot with that move, it got their message across: for half a million dollars, this facility was not adequately or realistically designed for their needs. Furthermore, for a solution meant to alleviate illegal skateboarding in San Francisco, it was obvious the City did not put forth its best effort in planning this skatepark. The park is located in one of San Francisco's more unattractive, inaccessible neighborhoods with very few services. Although the poor planning of the park demonstrated that skateboarders were not a high priority to the City, its construction was a step forward in recognizing San Francisco's skateboard community.

Further recognition came in 2008 with the construction of a new 100,000 square foot skatepark in San Francisco's Potrero Hill neighborhood (Jones, 2005). Part of an existing 4.5 acre park, Supervisor Tom Ammiano lobbied for upgrades to the park's facilities, one of those being a new skatepark, which was eventually granted with $1.3 million in funding (Jones, 2005). The skateboard facility in Potrero Hill was better received than the original skatepark in the Outer Mission, but the unfortunate reality for the City is that skateparks do little to relieve the problems skateboarding causes.

Skateboarders cannot be confined within designated areas. To them, streets are more of a playground than the actual skatepark. When asked about using the Potrero Hill skateboard park, skateboarder Travis Jensen stated:

"I just like being out and being a part of the chaos in the streets. It just feels good to be out like that, especially in San Francisco. Parks are fun for practice, but even if there's 500 parks I'm still going to street skate." (Long, 2008)

Successful skateparks must be treated as regular parks, not as areas that accommodate delinquents. Like all successful parks, the location of a skatepark should be an area that "mingles everyday diversity of uses and users" (Jacobs, 1961), meaning parks should be used at all times of day by all types of people. The skateparks in San Francisco have failed in this way; they are located in fringe neighborhoods with few services and lack access to public transportation.

Do-It-Yourself Urbanism: A Place to Call Their Own

Providing skateboard parks is the city's solution to appease the skateboarding community, but it is hard for designers and planners to see the facility through the eyes of skateboarders. Therefore, when skaters see the anti-skateboard environment placed in front of them, they make it pro-skateboard. They achieve this several ways. One method is to remove "pig ears" from benches to restore a smooth skating surface. Despite being an act of vandalism, many skateboarders do this with a clean conscience.

While vandalizing property is not the noblest means of practicing the craft, skateboarders find productive ways to use the urban environment as their playground. Ambitious skateboarders take neglected space, often under bridges, and construct their own skateboard parks without permission or initiative from city agencies. Despite their illegality, informal skateparks garner mostly positive attention from the community. Along with providing a public service for free, informal skateparks are typically built with recycled materials from construction sites, which adds to public appeal.

In some instances, informal skateparks become formal. Oakland, California's Bordertown Park, built on neglected Caltrans property, is a prime example of an illegally built skateboard park (Caltrans, 2005). The park gained attention when demolition was scheduled and then halted due to lobbying from the skateboard community, local politicians, city planners, community members, and California Senator Barbara Boxer (Zamora, 2005). Senator Boxer publically stated,

"I am pleased to join the coalition to save Bordertown skatepark, which has been so painstakingly built by young volunteers... I know that demolishing this recreational site can only do harm to the community, which, like many of our communities, lacks adequate activities for our youth"

(Zamora, 2005).

Photo: Bram De Martelaere

In 2005 Caltrans agreed to lease the property to the City of Oakland on the condition that the City of Oakland and the skateboard community raise 2.5 million dollars for liability insurance coverage (Caltrans, 2005). By 2011, Bordertown skatepark remained at 34th and Louise Street in Oakland. While 2.5 million dollars was never raised, skateboarders still use the park despite the barbed-wire fences surrounding the skatepark and California Highway Patrol officers on-site issuing trespassing citations (Kerr, 2010).

The Bordertown skatepark is an example of local authorities recognizing efforts made by the skateboard community to provide themselves with a place they can call their own. Despite the difficulties involved with legitimizing illegal structures, it is hard not to admire the dedication skateboarders have for their craft.

Conclusion

In spite of authoritarian attempts to contain skateboarding through defensive architecture or segregated skateparks, skateboarders leave policy-makers and planners puzzled. Skateboard culture regards outside attempts to deter or accommodate their sport as futile. The "Skate & Destroy" attitude of the street skateboarding community is a paradox of the urban environment—it relies on the same architecture it damages. Ironically, urban theory suggests that skateboarding does not impact cities as negatively as people perceive. Skateboarding culture can turn blighted areas and neglected space into useful and safe destinations. Instead, the utilization of defensive architecture and segregated skateparks gives urban dwellers the impression that skateboarding is a pathology of the built environment, rather than an urban activity.

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Photo: Jeff Masamori

Worlds Apart

Transportation Lessons from Copenhagen, Denmark

Tyler Evje

As the issues of climate change and sustainability gain global attention, it is undeniable that San Francisco is spearheading the Bay Area's move toward becoming an environmentally sound superpower. Today, urban planners must find ecological and equitable alternatives to combat problems surrounding transportation and development in an effort to decrease an ever-growing dependence on automobiles. In this piece, author Tyler Evje explores how one city in Denmark is making big changes that are beginning to resonate here in the city by the bay. We take a journey with the author as he explores the history and geography of urban regions followed by an in-depth analysis of the best practices in transportation planning that gave birth to a bike-friendly Copenhagen. Through a thorough comparison and analysis of the current policy in place in both San Francisco and Copenhagen, we are moved to take an introspective look at how thinking globally can lead to changes locally.

Abstract

This paper discusses the characteristics of the Copenhagen and Danish transportation systems, with emphasis given to the Danish capital. It begins with a brief outline of Danish geography and demographics. After that a consideration of development history and growth patterns are discussed. After development, four specific modes of transportation are outlined in detail: bus, commuter rail, subway and cycling. Towards the end, the taxation, finance, governmental and political contexts unique to Denmark are evaluated for their relevance. The paper ends with a short list of recommended actions that San Francisco and the Bay Area could draw on and implement in their own jurisdictions – not the least of which is that the Bay Area must have a united vision about how to finance, plan and accommodate for all future growth in the region. Without agreement on these vital issues, the Bay Area will continue to suffer the pitfalls of a piecemeal and disparate approach to governance which will imperil more than just the state of transportation.

Introduction

It has been well documented that getting around in the Danish capital of Copenhagen is easy and pleasurable. Long famous for being at the forefront of bicycle planning, Copenhagen boasts enviable percentages of its populace that travel by bicycle. However, Copenhagen also deserves recognition for cleverly utilizing other modes of transportation to reduce reliance on the motor vehicle. This well-rounded system is hardly the exclusive achievement of a handful of activists or transportation planners. Rather, its geography, politics, economics and culture have also shaped the way Danes get around their cities and in between them. Indeed, it seems that the policies of the welfare state – so ubiquitous throughout northern Europe – have been the key instruments in promoting and financing diverse modal splits and an excellent quality of life in both Copenhagen and throughout Denmark.

Geography and Demographics

The country of Denmark is a small Scandinavian country with unique geography. The majority of Denmark's land mass consists of a large peninsula known as Jutland. The remainder is found on an archipelago of over 400 islands that stretches from the eastern shores of Jutland to the southern tip of Sweden about 150 miles to the east. Denmark as a whole is just over 16,000 mi² (CIA, 2010). For comparison, the land mass of California is about 163,000 mi², or approximately ten times the size of Denmark.

Copenhagen, the capital city of Denmark, is found on two of these far-flung eastern islands: Zealand and Amager. A series of canals and small waterways form where the Zealand and Amager islands meet. In past centuries, these natural havens have provided a safe harbor for sailors and merchants traveling between the North and Baltic Seas. Basic settlements appeared near these harbors that eventually evolved into medieval Copenhagen.

The Copenhagen metropolitan area is now home to about 1.9 million people and covers approximately 1,170 mi2 (Hovedstaten Regional Council, 2008). The Bay Area, meanwhile, has approximately 7 million inhabitants and covers close to 8,000 mi².

Table 1: **Geographic and demographic data for various geographies**

	DENMARK			UNITED STATES			
	Country	*CPH Met Area*	*CPH City Proper*	*Country*	*California*	*SF Bay Area*	*SF Proper*
LAND (SQ MI)	16,000	1,170	34	3,500,000	163,000	8,000	49
POPULATION (2010)	5,500,000	1,900,000	520,000	310,000,000	37,000,000	7,000,000	800,000
DENSITY (PPL/SQ MI)	343.8	1624	15294	88.6	227	875	16326.5
INCOME (PER PERSON, 2008)	48,000 (CIA: 35K in 2009)	54,000	47,980	47,000 (CIA: 46K in 2009)	30,500	32,826	32,500

The actual municipality of Copenhagen has 520,000 people in 34 mi² (City of Copenhagen, 2010; Statistikbanken, 2010). The city of San Francisco, for comparison, has about 800,000 people over 49 mi². The table above includes the statistics mentioned above as well as calculations for the densities and income of each geography mentioned.

The densities between the cities of Copenhagen and San Francisco are very similar, between 15,000 and 16,000 persons per square mile. More notable differences in density can be found between the metropolitan regions, as the Copenhagen region has about twice as many people per square mile (1,624) as the Bay Area (875).

Urban Development

As with most modern industrialized countries, Denmark grew and expanded along motorways and other transportation infrastructure in the decades following World War II. This is best expressed by looking at the population statistics for Copenhagen, its metropolitan area and Denmark as a whole in the figures at right in Table 2, which notes absolute population in Copenhagen and Denmark from 1801-2010.

Note that Copenhagen reached a peak population of 768,000 people in 1950, just after World War II. In the subsequent decades, Copenhagen lost residents at noteworthy rates while surrounding municipalities added residents steadily (Matthiessen, 1980).

Like many American cities after World War II, Copenhagen experienced rapid inner-city population loss while the rest of the country grew steadily. This decentralization of Copenhagen was most visible in the municipalities immediately surrounding it. Thanks to new modes of transport, namely automobile and commuter rail (S-train), people were now able to travel longer distances and with greater ease than ever before. Comparable population trends in San Francisco and the Bay Area during the same times are available in the appendix.

Rises in auto ownership were facilitated by discoveries of large oil and gas reserves in the North Sea. As Denmark exploited its endowment of fossil fuels, road building became a top priority. Highway systems like the well-known 'H' motorway layout were constructed to accommodate more motor vehicles.

Perhaps more importantly, though, was the "Finger Plan" created by Danish urban planners in the 1940s (Danish Ministry of Foreign Affairs, 2008; Matthies-

Table 2: **Population:** Copenhagen and Denmark, 1801 - 2010

	COPENHAGEN	DENMARK		COPENHAGEN	DENMARK
1801	100,975	929,001	*1990*	466,723	5,135,409
1840	120,819	1,289,075	*2000*	495,699	5,330,020
1880	234,850	1,969,039	*2001*	499,140	5,349,212
1901	400,576	2,445,540	*2002*	500,531	5,368,354
1910	453,576	2,721,800	*2003*	501,285	5,383,507
1920	556,944	3,061,300	*2004*	501,664	5,397,640
1930	608,649	3,550,656	*2005*	502,362	5,411,405
1940	700,465	3,844,312	*2006*	501,158	5,427,459
1950	768,105	4,281,275	*2007*	503,699	5,447,084
1960	721,381	4,585,256	*2008*	509,861	5,475,791
1970	622,773	4,937,579	*2009*	518,574	5,511,451
1980	498,850	5,122,065	*2010*	528,208	5,534,738

Source: Statistics Copenhagen City and Statistics Denmark

sen, 1980). The Finger Plan was designed to accommodate future growth in the Copenhagen metropolitan region along five corridors (the fingers) stretching radially out from the old city center (the palm). New development loosely conformed around the S-train commuter railways and new highways that were under construction at about the same time. The undeveloped land between the fingers was intended to be green areas for open space and agriculture. Over the decades, new fingers, stubs of new fingers and other urban growth patterns have filled in previously unoccupied spaces to create a slightly more blurred image, but the fundamental shape is still visible today. This history of urban development is very important to consider when we examine the state of transportation. The processes of urbanization, suburbanization, centrifugal growth and other factors are fundamental to understanding the differences between Copenhagen and the Bay Area.

Automobility and Road Building

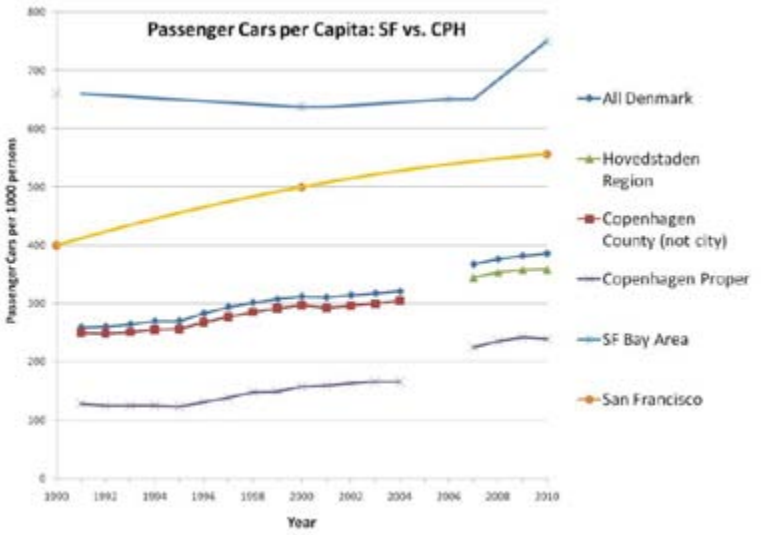
While suburbanization was very common throughout the post war decades in Copenhagen, rates of auto ownership did not skyrocket as they did in the U.S. or the Bay Area. This was mostly due to the fact that alternate forms of transportation were not wholly dismantled like in the U.S. A variety of options remained for inner city and intra city travel, most notably rail and bicycling, which will be discussed later. The differences in per capita auto ownership rates between Copenhagen and its environs and here in the Bay Area is expressed in Figure 1.

At the top, representing the highest rate of auto ownership, is the San Francisco Bay Area. The City and County of San Francisco follows a few hundred cars lower and then the Danish levels of national, regional and municipal follow in that order. Breaks in data are due to the various sources used to compile this graph.

Transportation

In comparing transportation systems between two geographic areas, accurate analysis often relies on comparing the share of total trips taken by a certain mode of transportation. Known as a modal split, it can incorporate any mode of transportation into its calculation. In the appendix, Tables 3 and 4 detail national and regional mode splits between Denmark and the U.S., as well as the Copenhagen Metropolitan Area and the San Francisco Bay Area. While many observations can be made about the data, for the most part there is little differentiation

Figure 1: Per capita passenger car ownership in San Francisco, Copenhagen, and environs: 1990-2010



Sources: MTC, Statistikbanken, City of Copenhagen

Table 5: **Municipal Modal Splits:** Copenhagen and San Francisco

	Nelson & Scholar 2007	*Rohl 2009*	*Torslov 2009*	*SFCTA 2000*
	TOTAL TRIPS	TOTAL TRIPS	TOTAL TRIPS	TOTAL TRIPS
MOTOR VEHICLE	27%	26%	21%	62%
ALL TRANSIT	33%	29%	13%	17%
BICYCLE	36%	36%	59% Bicycle & Walking	1%*
WALKING	5%	6%		20%
OTHER	–	3%	4%	–

**As of 2008, the cycling split was estimated to be at 6% according to the SFMTA's "State of Cycling" report.*

at these levels of analysis. Not until the city scale is examined do we see real distinctions in the modal splits, as seen in Table 5.

The contrasts are easy to identify: even for a dense and compact city, San Francisco has much higher rates of car use than Copenhagen. The largest disparity is in cycling, as Copenhagen has a minimum of 36% mode share, vastly outpacing San Francisco rates.

Transit Options

While it may be easy to cite cycling as the main reason why driving rates are so different between the two cities, surely transit plays a role in the mode split differences. Bus, commuter rail and metro service all deserve credit for lowering the ratio of trips taken by car.

Within Copenhagen there are three different modes of mass transit: bus, commuter rail (S-train) and metro. The bus provider, Movia, serves not only Copenhagen and its metropolitan area, but it also serves the entire island of Zealand. The commuter rail system extends to Copenhagen's suburbs to the north. At present, the Metro only services Copenhagen proper, its enclosed neighbor Fredericksberg, as well as the airport and municipality of Tarnby to the south on the island of Amager. While the majority of these systems are managed, financed and overseen by various levels of government, for the most part the operation of these various systems is contracted out to the private sector. For comparison, in the Bay Area almost every transit system is owned and operated by public entities, with little delegated out to the private sector outside of some research, planning and environmental analysis. The following paragraphs compare Copenhagen's and the Bay Area's transit systems in more detail.

Bus

Here in the Bay Area, bus service is owned and operated by various transit agencies like AC Transit, Golden Gate Transit, SamTrans and others. These transit agencies often serve a single city or a designated county and are mostly responsible for transit service within their service area. While the transit agencies do communicate with one another, there is little collaborative planning between all of them, as cross-regional transportation is not one of their main goals. For example, while extensive bus service within the jurisdiction of San Francisco may be provided by the San Francisco Municipal Transportation Authority (SFMTA), they give little consideration to a passenger who would like to travel to somewhere outside of MUNI's service area, like Burlingame or Mill Valley. In fact, there is no single bus map for the entire Bay Area. Until online trip planning services like 511.org and Google Transit became available, there wasn't even a way to find out how to travel from one part of the Bay Area to the other unless one wished to subject themself to the laborious process of checking multiple timetables from different agencies. Prior to Clipper–the regional transportation payment card in the Bay Area–there wasn't even a single way to pay for different fares for multiple agencies, as tickets generally aren't transferable between agencies.

In Copenhagen and its surrounding area, things are very different. For example, only one agency, Movia, is responsible for providing bus service not just in Copenhagen and its suburbs, but to the entirety of both eastern regions

Photo: Jeff Masamori

in Denmark: Hovedstaden and Zealand (Movia, 2010). Fares are based on a zone system and they are transferrable to the Copenhagen Metro and commuter rail lines. Unlike a flat rate fare system, the zone system charges passengers for the amount of distance that they travel, so shorter trips are cheaper than longer trips.

In 2008, over 560,000 people boarded a Movia vehicle every day (Movia, 2010), while here in the Bay Area over 800,000 people board a bus run by one of our numerous transit agencies (refer to Table 6 in the appendix for exact boarding statistics). It may seem like the Bay Area has much higher ridership, but population must be considered. As noted in previous sections, the Bay Area is home to about 7 million people. Movia's service area, however, includes approximately 2.4 million people and is spread out over a much larger area (the entire regions of Sjaelland and Hovedstaden), making it less dense and difficult to provide service in. Still, Movia admirably accomplishes the task of providing useful and understandable bus service to a less dense population over a larger geographic area.

Commuter Rail

Copenhagen's commuter rail system, known as the S-train, connects the city's center with various smaller towns in the surrounding area. Construction of the S-train system coincided with the development of the Danish "Fingerplan" in the early half of the 20th century. Rail lines and highways were built as the skeleton of the fingers around which settlements and other growth gradually occurred. This linear placement of small towns along the "fingers" like beads on a string greatly facilitates the S-train's efficiency. Each finger is comprised of two lines, both of which run into the city-centre and then back out along a different finger. A bypass line allows travel between fingers without passing through the city center.

The S-trains are owned and operated by the state-owned rail company, Danske Statsbaner (DSB) (DSB, 2009). They operate national intercity lines, regional suburban lines (S-trains) and some international service. DSB describes itself as a for-profit company, but is in fact owned by the Danish Ministry of Transport (DSB, 2009). For 2009, their revenue exceeded 10.8 billion DKK ($2.02 billion). Roughly 40%-50% of it was generated through "transport contracts" as listed in their 2009 annual report. Since the majority of their "contracts" are presumably with the Danish government, this really translates to government subsidization by the Danish Ministry of Transport.

When we compare the finer details between the commuter rail systems, a number of conclusions can be made. First, the S-train is more compact than both BART and Caltrain, as it serves a smaller population that lives in more compact developments than the Bay Area. BART and Caltrain may both serve downtown cores in San Francisco, Oakland and elsewhere in the Bay Area, but their networks are designed to also serve far flung suburbs and small towns at the farthest edges of what could be considered the Bay Area. The S-train, on the other hand, has more stations in more densely inhabited cities and suburbs, which lets it reach more potential passengers with greater efficiency. Nevertheless, geography does play a role. San Francisco's geography – cut off from surrounding municipalities either by water or mountains – presents a more challenging area to provide transit service then flat Copenhagen.

Table 7: **System characteristics and financial information for S-trains, BART, and Caltrain**

	S-trains	*BART*	*Caltrain*
SYSTEM LENGTH	96 miles	104 miles	77 miles
SERVICE LINES	7 lines	5 lines	1 line
STATIONS	85 stations	43 stations	32 stations
HEADWAYS (PEAK/OFF)	10 | 20	5-10 | 20-30	15 | 60
DAILY RIDERSHIP	Over 300,000	340,000	36,600
BUDGET	$248 mil (2005)	$640 mil (2009)	$90 mil (2009)
FAREBOX RECOVERY	39% FRR	49% FRR	48% FRR
BUDGET/DAILY RIDERSHIP	$826/boarding	$1882/boarding	$2459/boarding

Sources: DSB (2009), BART (2010), Caltrain (2010)

Nowhere is this efficiency more evident than in the daily ridership numbers of each system. Daily boardings on the S-train are comparable to BART, but much more than Caltrain. Even starker differences can be seen in the finances of each system. The S-train has a lower ratio of its operating costs paid by passenger fares (also known as the farebox recovery ratio or FRR) as well as a lower operating budget in general, but it still manages to have almost as many boardings as BART - despite BART's budget of almost twice the amount. Some of the biggest differences can be seen when the budget is divided by the amount of daily boardings. In this case, the S-train is much more cost-efficient than either BART or Caltrain, with about half the budget to boarding ratio of BART.

Metro

Copenhagen's Metro system was originally conceived in the early 1990s as part of the development plan for a large empty swath of land south of the city center on the island of Amager (Metro, 2009). Today, Copenhagen currently has two Metro lines in operation, the M1 and the M2 (Metro, 2010). It has 22 stations, 9 of which are below ground. It runs 24 hours a day with up to 2 minute headways (i.e. frequencies) during peak rush hours and between 15-20 minutes during other times. Construction began in 1996 and despite sometimes vehement outcry from various stakeholders - whose concerns ranged from divided neighborhoods to reduced business - the current two line arrangement opened in phases from 2002 to 2007 (Metro, 2009; Copenhagen Post, 2007).

The San Francisco MUNI metro system differs in many ways. For starters, the San Francisco system is much older, having begun service with current vehicles in 1980. The Copenhagen Metro is also much shorter, has fewer stations and four fewer lines. The biggest contrasts, though, are the service levels. The Copenhagen Metro runs 24 hours a day with 2-20 minute headways at average speeds of about 25mph. Compare to MUNI in Table 8.

Each system has equal numbers of underground stations. However, in many places the MUNI streetcars come to the surface and operate on shared city streets with other traffic. In contrast, the Copenhagen Metro operates on exclusive rights of way (underground, at grade and raised) for its entire length.

Table 8: **Comparison of Metro Systems:** Copenhagen and San Francisco

	CPH Metro	*SF MUNI*
YEAR OPENED	2002-2007	1980
LENGTH	12.7 miles	36.8 miles
LINES	2	6
STATIONS	9 underground, 13 above	9 underground, ? above
HEADWAYS	Every 2 - 20 minutes	Every 7 - 30+ minutes
SERVICE HOURS	24 hours	5am - 1am
AVG. SPEED	25 mph	9.6 mph
RIDERSHIP	130,000	150,000
FRR	90% (2008)	25% (system wide)

The ability to operate service on exclusive rights of way should not be understated. When a transit vehicle can travel unimpeded by other types of traffic in an exclusive lane or on tracks unencumbered by obstacles like vehicles, bikes and pedestrians, transit service improves dramatically. As one could guess, transit service along exclusive rights of way are much more cost-efficient than on shared roads.

All in all, despite its relatively small size, Copenhagen's Metro system was voted as "best in the world" by the MetroRail Conference in London earlier in 2010 (Copenhagen Post Online, 2010).

CityRingen

Copenhagen is actively planning an expansion of Metro service set to open in 2018. A circular track is currently being constructed underneath central Copenhagen. Two new routes will operate in opposing directions and will connect the main train station, the city center, the port and northern portions of Copenhagen (Metro 2010). Known as CityRingen, it will connect with the M1 and M2 lines at two separate stations as well as with the S-trains at numerous stations. The entire project will be underground and is projected to cost approximately $2.8 billion. Ansaldo Breda–the same manufacturer of the light rail vehicles MUNI currently uses in San Francisco–will manufacture and deliver the vehicles as well as be the system operator for the first five years (Wienberg, 2010). In Table 12 of the appendix, a table comparing the CityRingen and the Central Subway here in San Francisco is available.

Bicycling

Of all the available modes of transportation in Copenhagen, however, none have received as much international attention as cycling. Copenhagen boasts one of the highest rates of cycling in the world, with about 36% of work trips taken by bicycle (Rohl, 2009). Among other goals, the City of Copenhagen would like to increase this number to 50% by 2015 (Rohl, 2009).

Geography plays a very important role in the accommodation of cyclists in Copenhagen. Unlike San Francisco, Copenhagen is almost completely flat. In addition, Copenhagen is not separated from its immediate suburbs by bays or hills, as is the case here in the Bay Area. This simple fact greatly facilitates the provision of cycling facilities in the region and should not be forgotten when comparing the two cities.

According to Bicycle Program Director Andreas Rohl (2009), there are approximately 250 miles of separated cycle tracks and bike lanes in the city of Copenhagen. Cycle tracks are very important, as they are more than just a painted and separated bike lane as is more common here in the U.S. A cycle track is physically separated and raised to a different level than the street pavement adjacent to it. While often only a few inches, this physical separation creates an exclusive right-of-way for the cyclist and also increases its profile in the mind of car drivers. Providing this kind of space over such a large swath of city streets is an unprecedented achievement.

San Francisco has done well in trying to keep up. It currently has 208 miles of bike lanes, according to the SFMTA (2010). These bike lanes may not necessarily be physically separated or even striped, according to its own website, but may be a combination of different classes of lanes; from sharrows to lanes painted with bright green paint and lined with protective posts.

Copenhagen also has a system of "greenways" either already constructed or planned for expansion. These greenways are exclusive cycle tracks that are located off of city streets in nature areas, parks, along waterfronts, or in other areas inaccessible to cars. They are intended for recreation but also as bypasses and alternate routes off of city streets (City of Copenhagen, 2002; City of Copenhagen, 2006). Copenhagen has also constructed various bridges over its many canals, waterways and roads that are provided exclusively for cyclists and pedestrians and this further contributes to the extensive cycling network.
Not to be confused with "greenways" is the "green wave". The "green wave" in Copenhagen is a system that allows cyclists to travel unimpeded by stoplights if a certain speed is maintained. Using sensors installed in the pavement of the cycle track, a cyclist traveling at least 12mph over the sensors will activate green lights at upcoming intersections for lengthy portions of their trip. A similar system exists here in San Francisco. Stoplights along Valencia Street are timed to 13 mph, which means that a bicycle traveling at that speed will have a continuous wave of green lights and will never encounter a red. However, this system isn't intuitive like in Copenhagen, where the green wave is actually tripped by sensors in the street.

With such high rates of cycling, bike parking can be an issue in Copenhagen. There are approximately 29,500 bike parking spaces provided on city streets, sidewalks and roadways (City of Copenhagen, 2006). Nevertheless, the City of Copenhagen has admitted that bicycle parking is one area where much improvement could be made, as survey after survey reveals that citizens are still quite unsatisfied and desires ever more bicycle parking (City of Copenhagen, 2006; Rohl, 2009).

Superbly designed and maintained cycling infrastructure is an integral part to a popular and well-used system, but policy and education must play a role as well. Policies and laws that establish codes of conduct for both cyclists and drivers are the best complement to widespread and well-designed cycling infrastructure. Copenhagen has many specific laws regarding cycling. This indicates that

Photo: Jeff Masamori

city transport leaders have deliberately planned and thought out their vision for how cycling should mesh with other modes of transport in their city.
Some examples of cycling policies in Copenhagen:

- Cyclists must follow the same driving rules as motor vehicles.
- No right turns on red lights are permitted, for cars or bicycles.
  Cyclists are allowed to ride in both directions on one-way streets where signage allows.
- Children can ride on footpaths and sidewalks until they are 6 years old.
- Children over age 5 must ride their own bicycle and cannot be a passenger on a bicycle.
- Cycling side by side is permitted unless another cyclist wishes to overtake and pass.
- Mopeds, which are allowed in some cycling right-of-ways, are restricted to speeds of 18 mph or less when on cycling paths.
- At least one hand must be on the handlebars at all times.
- Left turns are only allowed 'indirectly' (aka "the box turn"), by first passing through the intersection while in the far right cycling lane, then stopping and turning left and merging with the new cycling traffic in their cycling lane.
- Cyclists must use hand signals to indicate turns.
- At areas with a bus island in the middle of the street and separated from the sidewalk, bus passengers must wait for bicycles to pass; in areas where bus passengers exit and enter directly onto the cycle tracks, cyclists must yield to the passengers.
- Riding on pedestrian only streets, crosswalks, or the sidewalk is not permitted.
- Lights must be used at night.

Most strikingly of all, though, is the fact that there are no helmet laws in Denmark, not even for younger children (Pucher et al., 2007). This is so striking because it shows that Danes consider helmet use to be a poor substitute for well-designed infrastructure and pro-cycling policy, which can often provide much safer cycling environments than the simple donning of a helmet.

Pucher et al (2007) add that cyclists disobeying traffic laws are more likely to be ticketed than in the U.S. and that it is generally assumed that motorists are legally responsible for most collisions with cyclists unless it can be proven that the cyclist deliberately caused the crash (2007). This makes drivers more aware of their surroundings and more respectful of cyclists while driving.
Furthermore, city policy calls for better accommodating bicycles on public transit. Providing bicycle parking at transit hubs, allowing bicycles on the commuter trains and the metro and other policies help to integrate bicycles into the public transit network (Nelson and Scholar, 2007; Metro, 2010). Some examples include:

- Removing peak period bicycle restrictions on the Metro during the summer months of June, July, and August (Metro, 2010).
- Allowing bicycles on commuter trains in rush hours when travelling in the opposite direction of the main flow of traffic (City of Copenhagen, 2002).

The provision of cycling infrastructure–from parking to timed lights to bike bridges–combined with superb design, cyclist training, driver training and pro-bicycling policy have made Copenhagen a world-class bicycling city.

Taxation, Finance, Governance and Policy

Nevertheless, broad political support for cycling or transit will do little good if it is not complemented by a broad range of other policies. Policies regulating land-use and development are key in ensuring neighborhoods have the right mix of density, uses and amenities conducive to cycling and transit use. Copenhagen certainly holds a reputation for having a well-planned and efficient transportation system. How did it get this way and how does it manage to pay for all these capital investments?

First of all, Denmark is a welfare state where the federal government is the primary party responsible for the economic and social well-being of its citizens. To accomplish this, the total tax burden, (i.e, the total amount of GDP taxed) is about 49% in Denmark, compared to about 28% in the U.S (Danish Ministry of Taxation, 2008). Taxes on gasoline are around $3 per gallon, which is far higher than the $0.18 and $0.46 per gallon that the US and California governments respectively charge (ERF, 2002). Furthermore, Danish taxes on automobile purchases and registration are much higher than in the U.S. Around 25% of the purchase price of a vehicle is added on as value added taxes (VAT) while vehicle registration can run between 105% and 180% of the vehicle, depending on its value (Danish Ministry of Taxation, 2008). Compare this to car registration in California, where normal rates are less than 10% of the purchase price of the vehicle. These very high tax rates usually go to general funds, but much of it is earmarked for transportation improvements and operations. These exorbitant taxes levied on automobiles directly impact how Danes perceive their transportation options. As a citizen, it is very easy to choose transit, cycling, or walking

when driving costs a significant portion of one's income to utilize. Indirectly, these same taxes help influence land-use and parking policy. In Denmark, avoiding low-density sprawl has been a priority for decades. However, gas taxes may be intended to complement high density land use policies, rather than directly create them.

Aside from heavy taxation, many transportation improvements–from bridges to metro lines–are funded by user tolls, fees, and fares. Often a project will use monies from the general fund to finance a local match needed to get a loan or to float a bond, but those loans are usually acquired with the intent of paying them back with the revenue generated from user-collected tolls and fares after construction has been completed. This was the case for the Oresund Bridge–a road and rail link connecting Denmark to Sweden–as well as for the first two Metro lines in Copenhagen (Boye and Molgaard, 2002; Oresundsbron, 2010). In Denmark there is a policy of having the actual user of infrastructure pay for the majority of the capital investment. Compare this to infrastructure investment here in the Bay Area. Some more commonly used mechanisms for financing transportation projects in the U.S. are things like business improvement districts (BIDs), tax increment financing (TIF) and transportation improvement districts (TIDs), as well as passing various sales, parcel, payroll and other taxes to pre-finance a project before it's built. This may result in lower tolls and user fees for the specific piece of infrastructure, but it can also mean that a person or taxpayer who may rarely use the bridge or subway might still pay for a piece of the project.

Another contributor to a well-balanced transportation system is the fact that transit agencies and other entities do not have to be concerned with providing healthcare or pension benefits to their workers. The Danish federal government takes care of this and not only do the funds for these purposes not have to come from transit agencies budgets, but they also don't have to commit funds to the personnel needed to manage these human resource functions either. That frees up funds for actual planning, construction and operations.

As an example, assess how the Copenhagen Metro system was financed in comparison to traditional transit financing in California. The City of Copenhagen and the Danish Ministry of Finance contributed more than half of the capital construction costs from public funds, with the rest coming in the forms of loans to the newly formed Orestad Development Corporation (ODC, a partnership between the cities of Copenhagen, Fredericksberg and the Ministry of Finance). The idea was that the ODC would borrow the remainder of the funds needed for planning and construction. Ideally, all of the debt would be paid back around 2035, mostly from yearly operating profits, land sales and reversion of property tax (Boye and Molgaard, 2002). In many ways this sounds like tax increment financing here in the U.S., except that Metro passengers pay instead of homeowners. The most intriguing part is that–compared to the U.S.–the majority of construction costs were supposed to be paid for by *user fees* (the farebox), while here in California, a county-wide sales tax is often what contributes the bulk of locally provided funds.

As noted in previous sections, substantial portions of the Metro's operating costs are covered with fare revenue. This can be partially attributed to high ridership, but it can also be a testament to Metro's ability to keep costs down. Metro is designed with the intent of keeping the agency as small as possible, with as few permanent employees as possible. There are no drivers, as the Metro vehicles are automated. Metro only has about 200 employees, most of whom are a hybrid fare-inspector and station agent who ride the trains and staff stations in order to provide customer service and inspect proof of fare payment. Other than that, there are very few employees. This means that there are fewer salaries, pensions and health benefits which need to be paid. Moreover, contractors are hired for cleaning, operations and maintenance (Metro, 2010).

Lastly, the structure of government itself is crucial to efficient implementation of any government function. Here in the U.S., government is often vilified for bureaucratic and antiquated procedures whose purposes are often misunderstood or not understood at all. In Denmark, many transit agencies and other government entities are designed to employ as few people as possible. In many cases, actual operations of certain functions are subcontracted out to private transportation companies that bid on contracts to actually operate and provide the transport service. In Denmark, the general policy is that government should be as accessible, democratic and streamlined as possible (Ikuta, 2006; Danish Ministry of Interior and Health, 2006).

These were the reasons behind the municipal reform of 2007 (Ikuta, 2006; Danish Ministry of Interior and Health, 2006). On January 1 of that year, a restructuring of government levels took place. Thirteen counties were consolidated to five regions while 271 cities were whittled down to 98 municipalities. County jurisdiction and functions were dissolved. Regions, which replaced counties, did retain one sole function: to manage the healthcare system in its respective province. All other county responsibilities were given either to the municipalities or to the federal government, most going to the former. These reforms did reach transportation agencies. Movia, the bus system for Copenhagen and its greater region, is a great example. Before the government reform legislation in 2007, bus service as it's now provided by Movia was planned and operated by many separate transit agencies that each covered a smaller individual service area. They still had a standardized payment system, but merging them together is a phenomenal act of democratic response by Denmark, especially since it only took three years to implement the program from inception to completion (Ikuta, 2006; Danish Ministry of Interior and Health, 2006). Planning and building transportation networks for local regions is easier when the levels of government bureaucracy are minimized as much as possible. San Francisco and the Bay Area could do well by emulating these actions.

Recommendations

A number of other lessons could be learned from the Danish experience. First, strictly enforced land-use patterns must be a top priority that complements any and all transportation policy. In San Francisco and in the Bay Area, piecemeal city and regional planning has reduced the landscape to a patchwork of densities and forms, making cohesive transit planning difficult.

One way in which the city of San Francisco could assist in this endeavor would be to maintain its ambitiously low parking requirements for new infill development. San Francisco's planning code stipulates that most new development provide a *maximum* amount of parking per unit. However, every time that the planning commission or board of supervisors caves to flimsily justified condi-

tional use permits requesting higher parking allowances allowing developers to market the units more competitively, San Francisco takes two steps backwards. Still, two step backwards leaves San Francisco far ahead of other municipalities in the Bay Area who still maintain parking minimums for new development.

Second, San Francisco and the Bay Area should facilitate and build as much cycling infrastructure as possible. Complemented with outreach, education and pro-bicycle policy, the region could make cycling a cheap, safe and fast transportation option. This goal should be especially urgent in flatter areas or in areas with very wide roads that could easily allocate space for new bike lanes or cycletracks. A rebranding campaign aimed at changing popular public perception of the bicycle from a recreational toy into a utilitarian and legitimate way of getting around needs to be a top priority.

Third, the use of the automobile must be discouraged and taxed wherever possible. San Francisco cannot do this alone, however and it would need support from other cities, counties, states, and the federal government to universally inflate driving costs. Federal and state increases to the gas tax would be a great start. High occupancy toll (HOT) lanes, congestion pricing and further reduced parking capacities are also necessary to any transit first policy in San Francisco.

Fourth, serious consideration should be given to the study and possibility of transit agency consolidation. A regional transportation agency with actual enforcement powers would be an influential tool in solving myriad problems in the Bay Area. Would a Danish-style reform of government be necessary? Perhaps, but before something so radical could be suggested, maybe a downsizing of current agencies and governments would be in order–if for no other reason than to show voters the seriousness of the problem and the commitment to providing better government services.

Copenhagen and San Francisco are both progressively minded cities, but their geography and political contexts deeply distinguish them when it comes to transportation planning. In the future, San Francisco could overcome hilly and isolated geography to unite the Bay Area in sensible and cohesive transportation planning, but only if the rest of the Bay Area starts to adopt more Danish- and Copenhagen-styled policies towards transit, cycling, automobiles, finance and regionalism. It would appear, then, that the biggest lesson to learn from Copenhagen is not one of planning or finance, but one of governance and consensus. Copenhagen's real distinction from San Francisco and the Bay Area has been the ability to cut through political delusion, uncompromising idealism and the power of special interests. This allows authorities to facilitate sensible dialogue where the highest shared value is how to create as much good for as many people as possible across the entire region. Learning how to create dialogue, unity and shared vision will be the first and most important step in the Bay Area.

Appendix

Figure 3: Population Trends: Copenhagen and San Francisco

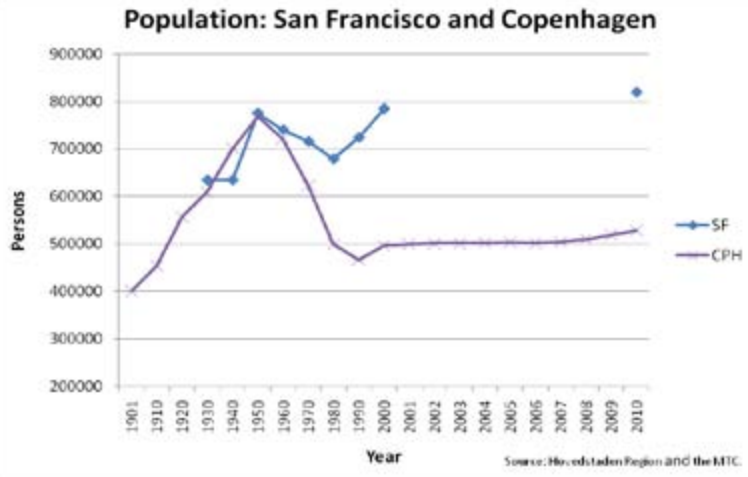


Figure 4: Population Trends: Copenhagen Region and the San Francisco Bay Area

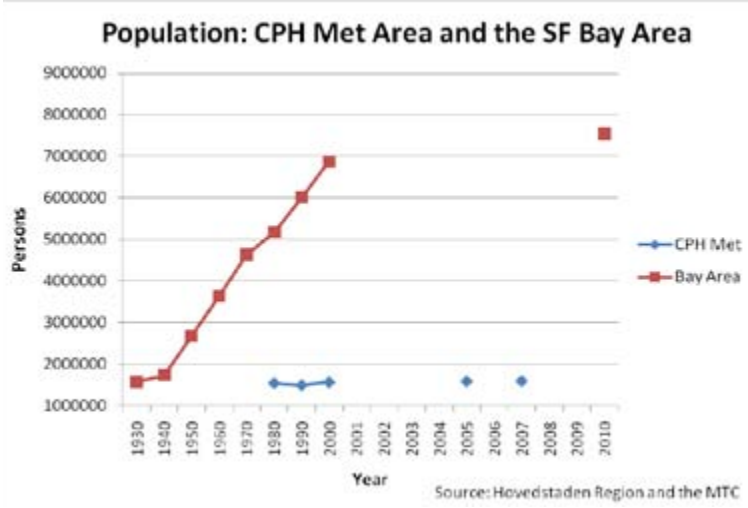


Table 3: **Modal splits:** Denmark and the U.S.A.

UNIT:	*Danish Ministry of Foreign Affairs (2007)* PASSENGER MILE	*EU Road Federation (2007)* TOTAL MILES	*Danish Statistikbanken (2008)* PASSENGER MILE	*US DOT (2006)* PASSENGER MILE
MOTOR VEHICLE	77%	79.5%	81.3%	97%
BUS/COACH	12%	11.5%	8.5%	3.36%
TRAIN	7%	8%	7.5%	.007% **
BICYCLE	3%	.2% *	2.7%	Not Collected
WALKING	Not Collected	Not Collected	Not Collected	Not Collected

**Including all motorized two wheelers*
***Includes heavy, light, commuter, and intercity rail (Amtrak)*

Table 4: **Regional Modal Splits:** Hovedstaten and the SF Bay Area

	Hovedstaten Region (2008) NO UNIT GIVEN	*SF Bay Area MTC (2006)* TOTAL TRIPS
MOTOR VEHICLE	82%	87.3%
TRANSIT	n/a	5.5%
BICYCLE	21%	1.5%
WALKING	n/a	9.3%

Table 6: **Daily Bus Boardings:** San Francisco Bay Area Transit Agencies

DATA YEAR	AGENCY	DAILY BOARDINGS
2006	*MUNI (bus only)*	473,000
2007	*AC Transit*	184,000
2007	*Golden Gate Transit*	25,000
2007	*SamTrans*	41,000
2008	*Santa Clara VTA*	90,000
	TOTALS:	***813,000***

Sources: MTC, 2009; MUNI, 2010; Santa Clara VTA, 2009.

Table 12: **Back of the Envelope Subway Project Comparison:** Copenhagen and San Francisco

	CITYRINGEN	THE CENTRAL SUBWAY
PROJECTED COST	*$2.8 billion*	$1.578 billion
LENGTH	*9.3 miles*	1.7 miles
COST PER MILE	*$301 million/mile*	$928 million/mile
EXPECTED NEW RIDERS	*130k in 2018*	65k in 2030

Sources: Metro, 2010; SFMTA, 2009.

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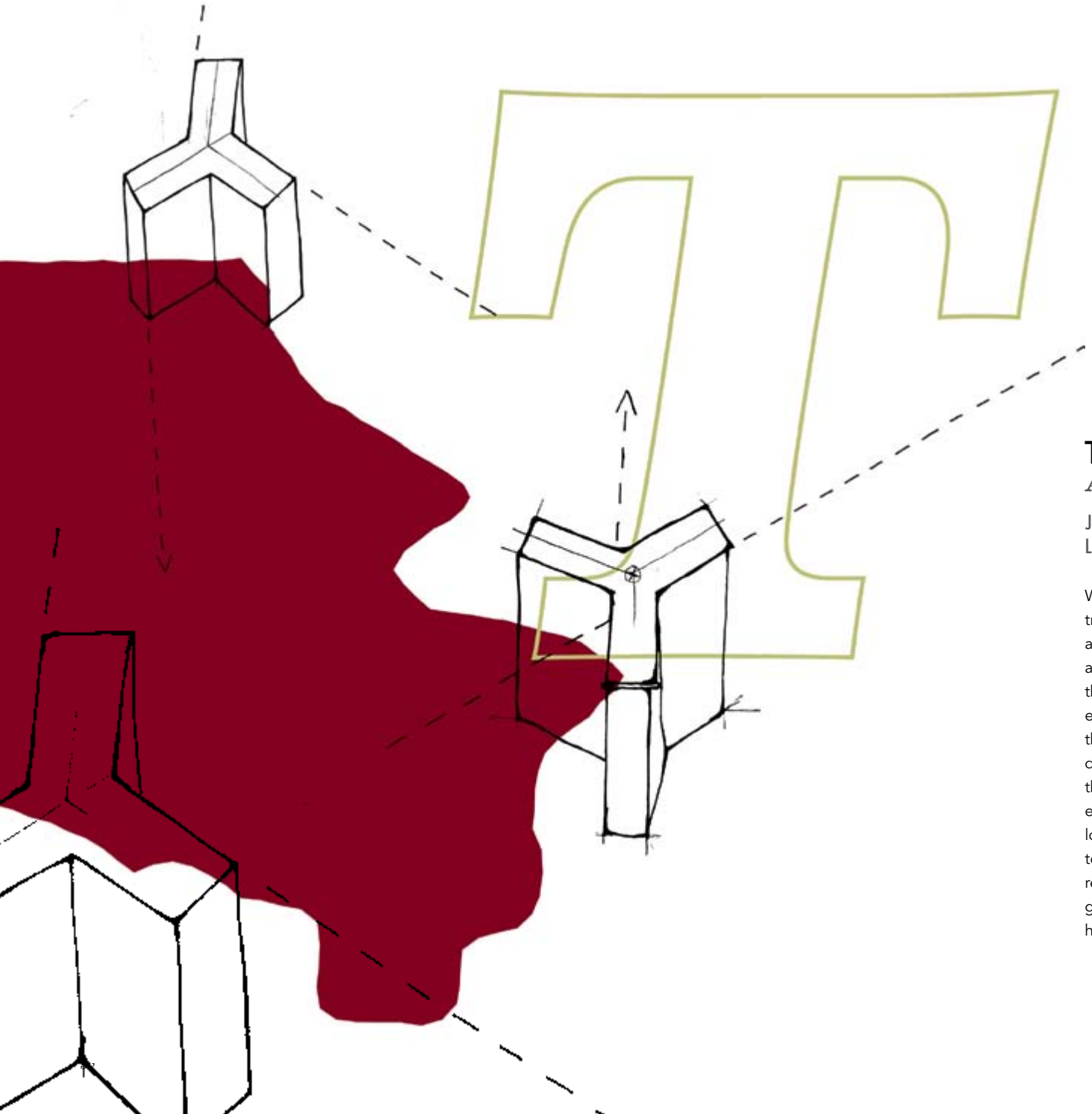

The Arrival City

A Case Study of Thorncliffe Park

Justin Giarritta, T. Michael Liles, Rachel Ortega,
Lisa González and Edson Veizaga

War, globalization and natural and human-induced catastrophes often adversely affect economies and cultures that are directly impacted by such events. Indirect impacts are also felt abroad as people seek refuge in foreign countries that are open to immigration. This influx can result in ethnically and socioeconomically concentrated communities thereby changing demographics and challenging the foundation of services and employment opportunities within these newly populated areas. As our world continues to experience refugee-inducing events, it is important to look at case studies where immigrant communities work together to produce a common voice and vision for their residents while building constructive relationships with the greater region. The story of Thorncliffe Park and its neighborhood support organization is one of these success stories.

Abstract

This paper examines the concept of the arrival city and best practices of a community-based organization by using Thorncliffe Park in Toronto and the Thorncliffe Neighborhood Office (TNO) as a case study. Rural-immigrant populations are a distinguishing characteristic of arrival cities and in the developing world they are commonly known as favelas and barrios (Saunders, 2010). Thorncliffe Park is a low-income, ethnically concentrated enclave in Toronto. Although the community of Thorncliffe Park is well-established, a lack of social services has spurred residents to create the TNO, which focused on unique issues that are emblematic of arrival cities—poverty, insufficient housing, cultural preservation, appropriate health care, and linguistic barriers. This paper analyzes quantitative and qualitative data to examine the fundamental properties and challenges of arrival cities, in particular Thorncliffe Park, Toronto, Canada.

Arrival City

Doug Saunders, author of *Arrival City*, defines the modern arrival city as a place that is "distinguished readily from other urban neighborhoods, not only by its rural-immigrant population, impoverished appearance and ever-changing nature, but also by the constant linkages it makes" (Saunders, 2010). Strong connections form between neighbors and work places, as well as linkages to their distant homelands where people continue to send financial support and exchange current news. Furthermore, the modern arrival city portrays a culture of transition, both entrepreneurial and traditional. Arrival city residents pursue a better lifestyle in their new community and preserve traditions from their previous one. Friends and family struggle together and encourage each other to successfully integrate into society.

A prime example of an arrival city is Thorncliffe Park in Toronto, Canada. This community houses low-income families and is an ethnically-concentrated area (Saunders, 2010). With a poverty rate of 44 percent, the area is not perceived as a failure, but instead is seen as a community successfully functioning as an engine of economic and social integration. While other neighborhoods of similar characteristics are often neglected and economically stagnant, Thorncliffe Park is a place where people thrive and experience economic mobility. Residents consistently enter the middle class and urban mainstream culture within a generation. Instead of being trapped by the limitations of living in a new society, Thorncliffe Park enables residents to break through barriers that immigrants often face. One Thorncliffe resident claimed, "This is not a place where people feel stuck. It's a place where they feel comfortable. You don't just pass through it – you go to it" (Thorncliffe Neighbourhood Office, 2010b).

A vital factor to Thorncliffe Park's success as an arrival city is the engagement of a community-based agency, the Thorncliffe Neighborhood Office (TNO). They are committed to building a "safe and healthy community through supporting and strengthening the quality of individual and community life in Thorncliffe Park" (TNO, 2010b). The TNO provides a range of unique services for the people and cultures of this area. For example, they provide newcomer support, child and family support, employment and language training, and youth services. This organization has built immense trust with the community and has tailored programs specific to their needs. The Thorncliffe Neighborhood Office is a best-practice model for future arrival cities.

Thorncliffe Park: Past and Present

Historically, the land where Thorncliffe Park is situated was utilized for various economic purposes. In 1879, Robert T. Davis, founder of Dominion Brewing Company owned the land and maintained it as one of Canada's leading racehorse and thoroughbred breeding farms (Toronto Neighbourhood Guide, n.d.). Maryland Investors bought the estate from Davis in 1916 and converted the land to a racetrack for horse racing and harness racing. The Thorncliffe Park Raceway hosted the first Prince of Wales Stakes, the Clarendon Cup, and the My Dear Stakes (Wencer, 2009). Finally in 1953, a real estate company purchased the land and built a residential development to accommodate 12,500 people (TNG, n.d.). This laid the ground for the existing Thorncliffe Park (Wong, 2003) and by 1985 the neighborhood of Thorncliffe Park was well-established (TNG, n.d.).

Today, Thorncliffe Park is physically separated from Toronto. Comprising 2.2 square kilometers, it is bound by the Don River to the southeast and by major roads to the northwest, with railway tracks intersecting the center. The development consists of 34 high-rise and low-rise apartment buildings, with several original condominiums converted into office buildings (TNG, n.d.). Thorncliffe Park has two elementary schools, one with 1,900 students making it the largest elementary school in North America (Pashby, 2010). The community also has a public high school, a public library, a business park, a church, and a seventy-store shopping center with an adjacent strip mall. Athletic amenities include a gym, two baseball diamonds with a sport field, an outdoor pool, and six tennis courts. Additionally, the Toronto Transit Commission provides Thorncliffe Park with 24-hour public transit service.

Besides Thorncliffe Park's physical facilities, the community lacked institutional social services that were unique to the challenges of this immigrant-based neighborhood, therefore the TNO was created in 1985 (TNO, 2010a). Initially the TNO delivered programs from a shared space at the Thorncliffe Park Library, but Lorrie Simunovic, the Executive Coordinator of TNO in 1987, had a greater plan:

> ***"There are many needs and desires in this diverse neighborhood. I envision a community centre that all of Thorncliffe Park can share. Certainly, for many years, many people have been struggling toward the end – it will happen if we want it to happen" (TNO, 2010a).***

At its twenty-five year anniversary in 2010, the TNO encompassed four locations, employed more than 100 people, and enlisted dozens of volunteers (Pashby, 2010).

Ethnicity & Culture of Thorncliffe Park

Thorncliffe Park is an ethnically and linguistically concentrated area, where the majority of residents are immigrants from Southeast Asian nations, such as India, Pakistan, and the Philippines (SPA and RU, 2008a). The percentage of Southeast Asian residents in Thorncliffe Park increased 20 points from 28 percent in 2001

to 49 percent in 2006. Fifty-one percent of the population speaks a language other than English or French. The most popular language is Urdu, a Hindustani language associated with Muslims in Pakistan and India. This language increased fourfold between 2001 and 2006, and it is spoken by 24 percent of the Thorncliffe Park population. Other popular languages spoken are the Indo-Aryan Gujarati, Indo-Iranian Persian, and Austronesian Tagalog. While language barriers tend to perpetuate exclusion and isolation from greater society, communities with similar ethnicities tend to support one another, exchange knowledge and resources, and learn from similar struggles (Saunders, 2010). These tight-knit communities partnered with strong supportive services create a vivacious entity against social limitations.

At first glance, Thorncliffe Park may appear to be an impoverished ethnic ghetto, yet residents, local businesses, and scholars argue that it is a thriving ethnic enclave (TNO, 2010b). An ethnic ghetto is a community that is ethnically segregated with poor living conditions, whereas an ethnic enclave is numerically dominated by a particular ethnic group with specific religious, cultural, commercial and linguistic services and institutions (Qadeer & Kumar, 2006). Within Thorncliffe Park, residents of Pakistani and Filipino decent administer the majority of social institutions and services, thereby making it an ethnic enclave by definition. Mohammad Qadeer, a professor with the School of Urban and Regional Planning at Queen's University, suggests that if differentiations by ethnicity (or class, income, lifestyle, or family type) are not forced, nor are the source of poverty and exclusion, then an ethnic enclave does not necessarily constitute as a ghetto. Ethnic groups are not mandated to live in Thorncliffe Park, but choose to live there and encourage families from their homeland to join them (Saunders, 2010). Ultimately, Saunders' argues that assessing the success of a community should not focus on its wealth or income, but on its trajectories and how people are moving "onward". According to these scholars, Thorncliffe Park is a paradox – even with high poverty rates and an area that is ethnically concentrated, Thorncliffe Park is a place that encourages people to flourish economically and socially.

Immigration, Poverty and Overcrowding

Seema Khatri, a former Thorncliffe resident, explained, "Everyone in Thorncliffe, are all beginners, are all struggling…you talk to your neighbors at the deli. They exchange information" (Saunders, 2010). Khatri's statement helps explain the productivity of an effective arrival city, as Thorncliffe Park's residents are resilient. They are determined to overcome difficulties associated with being immigrants—such as poverty, income inequality, and overcrowded living conditions.

Due to strict Canadian entry requirements, many Thorncliffe Park residents possess extraordinary credentials. The Canadian government uses a point system as part of its immigration policy, allowing it to be more selective with whom they grant residency. Immigrants must score 67 out of 100 points on an examination measuring levels of education, language, work experience, age, arranged employment and adaptability (Immigration Criteria for Federal Skilled Workers, 2009). Due to these standards, Thorncliffe Park boasts a population where 57 percent attended post-secondary school before their arrival in Canada (Boston, 2009). There has been "a considerable increase in the number of people who meet the requirement for the Canadian skilled worker category". Immigrants

An ethnic ghetto is a community that is ethnically segregated with poor living conditions

who fall into this category are "people who are selected as permanent residents based on their ability to become economically established in Canada". Because of this increase, "the highest qualified people did not gain enough points".

Even with its highly educated and experienced population, Thorncliffe's poverty rate is 44 percent (Saunders, 2009). On average, Canadian families spend half their income on three essentials: food, clothing, and shelter (Canadian Council on Social Development, 2000). Any family that spends 70 percent or more of their income on these three basic essentials is considered to be in poverty. This leaves little income for other essentials such as transportation, health care, education, and household operation.

Thorncliffe's residents battle rising rental prices in the wake of decreasing income. From 2000 to 2005, Toronto households that made less than $40,000 per year increased from 49.5 percent to 52.3 percent (SPA and RU, 2008b). From 2001 to 2006, surrounding Toronto household income increased 8 percent while Thorncliffe Park household income decreased 4 percent. In this same time period, rents in Thorncliffe Park increased by 10 percent (Boston, 2009). In Thorncliffe Park, "54 percent of renters spend more than 30 percent of their income on rent as compared with the city figure of 43 percent" (Boston, 2009). Ninety-two percent of Thorncliffe residents rent property; therefore nearly everyone in this neighborhood is affected by rising rent prices (Boston, 2009).

Thorncliffe Park is densely populated, and the lack of space to build-out certifies its inability to meet demand for new housing (TNO, 2010b). The Thorncliffe Park Assessment claims, "the number of bedrooms per household remained static between 2001 and 2006, while the number of people per household rose, leaving Thorncliffe Park with an average of two people per bedroom compared to one for the city overall" (Boston, 2009). Thorncliffe Park's high-rise towers "were designed to accommodate 6,000 people – but now house well over 20,000" (National Film Board, n. d.). Overcrowded living quarters in Thorncliffe Park are a direct result of rising rental costs and decreasing wages. These conditions perpetuate the cycle of poverty and make life more difficult within the community.

Healthcare in Thorncliffe Park

The Toronto Public Health (TPH) program was developed in 1998 to provide accessible and equitable health care services for Toronto residents. TPH's focus was to build healthier communities through healthier individuals. The City Council and the Ministry of Health and Long-Term Care fund the TPH and the Board of Health administers the program. The Board of Health is formed of elected councilors and citizen representatives (Toronto Public Health, 2010).

From 1991 to 2000 one in four children in Toronto between the ages of 5 and 16 were immigrants (SPA and RU, 2005). Due to this new demographic, the TPH developed the Toward a Healthy City program in 2005. This strategic plan was created to improve the health of Toronto's whole population and simultaneously provide appropriate services to immigrants and their communities (TPH, 2010). Because of this new program, healthcare in Thorncliffe Park became more accessible for non-English speakers. The "TPH staff conducted more than 11,000 post-partum home visits in 2004 and contacted more than 25,000 new mothers following hospital discharge. These home visits were provided in more than fifty languages." (SPA and RU, 2008a).

Beyond TPH's services the TNO provided specialized care for the residents of Thorncliffe Park in the form of affordable health services, developmental childcare and youth programs, and English classes (TNO, 2010b). The TNO's Child and Family Support Service assist all families in the Thorncliffe Park neighborhood with services that improve their health and quality of life. Individual services are provided to address each client problem with personalized care and they also offer group services.

Mental health is also a concern in Thorncliffe Park. Nearly 15 percent of Thorncliffe Park's residents suffer from mental health issues, compared to 12.5 percent in the remaining Toronto area (TNO, 2010b). Towards a Healthy City's Mental Health Support Program provides mental health services to residents who suffer from depression, anxiety, post-traumatic stress disorder, anger management issues, addiction, and relationship issues. This program served 564 clients from Thorncliffe Park in the years 2009-2010.

In addition to the services provided by the City of Toronto and the TNO, Thorncliffe Park's proximity to essential services and amenities benefits community health. Located within two kilometers of a hospital and health center, the neighborhood has easy access to public health services, especially in cases of emergency (SPA and RU, 2005). Additionally, markets and community gardens are within walking distance, allowing residents to attain affordable, healthy food, interact with neighbors, and practice urban gardening.

Policies, Programs and Best Practices of the Thorncliffe Neighborhood Office

Residents of Thorncliffe Park integrate their diverse cultural and social backgrounds in ways that propel them forward and provide a high trajectory of mobility. Many of these successes stem from strong community based organizations such as the TNO. This multi-service, multi-lingual community center, located in the heart of Thorncliffe Park, has four locations to serve the community (TNO, 2010b). All of their services are free and are available in 20 languages (Boston, 2009). They offer an extensive range of services that fall into four general categories: Newcomer Support Services, Child and Family Support Services, Employment and Language Training Services, and Youth Services. There are a multitude of programs and services offered in each category and range from Citizenship Classes to the Employment Assistance Program (EAP) (TNO, 2010b). These programs and services are an essential part of the community transition process and all of the ideas originated because of direct input from residents (Boston, 2009).

The TNO's success is attributed to its exemplary model of community advocacy and grassroots campaigning (Boston, 2009; TNO 2010b). It established five principles of community development that give the people a voice and help shape the services and contributions needed to achieve its harmonious cultural integration (Boston, 2009). These principles include the following:

1. Group focused: connects individuals sharing common concerns;
2. Bottom-up: engages those affected by challenges, ensuring they set and drive the agenda for change;
3. Inclusive: ensures that community members of diverse backgrounds and capacities are able to participate in meaningful ways;

4. Empowering: facilitates an understanding about broader structures that people experience individually, such as exclusion and disadvantage;
5. Seeks system change: addresses root causes and systemic barriers that create conditions of inequality and exclusion (Boston, 2009).

In order to better understand and address the needs of community residents, the Thorncliffe Neighbourhood Office began a comprehensive Needs Assessment study (TNO, 2010b). Every 3-5 years, community workers distributed a Needs Assessment survey that assessed the ever-changing needs of the community. Survey results help the TNO develop a comprehensive framework to understand statistical changes in population, economic and political environments, and to identify future directions and policy trends. Overall, the Needs Assessment study is a representative example of best practices set in place as a benefit to the entire community (Boston, 2010).

The TNO uses a bottom-up/top-down approach to economic and community development and has assembled a diverse group of donors, partnerships, and service providers. Some of these partners include the Davis and Henderson Corporation, the City of Toronto, the United Way, the Social and Development Enterprise Innovations (SEID), and the Ministry of Economic Development and Trade (TNO, 2010b). "Community Development is not a static term or process, and so definitions shift over time" (Boston, 2009). The framework for community development centers on the understanding that the community of an Arrival City is a fluctuating and transitory group. By recognizing this fact, TNO has constructed their policies around population changes and has been successful at meeting the needs of the residents it serves.

Conclusion

As the rates of rural-urban migration and global immigration increase, it is imperative for planners and policymakers to include community-based organizations in its solutions. Due to their provenance, community based organizations have a distinct advantage when it comes to addressing problems of language, health, and identifying support services.

In order for arrival cities to thrive and succeed, planners, policymakers, and community organizations must welcome change and plan for integration. Successful approaches will require comprehensive strategies that facilitate access to municipal services, education, citizenship, employment, healthy food, and affordable housing. Addressing the needs of migrants and immigrants today will ease the transition process of tomorrow and help establish a framework of equity for all.

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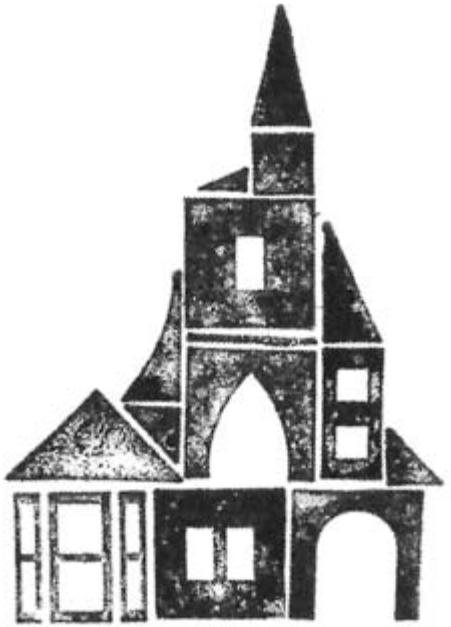


Closing the Revolving Door:

Predictors of Chronic Shelter Access among Homeless Families and Barriers to Housing Retention

Jacob Lile

Although many San Mateo County residents enjoy a high quality of life, there is a growing demographic of struggling homeless families. Why are some families facing similar hardships able to avoid homelessness, while others are multiple shelter users? Author Jacob Lile challenges past findings of predicators for multiple shelter use. He explores how shelter providers can screen for high-risk families and provide appropriate intervention services to promote long-term housing retention and "close the revolving door."

This research identifies characteristics of homeless families prone to shelter recidivism. Data was gathered from the Shelter Network of San Mateo County over a five-year period). Additionally, surveys and interviews with homeless and formerly homeless multiple shelter stay families indicated barriers to housing retention. Race, drug abuse and alcohol abuse were the greatest factors that determined repeat shelter stays. Further research would expand data beyond clients of one homeless services provider.

Historical Factors: The Perfect Storm

Homelessness in the Bay Area, especially among families, is a chronic social and community issue (Bay Area Foundation Advisory Group to End Homelessness, 2004). Nationally, family homelessness has been on the rise since the 1980s due in part to economic and societal events as well as national policy changes (The Stanford Center for the Study of Families, Children and Youth, 1991). In the 1970s the shift from an industrial to a service economy, the outsourcing of major manufacturing, and the crude oil crisis put many U.S. families on shaky ground financially (Berlin & McAllister, 1994; Winship, 2001). Beginning in 1970 assistance grants for Aid to Families with Dependent Children (AFDC) and Temporary Aid to Needy Families (TANF) were reduced and failed to adjust to inflation (Berlin & McAllister, 1994; Winship, 2001).

Lack of affordable housing (Cohen, Mulroy, Tull, White & Crowley 2004; Winship, 2001) coupled with a reduction in federally subsidized units (Wong, Culhane, & Kuhn, 1997) made survival on reduced TANF grants increasingly difficult. In the 1980s a rise in single parent households (Berlin G. & McAllister W. 1994; Metraux & Culhane, 1999; Danesco & Holden, 1998) and the introduction of crack cocaine (Berlin & McAllister, 1994) created a "perfect storm" whereby at-risk families slipped into homelessness and some floundered in the shelter systems for years.

Homeless families differ in many ways from homeless adults without dependent children (Anderson & Imle, 2001). Families tend to be younger, less educated, have spottier work histories and have less drug, alcohol or mental health problems (Metraux & Culhane, 1999). Their struggles with independent living mainly come from inadequate income and poverty (The Stanford Center for the Study of Families, Children and Youth,1991).

Many shelters sprung up in the 1980s and 90s to meet the needs of rising numbers of homeless families in the U.S. Berlin & McAllister (1994) note that between 1984 and 1988 the number of family shelters in the U.S. increased over 400%, from 380 to around 2,000. Many shelters emerged from grassroots organizations and lacked infrastructure, knowledge, or skills to perform adequate program evaluation (Berlin & McAllister, 1994). Such evaluation is needed to strengthen these agencies, seek additional funding and permanently arrest the cycle of family homelessness (Winship, 2001).

Purpose of Research and Sources of Data

The San Mateo County Human Service Agency Center on Homelessness estimated 1,796 homeless persons are on the streets or in shelters on any given night in the county (2009). Shelter Network is the primary provider of emergency and transitional housing programs for children and adults in San Mateo County (2009). In fiscal year 2007/ 2008 4,163 individuals were provided 160,347 nights of shelter in their programs (Shelter Network website, 2009). While Shelter Network serves unaccompanied single adults, the majority of programs are designed for families with children. Approximately 1,000 families are served each year (Shelter Network website, 2009). While for most shelter users it was their first and only time being homeless, about 20% accessed the shelter one or more times in a 24-month period (A. Wright, personal communication, Sept. 10, 2009).

This research seeks to identify similarities and other salient factors in multiple shelter use families. This information may help clinicians identify "at risk" families during their first shelter stay and target services and intervention techniques to arrest cycles of homelessness. By reducing the number of shelter stays needed by individual families, homeless service providers can allocate resources more effectively, increase productivity and shorten shelter wait time. All research was conducted in San Mateo County, California with the assistance of Shelter Network. Data was gathered from Shelter Network archives. Interviews were conducted with current shelter participants and surveys from program graduates.

Homelessness in San Mateo County: The Haves and Have Nots

San Mateo County is prime real estate strategically located between San Francisco to the north and Silicon Valley to the south. San Mateo County enjoys temperate climate, open space, and job opportunities in emerging fields such as technology, science and clean energy (South San Francisco Chamber of Commerce, 2010). On the whole, residents of San Mateo County are affluent, although most are likely to be either rich or poor (U.S. Census Bureau, 2007). The median income for a family of four is $82,913. Adults are generally well educated; 85.3% of residents over age 25 are high school graduates and 39% have a Bachelor's degree or higher. Sixty one percent of housing units are owner occupied and the median home price is $507,000 (San Mateo County Department of Planning and Building, 2009).

A significant portion of San Mateo County residents do not fare so well; 2,379 households receive TANF assistance grants (San Mateo County Human Services Agency, 2005) out of 254,103 total households (U.S. Census Bureau, 2007). Some families unqualified for TANF assistance may be in danger of homelessness. According to the United Way, 41,914 or 22.1% of San Mateo households live below the self-sufficiency standard (2010). The cost of living is one of the highest in the nation; the average rent for a one-bedroom apartment is $1,548 per month and $1,732 for a two bedroom (San Mateo Department of Planning and Building, 2009). A person earning the minimum wage of $8.00 an hour would need four full-time jobs just to pay rent on a two-bedroom apartment (Insight Center of Community and Economic Development, 2010). Local authorities estimated that a single parent must earn $28.97 an hour or $62,568 annually to cover basic necessities (San Mateo County Legislative Committee, 2005). A single emergency; a sick child, a vehicle repair, or a temporary loss of income could push a working family into homelessness.

San Mateo County has subsidized housing units and access to 4,023 federally funded housing vouchers through the Section 8 program, but not enough to meet county need (San Mateo County Center on Homelessness, 2009). The average wait time for a Section 8 voucher is three to five years. In July of 2008

Homeless Man. *Photo: Chloe Weiller*

the waitlist was opened for the first time in three years and 22,000 applications were received. Currently 3,600 families selected by lottery are on the waitlist (C. Chan, personal communication, Nov. 18, 2009).

Demographics of Homeless Families

Researchers have done much work to identify similarities in homeless family demographics, often seen as causal to enduring familial homelessness. While this is by no means an exhaustive list, these factors occurred most frequently. They are often young (Wong et al, 1997), female (Cohen et al, 2004) and African American or Hispanic (Weitzman, Knichman, Shinn, 1992). Many were larger than average families (Wong et al, 1997), had less than a high school education, poor work histories (Danesco & Holden, 1998) and were on probation or parole (Park, Metraux, Brodbar, Culhane, 2004). Parents, mostly single mothers of color as noted above, suffered victimization--usually domestic violence as a child or adult (Metraux & Culhane, 1999). Many struggled with substance abuse, (Anderson & Imle, 2001) mental health, (Shinn et al., 1998) and lack of social and clinical support systems (Anderson & Imle, 2001).

Taking into consideration the existing body of knowledge, this research examined multiple shelter users in San Mateo County as well as those who "cycled out" of the shelter system and are permanently and stably housed. Factors considered were age, race, family size, education, income, drug or alcohol abuse, and mental health

Homeless Man. *Photo: Chloe Weiller*

Methods and Data Collection

A longitudinal study was conducted for the majority of the data. Since homeless populations are highly transient and difficult to locate outside of shelter, a cross-sectional point-in time method was implemented to collect data on currently homeless families residing in shelters. Shelter Network keeps detailed information on income, education, housing history, family size and type (single parent, two-parent, multi generational) they serve. Program intake and exit data are gathered by case managers. This is logged into a database so detailed reports can be generated. This database was used to identify families who have entered shelters two or more times between January 2004 and December 2009 *(N=456)*. The author was primarily interested in multiple shelter service users. One-time shelter user information was collected during that same period *(N=2459)* as a control to isolate differences between these two groups.

Families' opinions regarding why they eventually became stably housed were investigated. A survey was mailed to multiple shelter user households who had exited and not returned between January 2007 and December 2008. The survey measured families' successful transitions from homelessness as well as challenges in housing retention. Surveys were sent to the last known address in a plain envelope (to avoid any type of stigma) and included a pre-addressed stamped envelope. Success was defined as two years maintained housing after program exit. Eighty-two surveys were sent. Sixteen were completed and returned, for a 20% completion rate.

Finally, data was collected on multiple shelter stay users who did not maintain permanent housing to identify challenges to their success. Interviews were conducted with four current multiple shelter stay users between April 9th

through 29th, 2010. Families were identified by comparison of shelter census records with multiple shelter user master lists. Then families were delivered a recruitment letter by their case manager. Of eleven families identified seven declined to participate.

Variables and Operational Measures

This research compared multiple and single shelter stay families; the unit of analysis is the head of household. The dependent variable for this study is the number of shelter stays. For the purpose of this research a multiple shelter stay family is defined by shelter services accessed more than once in a 24-month period. The Department of Housing and Urban Development (HUD, 2010) considers a person or family homeless if they are: sleeping in an emergency shelter or a place not meant for human habitation, such as a car, park, abandoned building, or street/sidewalk. Those who stay in a hospital or institution for up to 180 days, but sleep in an emergency shelter or other place not meant for human habitation immediately prior to entering the hospital or institution fit the definition. As well as people who graduate from or time out of a transitional housing program, or are evicted within two weeks from a private dwelling.

Independent variables include age, race, sex, family type (single parent, two parent, multigenerational), family size, level of education, alcohol or drug addiction and mental health. This research also measured homeless and formerly homeless families' perceptions of the utility of the shelter programs in facilitating self-sufficiency.

The data pulled from the database provided a demographic baseline profile of a multiple shelter user to identify a homeless family type prone to multiple shelter stays. Surveys collected information on families who had successfully transitioned from homelessness. They measured duration of homelessness, length of shelter stay, education level and other demographics. The survey gathered data on graduate perception of how the program and other clinical, social and financial supports affected their housing success. Interviews of current multiple use shelter users collected data on challenges families face while homeless as well as permanently housed.

All ratings were done on a one to five Likert Scale. This research gathered information on two sets of multiple shelter users; those who maintained permanent housing for more than 12 months and those currently homeless in a family shelter.

Findings

Quantitative Data

Demographic information was collected on families who accessed Shelter Network shelters between January 2004 and December 2009 *(N= 3009)*. Of this sample 18.2% were multiple shelter users. To isolate a type of homeless family prone to repeated shelter access inferential statistical analysis and frequency distributions were performed on each group. Analysis results may be found to the right.

Figure 1: **Descriptive Statistics:** Single and Multiple Shelter Stay Families

	Single Shelter					*Multiple Shelter*				
	N	Min	Max	Mean	Std. Dev.	N	Min	Max	Mean	Std. Dev.
AGE	2533	18	72	34.49	9.655	465	18	65	34.61	9.946
FAMILY SIZE	2544	1	15	3.33	1.374	465	1	15	3.28	1.566
NUMBER OF CHILDREN	2544	0	8	1.89	1.168	465	0	12	1.83	1.342
NUMBER OF ADULTS	2544	0	7	1.44	.587	465	1	6	1.46	.575
NUMBER OF DAYS HOMELESS	2543	0	2555	53.76	125.061	463	0	1269	85.08	160.178
LEVEL OF INCOME AT SHELTER ENTRANCE	2544	0	5500	1113.59	885.819	464	0	7155	1149.52	895.744
NUMBER OF HOMELESS EPISODES						465	2	9	2.66	1.140
VALID N (LISTWISE)	2532					462				

Figure 2: **Race:** Single and Multiple Shelter Stay Heads of Household

		Single Shelter		*Multiple Shelter*	
		Frequency	Valid Percent	Frequency	Valid Percent
VALID	WHITE	752	29.6	170	36.6
	AFRICAN AMERICAN	697	27.4	136	29.2
	ASIAN	290	11.4	44	9.5
	LATINO	804	31.6	115	24.7
	TOTAL	2543	100.0	465	100.0
MISSING	SYSTEM	1			
TOTAL		2255			

Figure 3: **Mental Illness, Alcohol Abuse and Drug Abuse:** Single and Multiple Shelter Stay Families

			Mental Illness		*Alcohol Abuse*		*Drug Abuse*	
			Frequency	Valid Percent	Frequency	Valid Percent	Frequency	Valid Percent
Single Shelter	VALID	NO	2319	91.2	2423	95.2	2224	87.4
		YES	225	8.8	121	4.8	320	12.6
		TOTAL	2544	100.0	2544	100.0	2544	100.0
Multiple Shelter	VALID	NO	412	88.6	431	92.7	368	79.1
		YES	53	11.4	34	7.3	97	20.9
		TOTAL	465	100.0	465	100.0	465	100.0

Figure 4: **Highest Level of Education Completed:** Single and Multiple Shelter Stay Families

		Single Shelter		*Multiple Shelter*	
		Frequency	Valid Percent	Frequency	Valid Percent
VALID	Less Than 8th Grade	221	8.7	38	8.2
	Partial High School	550	21.7	114	24.5
	Completed High School	974	38.4	160	34.4
	Partial College/ Tech School	581	22.9	109	23.4
	Completed Collete/ Tech School	211	8.3	44	9.5
	Total	2537	100.0	465	100.0
MISSING	System	7			
TOTAL		2544			

Figure 5: **X² Test of Independence Comparison:** Single and Multiple Shelter Stay Families

INDEPENDENT VARIABLE	X²	*df*
HIGHEST LEVEL OF EDUCATION	3.87	4
RACE	14.18***	3
MENTAL ILLNESS	3.1*	1
ALCOHOL ABUSE	5.25**	1
DRUG ABUSE	22.59***	1
AGE	3.99	7
LEVEL OF INCOME	11.48*	6

**p = .1 **p = .05 ***p = .005*

Data on both groups was combined and a regression model was created to test for predictors of chronic shelter access based on select demographics. The results of that model did not prove statistically significant because observations of the number of homeless episodes clustered around one and two episodes of homelessness (94.4% of all observations fell within this range). This variable was then dichotomized (bi-variate 0= single shelter stay family, 1= multi shelter stay family). A series of chi-square tests of independence were performed with single/multiple shelter stay family as the dependent variable. Results can be found in the table to the left.

Survey and Interview Data

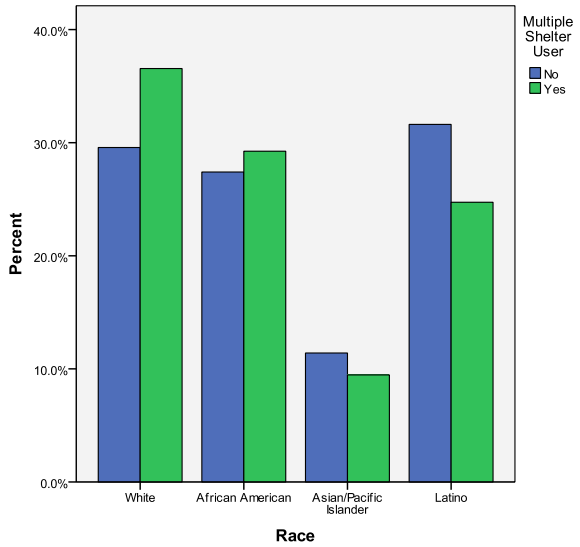
While the volume of surveys returned were not great enough to perform adequate statistical analysis *(N=16)*, they do provide interesting information. When formerly homeless multiple shelter users were asked what they felt their primary cause of homelessness was, 58.3% reported *loss of job/income*, 33.3% reported *drugs or alcohol* and 8.3% cited *overcrowding*. Fifty-nine percent of respondents claimed to have been homeless for six months or more before entering a shelter. Eighty-eight percent claimed to have received one-time emergency or on-going rental assistance. When asked about the importance of their friends and family to their success in housing 56.3% rated it as *very important* or *somewhat important* while 18.8% rated it as *"not important"* or not important at all.

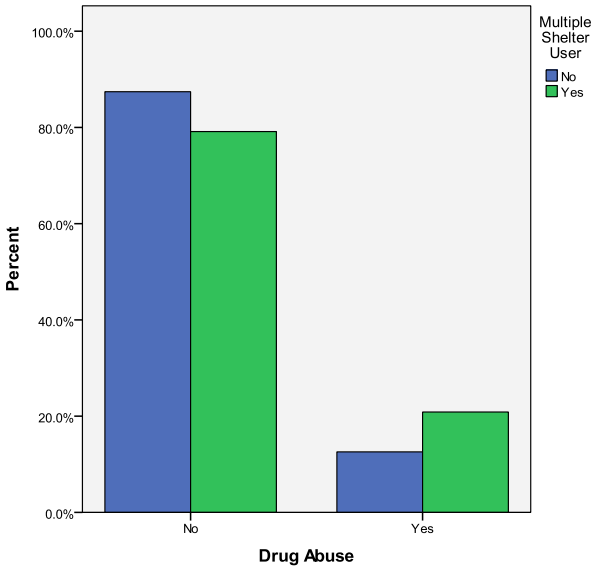
Data gathered from the interviews of current homeless multiple shelter users painted a picture of the complexity of homeless parenting life in San Mateo County. Of the four interviews conducted, all interviewees were female single parents. Two were white; one was Latina and one Pacific Islander. Their ages were; 53, 47, 31 and 22. One woman had never lived on her own or with a partner and paid rent as an adult. Another had done so only for a period of four months while she shared an apartment with a roommate. Three of the four women were continuously homeless since first losing housing except for brief episodes of less than one month when they stayed with a friend or family member. All of the women cited that the greatest barriers to finding and keeping housing were high rent and lack of financial resources. Only one of the four women was employed with a highly unstable weekly income.

Additional barriers cited included felony drug arrest records, ageism in the workplace, lack of personal transportation and lack of family support. All respondents had at least a high school diploma and one had completed three years of college. Half of the women felt better prepared to live on their own after participation in the shelter program due to skills they learned from their case manager or workshops. All respondents cited that receiving donated items, such as clothing, house-hold appliances, and toys, was the greatest program benefit.

Discussion

When comparing single and multiple shelter stay users the variables with the strongest relationship of independence were race and drug abuse *(p=.005)* followed by alcohol abuse *(p=.05)*. Level of income and mental illness proved to be only slightly significant *(p=.10)*.





It may be salient to note that compared with the existing body of knowledge the author found that age and highest level of education proved to be independent of whether a family was a multiple shelter user. This contradicts the Wong et al (1997) and Danesco and Holden (1998) studies that stated that youth and low level of education were strong indicators of shelter recidivism. The mean age of a single shelter user was 34.49 years old and 34.61 for multiple shelter users. Not only are these ages nearly identical, they are considered closer to middle aged than very young. The most frequent level of education for both groups was high school graduate; 38.4% for single shelter stay users and 34.4% for multiple shelter stay users. The cumulative percent of families with at least a high school diploma was 69.6% for single shelter stay users and 67.3% for multiple shelter stay users. However, both groups are quite a way off from the county mean of 85.3% (U.S. Census Bureau, 2007). This suggests that in San Mateo County, a high school diploma may not provide a firm enough educational base for self-sufficiency.

What does this mean for homeless service providers? First time homeless families should be screened for alcohol and drug abuse as well as mental illness in order to ameliorate the need for future shelter access. If challenges are identified in these areas and therapeutic interventions are offered more frequently during the first shelter entry. In addition to these factors, attention should be paid to the race of the family as it may also be a factor to further instability in housing. This study showed that Whites and Blacks experience more episodes of homelessness than do Latinos, Asians or Pacific Islanders. More research is needed to discover if this is a cultural rather than a racial dilemma. While education level may not be a determining factor in a family's future housing stability when compared to a control group, a high school diploma may not be sufficient to find employment to support a family. In order to be more effective, service providers may need to take a two-pronged approach; support continued education and vocational training and prepare service users for employment search and retention.

Limitations of Research

All primary data used for this research was collected from homeless families housed by Shelter Network, the primary provider of emergency and transitional housing in San Mateo County (Shelter Network website, 2009), however, it is not an exhaustive source. This research only considered families who were multiple emergency and transitional housing users. Families who accessed shelter from a different agency, in a different county, or found housing before their name came up on the waitlist were not counted.

Unsheltered homeless populations are difficult to find. The interviews conducted with currently homeless multiple shelter users were limited to families residing in Shelter Network programs or in vouchered motels. Since the population is highly transient this was the most efficient way to locate them. Due to time constraints interviews were limited to a two-week window. An additional year would allow research to include a much larger pool of currently homeless multiple shelter users.

Conclusion

This research found that race (White or African-American) and drug and alcohol abuse are factors that most predict the need for multiple shelter entries among families. These findings are important because they suggest persistent family homelessness is more complex than inadequate income, large families or young parenthood as suggested by earlier research (Wong et al, 1997; Danesco & Holden, 1998). With this indicator isolated, the question remains if the factors

of race and substance abuse alone contribute to a family's persistent homelessness or if they are salient only when it presented with other risk factors (inadequate income, mental health, etc). Additionally, the question should be raised: is there a causal relationship between these factors in San Mateo County? Does racial discrimination lead to a sense of powerlessness and subsequent substance abuse? Does substance abuse lead to mental health challenges and lapses in employment? Further investigation is required.

What does this mean for homeless service providers? First time homeless families should be screened for alcohol and drug abuse as well as mental illness in order to isolate factors that may lead to future volatility in housing. If challenges are identified in these areas and therapeutic interventions are offered more frequently during the first shelter entry, there may be expected future residential stability. In addition to these factors, attention should be paid to the race of the family as it may also be a factor to further instability in housing. This study showed that in San Mateo County Whites and Blacks experience more episodes of homelessness than do Latinos, Asians or Pacific Islanders. More research is needed to discover if this is a cultural rather than a racial dilemma. Do some cultures have more social support or experience more shame in receiving institutional services than others? Are immigrants (documented or undocumented) fearful of asking for public assistance? Other questions to investigate may be how race, culture, substance abuse and mental health combine to produce enduring homelessness among families. The sample population was selected from a county with one of the highest costs of living in the United States. Attention to this additional factor should also be given further analysis, since its safe to assume most of these families would be able to afford housing in a less expensive county.

While education level may not be a determinate factor in a family's future housing stability when compared to a control group, a high school diploma may not be sufficient to find employment to support a family in San Mateo County. To improve outcomes, homeless service providers should focus their efforts on supporting education and vocational training. This will ensure that program graduates are prepared to succeed in their employment search and retention efforts. While this study is limited in scope, it provides insights for homeless service providers in the greater San Francisco Bay Area and other locations similar to San Mateo County. Suggested further research is needed to identify how the risk factors indentified in this study, when combined, lead to repeated shelter entry. Additional investigation is required to find how family repeat shelter users break homelessness cycles.

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Postcard from Sharjah, United Arab Emirates

Richard LeGates,
Emeritus professor of Urban Studies and Planning

Richard LeGates is a professor emeritus of Urban Studies and Planning from SFSU where he taught from 1970 to 2010. He is the author of *The City Reader 5th edition* (2011) and *Think Globally, Act Locally* (2005). Currently Professor LeGates is a visiting Professor at U.C. Berkeley's Department of City and Regional Planning and at two urban planning programs in China–Tongji University in Shanghai and Renmin University in Beijing. This postcard describes his visit to the UAE in spring 2010.

Every day at the American University of Sharjah (in the Emirate of Sharjah half an hour from Dubai and two hours from Abu Dhabi) brought new surprises. During a six week Fulbright visit in spring 2010 I taught a portion of "Evolution of Cities" to 29 undergraduate architecture students from Palestine, Syria, Jordan, Iran, Iraq, Egypt, Bosnia, India, Pakistan, Russia, Nigeria, Brazil and the UAE. The students were young, smart, hip, ambitious and professional. They were excellent designers, but not used to social science thinking and weak in written communication compared to SFSU students.

Surprise # 1. Gender roles. The majority of the AUS students are women. Classes are co-ed. More women students wore miniskirts than abayas (traditional head scarves).

Surprise # 2. Language. English, not Arabic, is the common language of the United Arab Emirates (UAE). Sixty percent of the residents are English speakers from the Indian subcontinent. All the native Emirates (20% of the population) speak English. The remaining twenty percent from all over the world rely on English as their common language.

Surprise # 3. Neighborhoods and city life. There are still great authentic neighborhoods in the UAE. The Dubai Creek looks like the Grand Canal in Venice. Dozens of Dhows are piled with trade goods from the Middle East, India and Africa: refrigerators, basmati rice, HD tvs, oriental rugs, cheap cookware, lumber, frankincense, construction equipment, computers. Dubai has a Hindu lane and the remains of a pearl diving settlement and neighborhoods that reflect the cultures of India, Pakistan, Bangladesh, Russia, Iran, Oman and other cultures.

Surprise # 4. Conspicuous consumption. From the observation deck of the Birg Khalifa—the tallest building in the world—I saw the largest mall in the world, row after row of multi-million dollar condos and a faux Venetian lagoon (see the accompanying rendering). On the Palm Jumeira—one of Dubai's artificial new Palm-shaped peninsulas built on landfill— I saw gated villa communities each with its own private beach, a lavish Atlantis resort and a Trump Tower under construction. I watched people ski at Dubai's indoor ski slope.

Surprise # 5. Landscape. Yes, it's mostly desert, but the landscape in the Emirates is surprisingly beautiful. Human settlements hug the ocean and there are beautiful palm-shaded white sand beaches. Think Hawaii. Like Death Valley the desert is varied and strangely beautiful. My wife and I took a day-long Dhow cruise to the Musandan Peninsula (an enclave of Oman within the UAE). That area is called "the Norway of the Middle East". We went up deep fjords, surrounded by dolphins. The arid hills were dotted with little white sugar cube houses that look for all the world like Greece.

Surprise # 6. Culture, health, social welfare and education. Abu Dhabi is building a Guggenheim Museum seven times the size of the one in New York, a Louvre annex, and a world class performing arts center. Native Emirates get free medical care and some of the Sheiks are funding health-related research centers and teaching hospitals. I visited a community where widows and divorcees live free in state-provided villas with generous living stipends.

Surprise # 7. Sustainable urban development. Aware that their per capital carbon footprint is larger than the U.S. or China, the Emirates are getting serious about sustainable urban development. They have the money to innovate. I visited the Masdar City site where a 1.5 billion dollar, 40,000 person, zero-carbon, zero-waste new city is springing up next to the Abu Dhabi airport. The Masdar Institute of Science and Technology (a partnership with the Massachusetts Institute of Technology) has a huge budget to pioneer solar, wind, photovoltaic cell and other technologies to make Masdar City a sustainable urban development showcase.

Surprise # 8. Education. The AUS campus where I taught is brand new, physically gorgeous, and staffed by excellent American-educated faculty. Its library is better than any university library I have seen in the U.S. or Europe and the university computer labs are loaded with all the latest technology. The students are very high tech. For a university that graduated its first class in 2003 AUS is rising rapidly as a serious center of learning in a troubled region.

Pier 70

The Emerging Opportunity

Cristobal Bonal

Approaching one million in population, San Francisco is one of the densest cities in California. With the majority of land developed, the city of San Francisco looks to redevelop its waterfronts and Pier 70. Land-use battles have been an ongoing controversy for San Francisco--a city that wants to be equitable while suppling housing, transportation, and public open space as well as providing for its business communities with offices and industrial space. There is a great deal of competition over the limited land space between the forces of special interest groups, biotech corporations and public land use advocates. Their attempts to redevelop the pier have failed in the past.

In his article on Pier 70, Cristobal Bonal shares some of Pier 70's rich history, including its involvement in World War II, its role in determining the possible uses of industrial landscapes, as well as the failed attempts at redevelopment. Bonal also sheds light on what the future could bring to this historic site for the citizens and private interests of San Francisco.

Pier 70. *Photo: Chloe Weiller*

The Pier 70 area is a 67-acre site that is currently home to a shipyard facility with the largest floating dry-dock in the West Coast that can even repair large cruise ships (Port of SF, 2010). The area also includes a city tow yard, a metal recycling site, a self-storage business, an inventory services company and some artist studios (Selna, 2008). The site is bound by Mariposa Street to the north, Illinois Street to the west, 22nd Street to the south and the San Francisco Bay to the east. This area contains many historic buildings that date from the later part of the nineteenth century which are now very deteriorated. These now vacant buildings are part of a rich industrial history of San Francisco that is being considered for redevelopment.

In April 2010, the Port of San Francisco published the Preferred Area Plan report for Pier 70, which contains guidelines and goals about how the area can be developed successfully (Port of SF, 2010). As part of the plan, the port suggests restoring many of these buildings, in itself a great challenge due to their condition. The plan faces additional challenges such as significant contamination throughout the site, old public infrastructure which needs replacement, all while maintaining the existing shipyard facilities. This is especially difficult because the plan requires that new development coexist with the surrounding neighbors. It also needs to attract revenue to maintain the new public spaces and to preserve efforts within the area and be able to resolve land use issues with the California State Public Trust. The plan calls for mixed-use development and a pedestrian oriented design.

As of February 2010 the zoning for the Pier 70 project area is Heavy Industrial (M-2), which is a temporary designation by the Central Waterfront Area Plan within the San Francisco General Plan (SF Planning Department, 2008). The Preferred Master Plan will bring a variety of new land use designations, most of which will still be for industrial use. Some new uses will include open space, mixed-use residential, office, biotech, commercial, research & development, PDR (production, distribution & repair), special-use historic and ship repair. The zoning for this area is expected to change in order to reflect the different land use designations from the Preferred Master Plan (Port of SF, 2010).

The situation for development in Pier 70 is a complex one. As of this writing it is slowly and cautiously moving forward. The purpose for this paper is to critically discuss the future of Pier 70 by providing a brief history of the site, mentioning previous failed redevelopment efforts, describing the current situation of the site and finally, analyzing all aspects of this new plan that calls for revitalizing a once vibrant economic center.

The History

The story of Pier 70 goes back to the 19th century before Mexico transferred California to the United States (Wilson, n. d.). While under Mexican rule the Deharo family owned the land, which was then Potrero Point and it functioned as a ranch. The family lost the land soon after it became part of the United States.

In the 1850s the Pier 70 area was designated for shipping and industrial uses, as they needed to be isolated from the downtown area (Wilson, n. d.). By the 1860s wood ship builders had moved to the site from the crowded waterfront in the South of Market. During this same decade, the first steel mill on the west coast was constructed at Pier 70. The mill functioned from 1866 to 1900 under the name of Pacific Rolling Mills, which later was acquired by Union Iron Works- a ship builder and producer of mining, railroad, agricultural and locomotive machinery. The 1880s marked the beginning of major industrial uses at Pier 70 with the establishment of the Union Iron Works shipyard. During this time many of the industrial workers of the area lived in the vicinity populating Irish Hill, Scotch Hill and the Dogpatch neighborhood (Wilson n. d.; Port of SF 2010).

This surge of industrial uses at the site kept growing in the first half of the 20th century, especially shipyard operations (Wilson, n. d.). This was largely due to the exponential expansion of the U. S. Navy, who contracted the United Iron Works to build their ships. In 1905 the shipyard was sold by auction to Bethlehem Steel Corporation with a one million dollar price tag while the shipyard continued to build ships for the navy. During World War I, the shipyard was able to produce 66 destroyer ships and 18 submarines with the workers averaging about 3 destroyers a month. After the war, shipbuilding slowed down, but this did not last for long. Given the international political situation in the late 1930s, the shipyard was upgraded and expanded. During World War II the shipyard built a total of 72 vessels. The inventory included cargo, destroyers, cruisers, destroyer escorts, aircraft transport lighters and self-propelled lighter ships. During the same period over 2,500 ships, both commercial and from the navy, were repaired at Pier 70.

After the war time ship building boom, the industrial activity at Pier 70 started to decline (Selna, 2008); only 17 ships were built after World War II. In 1965, *The Bradley,* was the last ship that was produced in the Bethlehem shipyard. In the late 1960s the shipyard produced 57 sections of the BART underwater bay tunnel, but this marked the end of the pier's manufacturing life. In 1982 the City of San Francisco bought the property from Bethlehem Steel for one dollar and the Port of San Francisco bought the on-site machinery in order to keep the ship repair operations running (Saunders, 2009). In 1987, the Port found a new tenant for the shipyard repair facilities. The San Francisco Drydock Incorporated got a 30-year lease contract that is scheduled to end in 2017. However, the lease has changed hands to the multinational BAE systems that now run the shipyard facilities.

Previous Revitalization Attempts

During the late 1990s San Francisco underwent changes that affected different residents in different ways. The city witnessed the dot-com boom, which brought many changes to the eastern part of the city that included rising rents for tenants and businesses, displacement of lower income residents and displacement of industrial businesses. This prompted the redevelopment of Pier 70 as a place for businesses that were being squeezed out from other parts of the city, especially from the South of Market and Mission districts.

In 2001, two different proposals were presented to revitalize the pier. The first was a proposal to convert the site to a non-profit arts center (Levy, 2002). Half of the development was set to house all of the San Francisco Art Institute's graduate programs. The other half of the project intended to have different artist organizations and other arts related non-profits, including Lorraine Hansberry, John Langton Arts and the Joe Goode Performance Group. The second proposal came from the AMB Property Corporation. They called for the development

Noonan Building. *Photo: Chloe Weiller*

of industrial warehouses, which is their expertise. Both proposals disputed the same tract of land on Illinois and 20th street (Strasburg, 2001). At that time the site was an empty parking lot (currently it is a self-storage company). A year later, both proposals had collapsed largely due to reduced rents in the city after the dot-com crash, as office space was now plentiful (Levy, 2002).

In 2004, another opportunity to redevelop Pier 70 arose. This time it was the Exploratorium Science Museum that was looking for a permanent site. The Exploratorium board members wanted the museum to own its building, not to rent space from someone else (Levy, 2004). The Exploratorium considered Pier 70 but ultimately located elsewhere. The failure of these projects was largely attributed to the lack of a comprehensive plan for the entire site (SF Planning Department, 2008).

The Pier Today

If someone passes through Pier 70 today it would seem that it is an abandoned area and in a sense it is. This is largely attributed to the unsafe historical industrial buildings. Some of these buildings date from the Union Iron Works days from the second half of the 19th century (Port of SF, 2010). Currently, all buildings in Pier 70--outside from shipyard operations--are fenced off with one exception, the Noonan building. The Noonan building has been the home of artists and artist studios since the 1980s. The building looks as if it has not been painted in years. All the other fenced-off buildings show different grades of deterioration with most, if not all, having broken windows. Some even have graffiti on their walls.

Although it sounds like the setting of a horror movie, Pier 70 is active 24 hours a day and has many vibrant businesses. The ship repair operations run around the clock. Sims Metal customers line-up to sell their metal scraps. The self-storage facility is open for business at the corner of Illinois and 20th streets (where the 2001 proposal for the non-profit arts center was to be built). AutoReturn even manages a large parcel of land at Pier 70 where it serves as the impound and auction site for many of San Francisco's towed vehicles (Brown, 2010). However only one of these businesses has been identified for continuance at the pier and that is the ship repair business. The fate of the other businesses is unknown and it is still unclear what types of businesses the plan will bring to Pier 70.

Another interesting aspect of the site is the proliferation of parked motor homes on 20th street. According to an article from *The Examiner,* the tenants of the motor homes are employees at the shipyard (Strasburg, 2000). In some instances, the shipyard employs workers from out of state. One employee even drives from Oregon to work at the shipyard and sleeps near the docks inside his camper shell on the back of his pickup.

Pier 70: *Photo: Chloe Weiller*

Land Use Visions and Challenges

Pier 70 has historically been industrial and continues to be so through its continuing ship repair facilities managed by BAE Systems. The Preferred Master Plan (2010) sets aside 17 acres for the ship repair business, which is 2 acres less than the 19 acres currently leased. BAE Systems, with the help from the Port of San Francisco, received 1.8 million in federal stimulus money to upgrade their facilities. Also, they have just secured 2.4 million to investigate environmental conditions (Jensen, 2010).

Some local newspapers speculate that the development outside the shipyard area might accommodate biotechnology firms (Dineen, 2008; Jensen, 2010; Strasburg, 2009). The Central Waterfront Area Plan also favors the biotechnology industry in order to maintain more production, distribution and repair (PDR) uses south from Pier 70 (SF Planning Department, 2008, 8). The reason for this is because of the site's proximity to the UCSF Medical Center campus at Mission Bay, just north of the pier (Mcdonald, 2010). If the majority of the future tenants are from the biotech industry, San Francisco could face demographic changes that could impact local residents.

Pier 70 is subject to public trust policy, which regulates development in tidal and submerged lands (Port of SF, 2010). The basis of such policy is to protect the coastal lands from non-maritime uses, to provide access to the water and open space. The majority of the site is on filled tidal and submerged lands. The Port is working on trust swaps so that some of the uses from the Preferred Master Plan can be fulfilled. Such uses include offices, biotech and residential. The city of San Francisco has been successful in granting legislation in trust swaps on Treasure Island, in Mission Bay and in the Hunters Point Shipyard. Public trust policy is one of the reasons that a good amount of open space has been included in the Plan.

The proposal to redevelop Pier 70 calls for two major open spaces with access to the San Francisco Bay (Port of SF, 2010). Slipway Park would be located between 21st and 22nd streets, where shipyard slipways 5 through 8 used to be located. Crane Cove Park is expected to be located just west from BAE Systems, roughly from Mariposa to 19th streets. John Borg, a local business owner on Illinois street, is excited about Crane Cove Park due to the inclusion of two prominent tower cranes used years ago for shipyard operations. Borg refers to them as "mini Eiffel Towers" (Mcdonald, 2010). Both Slipway and Crane Cove parks will be part of the Bay Trail and the Blue Greenway projects. Within the rest of the site other smaller, open spaces are considered for the plan, including Irish Hill. The Preferred Master Plan (2010) follows the land use recommendations from the Central Waterfront Area Plan as to where open space should be located. These planning efforts have also addressed the concerns of activists who advocate for parkland and recreation outlets (Adams, 2005).

Rehabilitating historic industrial buildings is a challenge since some of the buildings are reaching the point of not being salvageable. In its plan the port has indicated that 17 structures totaling about 700,000 square feet of floor space should be restored (Dineen, 2008). Among the most important ones is building 113/114, otherwise known as the Union Iron Works Machine Shop. San Francisco Drydock Incorporated vacated the building in 2004 due to unsafe structural conditions (Adams, 2005). The machine shop dates back to the Spanish-American War. The conservation efforts of the pier have many followers including neighbors of the site.

Pier 70. *Photo: Chloe Weiller*

Housing is almost nonexistent in the Preferred Master Plan, although there are a couple of places on Illinois street where it is considered (Port of SF, 2010). The addition of housing units is largely dependent on public trust swaps and on businesses vacating Pier 70. The historic, industrial nature of the central waterfront is being protected by the city. Triggered after the dot-com boom in the late 1990s, businesses used warehouses as their offices and in many cases warehouses were converted to live-work lofts. Some of these new living quarters forced out many industrial businesses due to the noise that they created with their operations. The long time neighbors to the pier are accustomed to the industrial noise, even to the 3:00 am whistle from the shipyard operations. Still, many new people who move into the industrial zone expect peace and quiet and they file complaints to the city about the noise (Strasburg, 2000). The inclusion of housing is complex because heavy industrial operations are a prime source of sound pollution. Five mixed-use housing projects are in different stages of the planning process that will add 386 housing units and 21,339 square feet of commercial space (Port of SF, 2010b). In addition there are two existing live-work loft apartment buildings on Illinois street facing the dry dock.

Transportation

Pier 70 is easily accessible by local public transportation through the 22 and 48 buses and the T-Third light-rail line (Port of SF, 2010). These three routes connect the area with the rest of the city. Higher density in the area would require an increase in the frequency of the existing routes. Caltrain is another way to get in and out of the area for those who commute longer distances from the South Bay. However, this form of transportation is not affordable for people of lower income brackets. In addition to the forms of transportation previously mentioned the plan calls for a shuttle service to connect the whole site to Mission Bay and to the different public transportation routes. Illinois street is already a highly used bicycle route, but could use additional safety features for pedestrians and cyclists. The Bay Trail will be a safe route for both bicycle commuters and pedestrians. The plan calls for the addition of 2,800 parking spaces which calculates to one parking space per 1,000 square feet of commercial space.

The Port of San Francisco estimates that it would take $1.9 billion to complete the project. It would cost an estimated $665 million to complete renovations to the 17 historic buildings, complete the environmental clean-up, create open space and build the infrastructure improvements (Dineen, 2008). There are many public financing options that the Port of San Francisco could use to fund the project. One of them is the voter-approved proposition D, which would "allow tax revenue generated by the new development to be used to pay off bonds issued to build projects like parks and sidewalks" (Selna, 2008). Other sources include the federal tax credits from the National Register of Historic Places and tax increment financing. Even with such public financing tools, the investment for developers is greater than a regular project. As Port Planner Mark Paez points out, "the trick is how to attract developers without scaring them away from all the challenges" (Davis, 2010).

Conclusion

The current financial situation is one of neoliberal policy. Most, if not all, public agencies are in deficit and are no longer able to carry out public projects and San Francisco is no exception. This has opened the process for public-private partnerships over the last three decades. San Francisco has been successful in regulating private interests to provide public spaces at its waterfront (Rubin, 2010). This has been accomplished through different local, regional and state commissions and policies intended to protect the waterfront from non-public, non-maritime uses. Pier 70 is a difficult project that has been on the drawing board for more than a decade. With help from the community, the Port of San Francisco has been able to produce the Preferred Master Plan (2010), which calls for great open spaces, a great historic preservation plan, a wise consideration for housing and an unknown business use. However, the areas that surround the pier have large low-income, minority and artist populations who could not afford rent hikes. As has been shown with the dot-com boom, a drastic change in the nature of job development would also change the unique character of the neighborhood. The surrounding area should be more focused in creating green collar jobs that provide apprenticeship programs. As of this writing, the project is receiving Requests for Qualifications (RFQ) from developers. Hopefully whoever is choosen produces a better neighborhood for the future.

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ARCHITECTURE
walking tour

San Francisco is one of the most beautiful and fascinating cities in the world, yet there are sights and pleasures beyond the well-known landmarks that can be overlooked. When you walk a city, you get it all — adventure, scenery, local color, good exercise and fun. Come and discover the excitement, history, beauty and charm of San Francisco.

Designed by Vince Skelly
Written by Winston Parsons

Landmarks

1 Phelan Building / 2 Academy of Art/ 3 St. Francis Hotel/
4 450 Sutter Lobby/ 5 Hammersmith Building/
6 Notre Dame des Victories/ 7 InterContinental Hotel/
8 The Fairmont Hotel/ 9 Flood Mansion/ 10 Grace Cathedral

1

Phelan Building
1908, William Curlett
760 Market St.

This is the second Phelan Building at this location, as the original was destroyed in the 1906 earthquake. This one, however, was built by James D. Phelan, who was a San Francisco Mayor from 1897 to 1902, and U.S. Senator from 1913 to 1919. A steel-framed flatiron structure sheathed in glazed cream terra-cotta, this corner building helps define Market Street's prominence.

2

The Academy of Art
1913, Reid Bros
491 Post St.

This building used to be The First Congregational Church. The neoclassical architecture style building is now the Academy of Art University. Designed by the Reid Brothers, the edifice was intended to evoke the predominantly neoclassical look of downtown buildings as well as the New England origins of the founders.

3

St. Francis Hotel
1904–1913, Bliss & Faville
301 Powell St.

Across from Union Square and the Dewey Monument, the St. Francis is a landmark hotel. Its most recent renovation in 2004 received some ire when the 1906 Magneto clock--standing for nearly a century in the lobby and a meeting place and landmark in its own right--was moved to the rear mezzanine. The St. Francis has hosted a large number of notable guests, including Emperor Hirohito of Japan, King Hussein of Jordan, as well as US Presidents Ford, Reagan, Eisenhower and Nixon.

4

450 Sutter
Victor Liu Inc Lobby
1929, Timothy Pflueger
450 Sutter St.

When completed in 1929, this art-deco high rise was the second tallest building in San Francisco. The structural steel frame has allowed for a "thin-skinned" exterior featuring Mayan inspired terra-cotta spandrels (spaces between the windows). Take a step inside to note the lobby fashioned after a Mayan tomb. The architect, Timothy Pflueger, has been described as "the last of the Big Four architects of the downtown skyline,". The tenants are primarily medical, dental or professional offices.

5

Hammersmith Building
1907, G.A. Lansburgh
301-03 Sutter St.

This is a beaux-arts style structure that stands out from the surrounding structures with glass walls and is an improbable relic of the post 1906 era. The building's lavender and pink facade is accented by blue-gray marble and an awning by faux jewels. Fittingly described as a "commercial jewelry box" by The Foundation for Architectural Heritage, the building was originally intended to house a jewelry store.

6

Notre Dame des Victories
1916, Louis Burouchoud
564 Bush St.

The church occupies the site of the city's first French Church. The original, with its roof collapsed and interior decimated by the fire, was re-constructed in 1915 and dedicated to the souls of soldiers killed in France in World War I.

7

The Mark Hopkins InterContinental Hotel
1925, Weeks & Day
999 California St.

The former site of the house of Mark Hopkins (destroyed in, you guessed it, the 1906 fire), one of the "Big Four" of the Southern Pacific Railroad, the baron saw little time in his home, as he ironically died in an 1878 rail road accident. The only remains of the original mansion were the granite retaining walls, which now edge the hotel. Designed by Weeks & Day, the twenty-story steel-frame building defines the southeast corner of Nob Hill. The central tower and two wings are clad in "buff brick" and accented with 1920s Gothic Revival terra-cotta. The world famous "Top of the Mark" rooftop cocktail lounge was designed by Timothy Pfleuger in 1936. It was also featured in the Hitchcock thriller *Vertigo*.

8

The Fairmont Hotel
1907, Julia Morgan
950 Mason St.

Commissioned as a monument to the silver magnate James G. "Bonanza Jim" Fair by his daughters in 1902, this structure truly is majestic. This Neo-Baroque building complements the only other surviving Nob Hill structure of the 1906 earthquake and fire, the James C. Flood Mansion. Two weeks before the quake the daughters sold the hotel to the Law Brothers, who hired Julia Morgan post-disaster to redesign, restore and repair the edifice. The now closed Cirque Room housed the first bar to open in San Francisco post-prohibition. The world famous Tonga Room, a Tiki-style lounge with an indoor lake, is still open to the public and is a great spot to try some tropical drinks. The building served as a meeting place for the framers of the U.N. Charter.

9

James C. Flood Mansion
1908–12, Willis Polk/ D.H. Burnham&Co.
1000 California St.

The Flood Mansion was built in 1885-86 by James C. Flood, a millionaire who made his riches off of the Comstock Lode. Originally designed by August Laver as a residence for the Flood family, the building's New York-style brownstone facade was inspired by James Flood's fancy for the brownstone mansions of the East Coast elite. Believed to be the first brownstone west of the Mississippi, the stone was shipped around the Horn of South America from a quarry in Connecticut. The building was the only Nob Hill mansion to withstand the 1906 earthquake, as most of the other buildings on the hill were constructed of wood and painted to look like stone. Nonetheless, the fire following the earthquake left behind a stone shell. With James Flood and his wife dead, his illegitimate daughter Cora Flood sold the building to the Pacific Union Club in 1909.

10

Grace Cathedral
1928–1964, Lewis P. Hobart, Weihe, Frick & Kruse
1100 California St.

Originally built in 1849 and destroyed by the 1906 fire, the current building is constructed on the former site of Charles Crocker's mansion, donated to the church after the mansion was destroyed. Construction on the current French-gothic style structure began in 1928 and was completed in 1964. The facade on the front of the church was inspired by the cathedral of Notre Dame in Paris. The gilded bronze doors were made from casts of the original Lorenzo Ghiberti's "Gates of Paradise," on the baptistery in Florence, Italy. One of the murals within the cathedral depicts the 1906 fire that destroyed most of the City and the original cathedral.

"Welcome to Jamrock"
– Damian "Junior Gong" Marley

Jamrock

Crime and Poverty in the Streets of Kingston

Ralf Gel Abueg and Goliad Muse

Taking a closer look into Jamaica's Kingston Metropolitan Area one can see the connection between poverty and violence. Inhabiting an environment where resources are scarce and infrastructure is inadequate, members of the community turn to gangs as a way to help improve living conditions. Unfortunately, this alternative involves the handling of narcotics and brutal warfare between rival members, which only serve to further limit access to much needed aides in education, employment and potential social ties that extend beyond the KMA. In their article, authors Goliad Muse and Ralf Gel Abueg provide an in-depth look into this connection between poverty and violence, describing the characters involved and exploring the historical, political and economic factors. Afterwards, they proceed to offer steps that the country of Jamaica can take in order to help alleviate current conditions and work towards a more viable community.

When most people think of Jamaica, they envision beautiful white-sand beaches, five-star resorts, and the infectious melodies of Reggae music. However, a closer look reveals a poverty-stricken country in which everyday life is deeply entrenched in crime and violence -- especially in the Kingston Metropolitan Area (KMA). Although Jamaica is generally considered a middle-income country, a large number of the population lives in poverty, with some living in dismal poverty. Poverty is everywhere on the island, but the rural and the inner city areas of Kingston account for the largest numbers. These inner cities also account for the highest crime rates in the nation, mostly attributed to the activities of gangs who engage in violent disputes over territory, resources, and political allegiances.

This paper discusses the correlation between poverty and gang violence in Kingston's inner cities. Particular attention is given to how poverty conditions in these areas have created an environment in which gangs continue to flourish and vice versa, in which the growing power of the gangs and the violence that accompanies them creates an environment in which poverty continues to fester and living conditions for the urban poor continue to deteriorate. Simply put, a vicious cycle of poverty and violence poses major challenges for the citizens of Kingston and the country of Jamaica as a whole. We also briefly discuss the historical, political, and economic factors that have given rise to these current conditions of street life in Kingston. Lastly, we offer policy suggestions that the government of Jamaica and other internal and external factors can take in order to alleviate the poverty and violence affecting its people.

Literature Review

The primary source we used for this paper is an article entitled *The Nature of Garrison Constituencies in Jamaica* by Dr. Aldrie Henry-Lee (2005). Lee's paper explains the existence of garrison constituencies in Kingston by taking into account the political, criminal, social, and economic processes in the area. This has been quite helpful in framing our own paper, as it serves as a useful guide in helping us find factors that correlate poverty with gang violence. Another useful source was the article *Corner and Area Gangs of Inner-city Jamaica* by Michael Mogensen. This article was very useful in providing background information on the history, structure and functioning of Jamaican gangs, as well as the motivations, desires and day-to-day realities faced by individual gang members.

Background

In order to fully understand the current situation in Jamaica, we must first address the economic and political factors involved. According to the U.S. Library of Congress (2011), after a period of economic growth in the 1950s and 1960s Jamaica experienced seven consecutive years of economic decline between 1973 and 1980. This period of economic downturn is attributed to both the out-migration of skilled labor and investment capital from the island, double-digit inflation, and expansionary fiscal policies. During this period, chronic unemployment and recession coexisted with inflation, causing stagflation. Unemployment averaged 25 percent during the 1975-85 period, affecting women and urban youth the hardest. As economic opportunities in the rural areas deteriorated, the country also faced rapid urbanization. By 1982, 48 percent of the island's population was considered urban. The ruling People's National Party (PNP) led by Michael Manley was blamed for the poor economy during the 1970s, while its rival the Jamaican Labour Party (JLP) led by Edward Seaga slowly gained momentum. The rivalry between the PNP and JLP led to a long and bloody campaign for the 1980 elections, which was considered to be the most bitter and violent in Jamaican history. It was during this time that Jamaica's ruling elite and foreign backers launched a violent and debilitating assault on the PNP party to prevent them from implementing reforms. These attacks included paramilitary assaults on neighborhoods supporting the PNP (Annis, 2010). Inner city gangs, mostly made up of the unemployed and disenfranchised youth of Kingston, were often used by the political parties to conduct these assaults. These gangs became increasingly divided based on political allegiance with party supporters choosing to live together in certain sections of the city, and forcing out rivals. The growth of these divided, garrison communities in Kingston (such as Craig Town and Tivoli Gardens) has been one of the key factors in the development of organized violence in Jamaica (Mogensen, 2004).

Poverty and Drugs in Jamaica and Kingston

In order to gain a better understanding of poverty on the island, let us first examine the primary economic factors that have led to Jamaica's economic decline. Despite its shortcomings, Jamaica is generally known as a middle-income country. According to the CIA World Factbook (2011), the Jamaican economy is heavily dependent on services which make up 60 percent of its GDP. Remittances once accounted for nearly 20 percent of the GDP, but have dropped as a result of the recent global economic recession. Tourism revenue also accounts for 20 percent of the GDP, but tourism is in serious decline due to the recent rise of violence in the Kingston Metropolitan Area. The economy also faces serious long term problems: a sizeable merchandise trade deficit, large-scale unemployment and underemployment, and a debt-to-GDP ratio of more than 130 percent. As of 2009, the GDP growth rate was in decline at -0.9 percent compared to a 1.5 percent positive growth rate in 2007. Due to its difficult fiscal position, the government is unable to provide necessary funding for infrastructure and social programs, particularly as job losses rise in a shrinking economy. In addition, the government is also burdened with dealing with a serious and growing crime problem that is hampering economic growth. Simply put, high unemployment exacerbates the crime problem, including gang violence fueled by drug trade.

As of 2009, poverty levels in Jamaica have reached a six-year high at 16.5 percent, which amounts to 445,000 Jamaicans living below the poverty line (Luton, 2010). However, it is interesting to note that historically, the level of poverty in the KMA has been better than the national average. According to Dr. Aldrie Henry-Lee (2005), 16.9 percent of Jamaicans lived in poverty with rural areas having the highest levels at 24.1 percent, and other towns at 13.3 percent. In contrast, only 7.6 percent of people in the KMA were living on or below the poverty line (see Table 1).

Although the figures may say otherwise, one can truly get a sense of the extreme poverty conditions experienced by Kingston's inner cities by examining its garrison communities.

According to Dr. Henry-Lee, garrison communities are in south, southeast, central, and eastern Kingston that were formed through housing project de-

velopment decades ago by ruling parties. Populated with supporters, opposition was chased out at gunpoint, allowing the community to achieve political homogeneity. Entry and exit within the garrisons are monitored by top-ranking gang leaders, and maintained by party personnel and a framework of violence. These garrisons experience poverty, crime, violence and a high level of electoral control-- which are not always depicted when poverty is based only on quantitative macro-level statistics. The grim realities of conditions in these communities include: most of the population only finishing primary school, low rates of home ownership, less than 40 percent of the population having access to drinking water, poor waste management, illegal access to electricity, and a nearly nonexistent infrastructure (See Table 2).

Toronto Star writer Philip Mascoll (2001), who once lived in Kingston describes Kingston West and particularly Tivoli Gardens (JLP garrison community), as a "degrading, stinking, horrible place where entire families are seen living in old car bodies and structures made of cardboard boxes and flattened tins". He recalls families scrounging from the dumps and from the rotting food tossed out into the streets. People took water from the standpipes and lined up in a seemingly never-ending stream with old buckets and cans that they carried on their heads. Mascoll also recalls a time when a "man mistook a bag of crystalline substance he ferreted from the dump for sugar. He mixed the insecticide with water and a lime. He was one of the first people I saw die" (Mascoll, 2001).

Living in such deprived conditions, it is no wonder that many poor Jamaicans with few opportunities for advancement join gangs to obtain material goods and respect (Ewing, 2006). This is perhaps one of the main reasons that poverty contributes to the growth of gangs. As the gangs of Kingston increasingly involved themselves in drug trafficking in the 1980s, gang leaders (also called Dons) began amassing a fortune from the lucrative trade. So much so, that they became the new leaders of the impoverished and disenfranchised ghettoes. The youth of these neighborhoods, with few alternatives available to them, looked up to these gang leaders and decided to enter the drug business as well. Why was the drug trade so appealing to these young Jamaicans? The minimum wage in Jamaica is $1,200 (Jamaican dollars) a week and you have to work hard for that wage. On the other hand, a youth on one corner in Kingston can sell $10,000 worth of cocaine in three hours (Mascoll, 2001). The poverty, degradation, and hopelessness experienced by the youth of Kingston generate terrible anger. Add drugs and you have a way for an otherwise hopeless people to make huge sums of money. At the same time, it is these hopeless people who are the ones who empower the gangs.

The Gang Dimension in Jamaica

According to a 2010 Associated Press article, Jamaican politicians have a long history of forging convenient alliances with gangsters. The political parties build the gangs: Dons receive government contracts and in exchange deliver the votes of their people. Residents become caught in the middle and the poor are exploited from both sides (McFadden, 2010). Many of these gangs have been around since the 1940s, but gained prominence in the 1960s when they were increasingly used by politicians as street soldiers to solidify political blocs in the city of Kingston. As mentioned earlier, the gangs became increasingly powerful

Table 1: **Incidence of poverty by geographical area:** Jamaica, 1989–2001

	1989	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*
KMA*	15.5	13.3	28.9	18.8	16.7	13.8	15.0	17.2	9.3	8.6	10.6	9.9	7.6
Other town	22.0	25.7	31.4	29.9	22.9	20.0	22.8	22.0	14.8	13.4	12.1	16.6	13.3
Rural	40.7	37.5	57.2	42.2	29.6	28.8	37.0	32.8	27.4	19.5	22.0	25.1	24.1
Jamaica	30.5	28.4	44.6	33.9	24.4	22.8	27.5	26.1	19.9	15.9	17.0	18.7	16.9

**KMA: Kingston Metropolitan Area*

Table 2: **Access to drinking water, toilet facilities and electricity:** Jamaica

	1992		*1996*		*2001*	
	Kingston West (N=539)	KMA (entire urban area) (N=1673)	Kingston West (N=539)	KMA (entire urban area) (N=1673)	Kingston West (N=539)	KMA (entire urban area) (N=1673)
Main Source of drinking water:						
- indoor tap/pipe (%)	20.1	67.6	46.1	74,4	63.4	71.6
- outside tap/pipe (%)	16.8	28.2	30.1	22.0	36.6	26.7
- public standpipe (%)	16.1	2.6	11.5	2.6	0.05	1.3
- well (%)	1.8	0	n/a	0	0	0
- river, lake, spring, pond (%)	12.9	0.3	3.2	0.2	0	0
- rainwater (tank) (%)	27.2	0.1	6.3	0.2	0	0
- other (%)	5.1	1.3	2.0	0.7	0	0.4
Type of toilet facilities:						
- WC linked to sewer (%)	11.5	41.7	8.8	48.0	15.7	46.8
- WC not linked (%)	25.5	43.9	46.1	37.1	60.7	45.8
- pit (%)	61.8	13.0	45.1	14.7	23.6	5.9
- other (%)	0.4	10.4	0	0.2	0	0.5
- none (%)	0.8	1.0	0.1	0.2	0	1.0
Toilet facilities shared (%)	15.6	28.6	19.3	18.9	26.7	21.6
Electricity as main source of lighting (%)	53.4	84.3	88.5	90.0	96.3	94.2

Source: Planning Institute of Jamaica, Jamaica Survey of Living Conditions, 1989-2001

in the 1980s, when a change came to the ghettos of Jamaica. The gang members who defended the political turf and killed other Jamaicans for the benefits from politicians were replaced by a vastly more lucrative master – cocaine (Mascoll, 2001). Perhaps one of the most notorious examples is the infamous "Shower Posse" gang that hailed from Tivoli Gardens. This gang pledged their allegiance to Edward Seaga and his JLP party and many believed its name was derived from a 1980 campaign speech given by Seaga, who promised "showers of blessings" in economic opportunity for Jamaicans (Robbins, 2010). Vivian Blake, a former top leader of the Shower Posse, established the gang's American affiliate in Brooklyn during the mid-1970s. There, Blake developed a marijuana and cocaine distribution network that spanned major cities from Miami to New York to Los Angeles, and even reached as far as Anchorage. As an example of the level of violence displayed by the Shower Posse, United States prosecutors say they were responsible for more than 1,400 drug-related killings in the U.S. during the 1980s (Ibid.).

As the gangs gained power, they began to become more autonomous from the politicians. Although politics continued to play an important role in community identity and local conflicts, there was a growth in organized crime tied to the drug trade and activities such as protection and extortion, frequent gang warfare and a new social power and enhanced political influence of some of the major crime networks (Mogensen, 2004). However, the gangs remain as dangerous as ever, perhaps even more so. Today, gangs armed with AK-47's and other assault weapons are still fighting a bloody turf war for control of extortion rings that has provoked a cycle of seemingly endless revenge killings. The slums have become patchwork battlefields, with the ever-changing front lines between rival gangs marked by barricades of old refrigerators, junked cars, and burning tires (Ewing, 2006).

It is this level of gang violence that helps continue the cycle of poverty in Kingston's inner cities. Living in these communities is a nightmare during volatile periods as people live in fear from sudden outbreaks of violence. Communities have been known to "shut down" for days during street warfare, restricting people's movement, having a negative impact on employment, education, business, and personal relationships (Henry-Lee, 2005). Due to violence when gunfights begin, young children either have to stay at home or leave school early. Employment is also jeopardized by physical insecurity and restrictions on movement. People are unable to leave their homes during periods of gunfire and consequently might lose their jobs. Social relationships also become restricted because people from outside the inner cities do not want to associate with inner city residents, eliminating the possibility of breaking the cycle of poverty by widening social networks. This is due to the stigma attached to people who live in "garrisons" because when employers find out a person comes from a 'bad area', they immediately refuse to hire them. In the end, this vicious cycle comes full circle, poverty fuels the desire for people to join gangs and the gangs in turn create violent conditions that hinder people's efforts to gain an education, find employment and build social connections.

Conclusion

As mentioned previously, poverty and gang violence in Jamaica's inner cities are directly correlated with one another. Inadequate resources and lack of basic necessities, poor access to education, high unemployment and a deteriorating economy have transformed Kingston's streets into breeding grounds for gangs. This is due to the fact that its citizens, particularly male youth, have few opportunities available to them. In turn, they join gangs for respect, status and quick economic gains. In return, gangs and the violence they cause create an environment in which people constantly fear for their very lives. During periods of volatile gang confrontations, people's movements are restricted, preventing children from gaining a proper education, hindering adults from maintaining employment, and restricting the widening of personal social networks; all of which could otherwise work to break the cycle of poverty.

Solutions

In order to alleviate poverty as well as break the power of gangs in Kingston's inner cities, several steps must be taken. The first step is for politicians to dismantle garrison constituencies, which have become cesspools of poverty and violence. In order to do this, politicians must disassociate themselves from questionable characters in their constituencies, such as area Dons, and have them arrested. Politicians must also fully end the partisan distribution of work and benefits, which only serves to reinforce ties between gangs and politicians. The government must allocate more funds to improve these communities and their infrastructure - such as creating more schools, roads water access, sanitation and education. It has been observed that the main causes for gang involvement in Jamaica include: lack of money and employment, few educational opportunities, idleness, lack of community support and counseling, attraction to the 'gangster lifestyle', the need to prove one's manhood, and peer pressure. In order to address this, the government must target the youth by investing in educational programs that promote conflict resolution and reduce violence. Community organizations can contribute as well by seeking ways to provide the skills necessary for youths and adolescents, particularly males, to avoid becoming involved (or end their involvement with) gangs. Still, the brunt of the responsibility falls on the Jamaican government to ensure that the effort to end gang violence should not be restricted to law enforcement and repressive policing measures alone. Such solutions must address the complexity of the issue and should focus on employment and income generation as well as expanding educational opportunities. Music can also be used to empower and inform people of the violence in Jamaican streets and help find ways to stop it. Dancehall rap, a popular music genre in Jamaica, often reflects the grim realities of the streets. By utilizing the power of music and promoting nonviolence in their songs, dancehall artists can target a worldwide audience who would not be informed of the issues otherwise. Although there is no one solution that can alleviate all of these problems, huge steps must be taken by the government to introduce policies that will improve economic growth on a macro-economic level and reduce poverty nationwide. In turn, this will discourage people from turning to gangs for economic gains, thereby diminishing their power and stemming violence for good.

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Green Water Infrastructure

The Road to a Healthier Regional Watershed

Hilary Finck

Many experts predict that future world wars will be over water. This precious resource is necessary for all life. In San Francisco's mediterranean climate, most rain is concentrated in the winter months-which presents a challenge to our stormwater conveyance infrastructure. During large precipitation events, sometimes treatment plants are overwhelmed and untreated wastewater is discharged directly into the Bay and Pacific Ocean harming our watershed ecosystem. In the Bay Area, most water is transported great distances to reach our faucets. San Francisco is in the early stages of a Green Water Infrastructure development plan that supplements the existent system to conserve stormwater and divert it from wastewater treatment plants. This protects our bay, watershed and urban environment. Finck suggests innovative urban household and municipal policy measures that San Francisco can embrace, some of which emulate Portland's advanced stormwater management and improve our quality of life.

Sewer drain, Cesar Chavez Street and Highway 101.
Photo: Vince Skelly

Introduction

Urban stormwater management is like a magic trick: rain falls on sidewalks and streets, flows into gutters and vanishes down the sewer. In reality stormwater does not simply disappear; it continues through pipes and channels and is eventually flushed into the nearest water body—a lake, river, bay, or ocean (Committee on Reducing Stormwater Discharge et al., 2008). By design, this system works well to carry stormwater out of urban areas as quickly as possible (Lounsbury, 2009). However, unintended consequences of such conveyance wreak havoc on water bodies and downstream environments by increasing flooding events and degrading aquatic ecology (Committee on Reducing Stormwater Discharge et al., 2008).

Urbanization drastically changes natural hydrological cycles (Committee on Reducing Stormwater Discharge et al., 2008). Where soils and plants once filtered rainwater, absorbed nutrients, and recharged groundwater, now an impermeable network of streets, parking lots and buildings all block filtration. Urban surfaces are laden with the residue of our modern world—oil, grease, chemicals, landscaping fertilizers and pesticides, and settled atmospheric particulates (City of San Francisco, 2010). Water is the perfect vehicle to transport these materials. As nature's solvent, water cleanses surfaces, collects pollution, and carries it to a new destination.

Urban environments will never regain the full benefits of an undisturbed watershed (Environmental Protection Agency, 2011a). However, simple stormwater management tools--commonly called green water infrastructure--can be strategically implemented to mimic natural hydrological processes of filtration and recharge. Techniques such as bioswales, rain harvesting, permeable pavement and green roofs decrease and slow the flow of stormwater, filter nutrients and pollutants, and allow infiltration for groundwater storage. These methods supplement conventional stormwater management. Additionally, green water infrastructure provides ancillary environmental benefits such as increased biodiversity, cooled urban temperatures and improved air quality.

Urban planners, policy makers, and engineers must promote livability and environmentally favorable infrastructure not solely for urban inhabitants, but also for surrounding regions. Stormwater management that integrates conventional and green water infrastructure can replace past paradigms that imposed pollution and flooding on downstream communities. San Francisco, California and Portland, Oregon are two American cities with sustainable stormwater management plans. While San Francisco's policies are a step in the right direction, the City can learn from Portland's more complete and creative approach.

Stormwater And Its Management

In times of extreme precipitation, modern stormwater conveyance systems are critical to prevent urban floods and damage to life and property (Committee on Reducing Stormwater Discharge et al., 2008). Unfortunately, many fail to address issues of downstream flooding and stormwater pollutant contamination. According to the United States Environmental Protection Agency (EPA), urban stormwater runoff is a major contributor to water quality impairment in the United States and the primary source of pollution in 13 percent of all rivers, 18 percent of all lakes and 32 percent of all estuaries in the U.S. These figures are

astounding because only 3 percent of land in the United States is covered by urban development.

In 2006, over 15,000 beach closings and swimming advisories occurred when bacterial and pollution levels exceeded health and safety standards (Committee on Reducing Stormwater Discharge et al., 2008). Polluted stormwater runoff was to blame 40 percent of the time. In the same year, the United States Geological Survey (USGS) detected pesticides in 97 percent of urban stream water samples with levels exceeding aquatic health standards 83 percent of the time. Toxic organochlorides, which are environmentally persistent and bioaccumulative pesticides (Centers For Disease Control and Prevention, 2010), were found in fish tissue samples 94 percent of the time (Committee on Reducing Stormwater Discharge et al., 2008).

Upstream urbanization is often the cause of downstream flooding due to massive stormwater runoff that overwhelms river channels (Cauchon, 2010; Oberstar, 2010). Upstream urbanization also results in fluvial erosion; riverbanks wear away and sediment carried downstream causes depositional problems for riverine environments. To remediate this issue, some river channels are widened and lined with cement, which not only exacerbates destruction of aquatic environments, but also paves the way for flooding due to increasing flow rates (Committee on Reducing Stormwater Discharge et al., 2008). The Federal Emergency Management Agency (FEMA) estimated that property damage from flooding averages $2 billion per year. Although some flooding was attributed to negligent development, the majority of modern flood events were caused by upstream stormwater runoff.

There are two major stormwater management systems employed throughout the United States. Many urban and suburban areas have municipal separate storm sewer systems (MS4s) where untreated urban stormwater is discharged into nearby water bodies. The other is a combined sewer system in which stormwater mixes with city wastewater and is treated in a wastewater facility to regulatory standards before discharge (EPA, 2011b). Combined systems pose several challenges. Just as rivers and streams can be inundated with stormwater, so too can combined system wastewater facilities. During storm events, sewage may often be released into receiving water bodies (Committee on Reducing Stormwater Discharge et al., 2008). Additionally, many wastewater facilities are not designed to treat modern day toxic chemicals and compounds. This results in the release of significant amounts of deleterious substances into receiving waters (San Francisco Public Utilities Commission, 2011b).

San Francisco's stormwater management system is relatively unique since it is the only coastal California city with a combined sewer system (SFPUC, 2011c). Ninety percent of the city's area is drained by the combined system, with the remaining 10 percent covered by MS4s (SFPUC, 2011a). The U.S EPA (2008) regulates each system differently.

In 1972, the Clean Water Act was established to protect national water quality (Committee on Reducing Stormwater Discharge et al., 2008). Since then, the EPA has regulated point source discharge from outfall pipes of wastewater treatment plants and industrial facilities under the National Pollution Discharge Elimination System (NPDES). Point source discharge is relatively simple to regulate since the effluent is from a determinable location. MS4's stormwater runoff was not regulated under NPDES until 1987 when stormwater runoff was determined to impair many national water bodies. Since stormwater runoff regulation is not as straightforward as point sources, NPDES mandated that cities develop unique stormwater management plans appropriate for their population and size.

San Francisco Stormwater Management Guidelines

The San Francisco Stormwater Design Guidelines (Guidelines) were created by the City of San Francisco, the San Francisco Public Utilities Commission (SFPUC), and the Port of San Francisco in compliance with NPDES regulations (SFPUC, 2010). The Guidelines, enforced by the Stormwater Ordinance, were passed unanimously by the San Francisco Board of Supervisors in April 2010 (City of San Francisco, 2010).

The Guidelines mandate post-construction controls on new development for stormwater mitigation (SFPUC, 2010). Any new or amended development of 5,000 square feet or more must implement stormwater management, preferably with techniques such as rainwater harvesting, rain gardens, bioswales, permeable pavement, and green roofs.

The Guidelines' main objectives for green water infrastructure are comprehensive (SFPUC, 2010, 2011b). They aim to alleviate stress on wastewater treatment facilities during storm events, reduce sewer overflows, and decrease the amount of power and chemicals used to manage stormwater. They intend to revitalize natural watershed functions like infiltration and groundwater recharge, protect the water quality of the San Francisco Bay and Pacific Ocean, and improve the environmental quality of San Francisco's neighborhoods. In addition, the Guidelines promote integration of San Francisco's native plants in stormwater management. The Guidelines' Vegetation Palette offers developers and homeowners an exhaustive list of California native plants which require less water and pesticides than non-native plants and even provide habitat for other native wildlife.

In spring 2010, the San Francisco Planning Department amended the municipal code to include the Green Landscaping Ordinance simultaneously with the passage of the Stormwater Ordinance (San Francisco Planning Department, 2010). The Green Landscaping Ordinance aims to increase surface permeability of residential and commercial lots and encourages water conservation through climate appropriate vegetation. It requires that landscaping or permeable pavement materials be used for at least 50 percent of any surface created by the construction of a building, garage, parking space, or additional dwelling unit, and paving or repaving of more than 200 square feet. Furthermore, the Green Landscaping Ordinance calls for increased tree planting. This mitigates stormwater runoff, improves property value, and promotes urban cooling through increasing shaded areas. One street tree must be planted for every 20 feet of street right-of-way. In parking lots, one tree must be planted per five parking spaces.

Photo: Jeff Masamori

Green Water Infrastructure And Its Benefits

Although green water infrastructure alleviates some impacts of extreme storm events, it is not necessarily implemented with these types of storms in mind (Committee on Reducing Stormwater Discharge et al., 2008). It is designed to abate problems associated with small and frequent storm events, by filtering first-flush contaminants and slowing stormwater flow. The installation of bioswales, raingardens, green roofs, and permeable pavement benefits society and the environment in multiple ways.

Increased green water infrastructure reduces the urban heat island effect--formed when a concentration of pavement and buildings absorb and retain heat (EPA, 2011a). This infrastructure reduces energy demands and supports human health due to cooler temperatures and improved air quality. It provides habitat for animals, assists in water conservation, promotes groundwater recharge, increases land values, beautifies urban environments, creates jobs, and bolsters community-building (Oberstar, 2010). Additionally, green water management is cost-effective compared to maintenance of the current system and construction of new conventional stormwater infrastructure (EPA, 2000, 2011c; Majors Water Council, 2006; Oberstar, 2010).

Recent research has demonstrated green water infrastructure's effectiveness in filtering contaminants and nutrients (Low Impact Development Center, 2011). Studies performed in the early 2000s by the University of Maryland revealed that bioretention or biofiltration cells--such as bioswales and raingardens--successfully absorbed and removed heavy metals and nutrients. Ninety to ninety-eight percent of heavy metals such as copper, zinc and lead as well as 60 to 80 percent of nutrients like ammonia, phosphorus and nitrogen were filtered out. In the same period, related studies at the University of Virginia showed that biofiltration units removed between 67 and 98 percent of total suspended solids, organic compounds, grease and oil. Results depended on soil and mulch type as well as material layering and depth in the construction of bioswales or raingardens.

Some green water infrastructure techniques are rather straightforward to implement, while others require a bit more time, knowledge and financing (EPA, 2000). The overall goal is to create an urban environment that mimics natural watershed functions. Multiple green methods installed in tandem allow filtration, groundwater recharge, flood control and ecological health (EPA, 2011a).

One of the simplest natural stormwater management techniques is to plant more trees (Vermont Department of Forests, Parks and Recreation, n.d.). While this may seem rudimentary, it deserves to be noted because every part of a tree's structure contributes to stormwater management and watershed health. Rainfall is intercepted by the leaves and either evaporated back into the atmosphere or transpired through the branches, down the trunk and into the root system. This boosts soil moisture content and recharges groundwater. A 2000 field study performed by the Hydrologic Sciences Department at the University of California at Davis found that amongst other data an eight year old broadleaf cork oak tree *(Quercus suber)* intercepted 27 percent of rainfall (Xiao, McPherson, Ustin, Grismer, & Simpson, 2000). Authors of this study mention that tree canopy interception varies due to canopy size, shape and direction of leaves, the surrounding environment and the amount and duration of precipitation.

Other cost-effective green water infrastructure methods are bioretention units such as bioswales and raingardens (National Resources Conservation Service, 2005; EPA, 2000). Bioswales are vegetative channels that act as alternatives to paved gutters and conveyances (NRCS, 2005). They are formed with site-specific soils and preferably native plants which filter and slow stormwater before reaching the sewer or nearby water body. Raingardens also depend upon the site. They are usually planted at the source of stormwater, such as the end of a building's roof drainage system (LIDC, 2007). Depending upon the type of soils and vegetation used, raingardens are designed to retain water from a storm for a matter of hours. Typically, it is necessary to use plants that form well-established root structures and can tolerate inundation. Areas that cannot withstand prolonged water retention are fit with a drainage system beneath the raingarden structure.

Both of these methods naturally filter contaminants and nutrients through vegetation and soils as well as recharge groundwater (LIDC, 2007; NRCS, 2005). Bioretention cell construction is cost-effective because it reduces the need for storm drainage pipes (EPA, 2000). A bioretention facility in St. Georges's County, Maryland decreased the need for drainage pipes from 800 feet to 230 feet for an overall savings of 50 percent or $24,000.

Green roofs have the capacity to store an immense amount of rainwater as opposed to conventional roofs in which water is ushered to the gutter and down the spout to street level (Castleton, Stovin, Beck, & Davison, 2010). Green roofs are comprised of a waterproof membrane, growing medium and vegetation layer. Dependent upon the season and type of vegetation planted, this system can retain and release 25 to 90 percent of rainwater via evapotranspiration. (Green Roofs for Healthy Cities, 2009). Green roof installation provides more benefits than just stormwater management. The plants increase air purification, the evapotranspiration process decreases urban heat island effect and the vegetation and soil promote biodiversity through habitat for insects and animals (GRHC, 2009; EPA, 2000). Green roofs also insulate buildings and reduce energy costs. Research by Castleton et al. (2010) revealed several findings associated with air temperature, insulation properties, and energy costs when conventional black rooftops and green roofs were compared. Conventional black roofs absorb solar radiation and accumulate heat throughout the day and into the night. Black rooftop temperatures can reach 80 degrees Celsius while air temperatures on green roofs can be lowered to 27 degrees Celsius. Green roofs can also reduce heat gain in buildings by 70 to 90 percent in the summer and improve insulation by 10 to 30 percent in the winter. These cooling and insulating properties make air-conditioning and heating systems more efficient and reduce building energy costs.

Another productive green infrastructure method is rainwater catchment or rainwater harvesting (SFPUC, 2011e; EPA, 2011a). Simply stated, these systems catch and store rain water from a roof structure. Harvested rainwater conserves water resources and reduces stormwater lost to sewer systems. This reduces stress on infrastructure and minimizes water pollution (Texas Water Development Board, 2005). Approximately 0.62 gallons of rainwater can be collected per square foot of roof surface per inch of rainfall. The most optimal use is non-potable purposes such as landscape irrigation and car washing, but with proper filtration equipment it can also be captured for potable use. Compared to the contamination and subsequent decontamination water goes through from rainfall to faucet, captured rainwater that only contacted a carefully maintained clean roof and gutter system is relatively contaminant free.

Permeable pavement installation into sidewalks, parking lots, and low-traffic streets is an integral component of green stormwater management (Brattebo & Booth, 2003). The main purpose of permeable pavement is to create surfaces that stormwater soaks into rather than flow unimpeded to the nearest storm drain (Charles River Watershed Association, 2008). Permeable pavement comes in all shapes and sizes, from porous cement and asphalt to plastic grids filled with vegetation or gravel. These materials either allow stormwater to recharge the ground or can overlay a drainage system that leads to the sewer. In the latter, the water still flows into the sewer, but the flow rate is slowed and the water is much cleaner at this point. On average, a half-inch of rain on a big-box store parking lot can generate 250,000 gallons of stormwater (Cauchon, 2010). If implemented properly, permeable pavement areas can filter 70 to 80 percent of stormwater annually, while reducing contamination from heavy metals or organic nutrients such as nitrogen, phosphorus and suspended solids (CRWA, 2008).

Green Water Infrastructure In San Francisco

Successful implementation of green stormwater management in San Francisco is due not only to municipal policies that integrate hydrological responsibility with new development, but also local residents and organizations that care about urbanization's harmful effects on the environment (PlantSF, 2011a; SFPUC, 2011a, 2011b). Select San Francisco streets were redesigned as part of the Planning Department's Better Streets Plan, which sets standards and creates strategies to develop pedestrian-friendly environments and streetscapes that enhance social and ecological health and simultaneously serve transportation needs (SF Planning Department, 2011a). Since any project that disturbs 5,000 square feet or more must abide by the Stormwater Guidelines, the Better Streets Plan ensures that green infrastructure techniques are implemented in nearly every street design project in the City (SF Planning Department, 2011a; SFPUC, 2011a).

Leland Avenue, the commercial and civic hub of Visitacion Valley, is one of the City's first Better Streets success stories (SF Planning Department, 2011b). The redesign of Leland Avenue seamlessly integrates a myriad of streetscape improvements in accordance with Better Streets and Stormwater Guidelines (N. Wolff, personal communication, March 1, 2011; City of San Francisco Department of Public Works, 2011). Stretching four blocks westward from Bayshore Avenue, improvements such as public artwork, pedestrian-friendly lighting, new trees and traffic-calmed corners with raingardens and biofiltration units were installed. Fourteen thousand square feet of permeable pavement were installed along sidewalks and parking strips as well. Other San Francisco streetscape redesign projects along Divisadero and Valencia Streets have taken stormwater management into account. Redesign of Caesar Chavez is slated to begin in 2011.

The SF Planning Department's direct involvement is not necessarily essential to create environmentally-conscious streetscapes. In what was perhaps the most successful urban permeability campaign in San Francisco, the non-profit PlantSF helped transform over 20 streetscapes from unsightly cement sidewalks and street medians into attractive, lush, stormwater-filtering landscapes by helping residents and local organizations navigate the City's permit processes (PlantSF,

Photo: Jeff Masamori

2011a). PlantSF encourages the use of drought tolerant, native plants and installation of permeable pavement. Their website lists local nurseries, gardeners, contractors, landscape designers and permeable pavement suppliers for project assistance (PlantSF, 2011b). To date, successful permeable landscape projects include raingardens along the sidewalks of 5th Avenue between Irving and Parnassus Streets, the replacement of over 1,000 square feet of cement bulb-outs with permeable landscaping at the intersection of Harrison and 23rd Streets and a full retrofit of permeable pavement and raingardens along Shotwell Street between 17th and 18th Streets (PlantSF, 2011c).

Since projects such as these can be costly, the City of San Francisco (2011) created grant funding for assistance through the SFPUC(2011d). The City's Community Challenge Grant Program (CCGP) provides matching funds to neighborhood organizations, businesses and non-profits that work with local communities to create and improve green public spaces in their neighborhoods (City of San Francisco, 2011). CCGP grants range from $10,000 to $50,000 depending on the project size. Matched community funds of 25 to 50 percent are required. The SFPUC partnered with the CCPG to create the Watershed Stewardship Grant Program (WSGP) in order to fund community-driven projects. The WSGP awards funds to projects that assist in water conservation and stormwater management (SFPUC, 2011d). In 2009, the WSGP's first year of implementation, the SFPUC awarded $192,000 in grants to eligible projects in San Francisco (SFPUC, 2010). Proposed projects must include at least one of the following: rainwater harvesting; installation of raingardens, bioswales, green roofs, or flow-through planters; as well as the replacement of impermeable pavement with climate-sensitive landscaping or edible plants. In addition, eligible projects must take other environmental factors such as waste and water consumption reduction into account, must reuse materials and resources and must recycle or use recycled materials during construction and throughout installation maintenance (SFPUC, 2011d).

Moving Forward

While San Francisco's stormwater management programs are progressive and sustainable, there is room for improvement. San Francisco should look to Portland, Oregon's stormwater management practices to model future policies. Because of integrated plans created by Portland's Bureau of Environmental Services (PBES), it is recognized as a national leader in stormwater management (Water Environment Research Foundation, 2009). Two programs in particular, Ecoroof Incentives and Downspout Disconnection, are among Portland's successes and are the result of collaborative planning and unique utility fees (Portland Bureau of Environmental Service, 2011a; WERF, 2009).

Since 1977, Portland has collected stormwater fees from residential and commercial customers (WERF, 2009). These charges are separate from water and wastewater fees and help pay for the increased costs of managing stormwater and customer incentives. Monthly fees for fiscal year 2010-2011 averaged $21.97 for single-family homes (PBES, 2011b). Non-residential customers pay $9.66 per 1000 square foot of impervious surfaces. All of Portland's residential and commercial utility ratepayers are rewarded for stormwater management on their property through the Clean Rivers Rewards program (PBES, 2011c). Residential credits are only given for rooftop stormwater management while

Shotwell before

Shotwell after

commercial customers receive discounts based on rooftops and paved areas. The maximum credit is 100 percent of the monthly fee with partial credits given accordingly.

In 1996, the City of Portland recognized the urgent importance of urbanization and watershed health and created the Stormwater Policy Advisory Committee (SPAC) (WERF, 2009). The SPAC's stakeholders consisted of architects, landscape architects, engineers, government, and stormwater treatment industries. The SPAC contributed to Portland's Stormwater Management Manual, which is updated every two years.

The Ecoroof Incentives program is responsible for the installation of nearly 300 green roofs, which comprise over 24 acres of ecologically sustainable surfaces within Portland city limits (Cauchon, 2010; PBES, 2011a; WERF, 2009). Portland mandates green roof installation on all newly constructed city-owned buildings and rooftop replacement projects (WERF, 2009; Cauchon, 2010). Commercial developers are encouraged to create green roofs on new construction through floor area bonuses, which permit increased square footage if developers install green roofs (WERF, 2009). Ecoroof installation in Portland costs between $5 and $20 per square foot. Rebates of up to $5 per square foot are given to residential and commercial property owners who develop green roofs (PBES, 2011a; WERF, 2009).

Since inception of the Downspout Disconnection Program in 1993, Portland diverted over one billion gallons of stormwater from its combined sewer system (PBES, 2011d; WERF, 2009). Nearly 50,000 homeowners participated in the Downspout Disconnection program in which gutter downspouts are disconnected from the sewer system and re-directed instead into raingardens, bioswales, and rain barrels (Cauchon, 2010; WERF, 2009). The program targets older neighborhoods between the Columbia and Willamette Rivers where downspouts are directly connected to the combined sewer system (PBES, 2011d). The land in this area is also relatively flat so runoff is less likely to pollute these rivers. Disconnection is provided free of charge by city workers or can be done by the homeowner for a rebate of $53 per eligible downspout.

San Francisco's stormwater management policies must go further and use Portland's best practices as a model. The SFPUC must make it easier for San Francisco property owners to harvest rain regardless of downspout system complexity. While the SFPUC gives discounts on rain barrels, property owners are responsible for installation (SFPUC, 2011d). Additionally, SFPUC directions for downspout disconnection are for simple external designs (R. Kraai, personal communication, March 18, 2011; SFPUC, 2011d). Many multi-unit buildings in San Francisco employ either an inaccessible internal downspout or an external assembly made up of large, bolted drainage pipes. Both designs are cemented into the ground and lead directly to the combined sewer system. Disconnection from such conveyances would require professional knowledge and labor. Furthermore, green roof infrastructure must be specifically incentivized in San Francisco to emulate Portland's success. Although the City of San Francisco and the SFPUC give Community Challenge Grants and Urban Watershed Grants to promote an array of green water infrastructure, the ancillary benefits of green roof structures are paramount and their installation must be targeted.

Conclusion

Urban planners, policy makers and engineers must integrate green water infrastructure into traditional stormwater management to mitigate deleterious side-effects of urbanization. Conventional stormwater infrastructure is fundamental to protecting urban environments, but a shift from typical conveyances to an integrated system must occur to account for pollution and inundation effects on communities and ecosystems. Green water infrastructure techniques reduce flows to wastewater treatment facilities and are cost-effective compared to maintaining and creating new conventional infrastructure. Bioswales, green roofs, raingardens, and permeable pavement provide additional environmental benefits; they mimic natural hydrological processes that cool urban centers, purify the air, and recharge groundwater. San Francisco is beginning to integrate many strategic green water infrastructure methods into its stormwater management plan, but there is need for more comprehensive and creative policies. San Francisco should emulate Portland, Oregon's best stormwater practices to revive watershed and local urban environmental health.

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Photo: Jeff Masamori

Parking Policy in San Francisco

Overview, Analysis and Case Study

Pavel Kniha

In San Francisco, few things can create as much heated discussion as parking. Designing it, regulating it and finding it continue to be constant struggles in a city that prides itself on the ability to accommodate residents and visitors of every color, income and transport mode. This struggle is particularly distinct from other urban issues simply because vehicles are so mobile—they can cross the boundaries from private garage to public street and back again in an instant. How do we regulate these spaces in a heavily politicized environment? With what cohesive vision do we use to guide our policy making?

It is into this debate that Belarusian-born author Pavel Kniha injects his own analysis of parking issues. In this piece Pavel not only provides a comprehensive review of San Francisco's often puzzling parking policies, but he also frames the contentious debates surrounding this classic urban conundrum. For a controversy easily mired in hyperbole and competition, Pavel does an admirable job of complementing facts with sensible commentary. After reading it one cannot help but to ponder alternatives to the age-old belief that each vehicle is entitled to unlimited free parking at all times.

Parking is an essential component of land use planning. Planners, architects, designers and transportation engineers must consider the size, location, shape and price of on- and off-street parking facilities. In highly urbanized and dense areas parking becomes a complex problem. As a city, San Francisco is often a leader in innovative parking policies, many of which are controversial. The City has become a testing ground, where homeowners, city planners and neighborhood activists have to find compromise between competing interests. Developers must then come up with creative solutions in their projects. This article analyzes current parking supply and demand and briefly reviews the most notable parking management programs in San Francisco such as SF*park*, the Residential Parking Permit Program and the Better Neighborhoods Plan. As part of the analysis several maps have been created to visually present parking data. It concludes with a case study that highlights how the City's progressive parking policies are not always implemented in the way they were intended.

Policy Overview

Traditionally, the City used to require the provision of parking for all new construction in San Francisco. It is also a public perception that parking is a necessary amenity. However, the new garages, additional roads and freeways did not solve the problems of roadway congestion, but actually worsened them by encouraging automobile usage. The requirement of one parking space per residential unit is outdated and leads to more parking than a transit-oriented city needs. Every new residential parking space automatically creates a need for additional parking at the destination where the car could be driven. City officials and planners have realized that increasing street capacity and parking quantity will not satisfy the growing demands of the automobile-dependent lifestyle.

In 2009, the San Francisco Planning Department issued a report *Parking and Better Neighborhoods: Getting It Right.* The report described the negative consequences of undermanaged parking and outlined key steps to take in solving those problems. According to the report, the old minimum parking requirements of one car per residential unit resulted in irrational land use, caused congestion and drastically affected neighborhood walkability and livability. As San Francisco is known for its unique character, it is easy to understand how surface parking lots and driveways could destroy the charm of its neighborhoods. Excessive off-street parking degrades the aesthetics of urban places, generates more traffic, takes up valuable space and makes housing less affordable (San Francisco Planning Department, 2009b).

Compared to other American cities, San Francisco has a well developed public transit system which provides alternatives to driving. The City has adopted a Transit First Policy that is designed to:

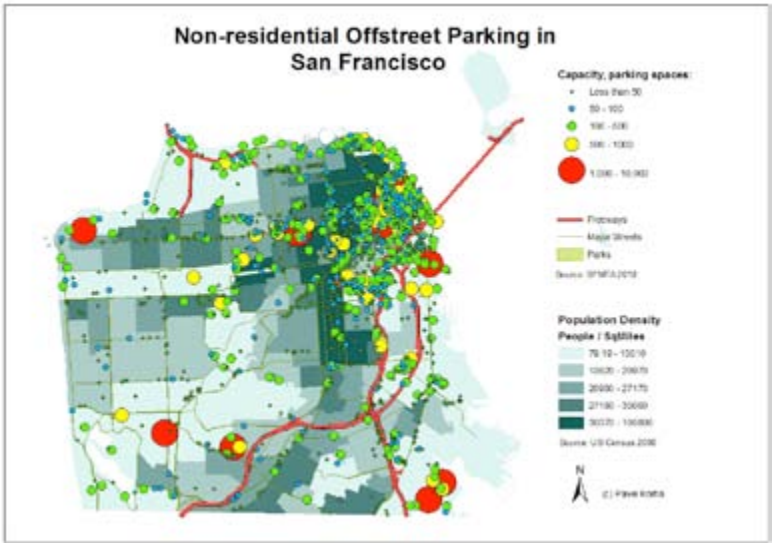
> "encourage the use of public rights of way by pedestrians, bicyclists, and public transit, and shall strive to reduce traffic and improve public health and safety….Parking policies for areas well served by public transit shall be designed to encourage travel by public transit and alternative transporta tion." (MUNI Code, 2008).

Hence, limiting parking is essential to making transit and other alternatives effective and complementary to urban transportation systems. According to the Transportation Element in the San Francisco General Plan, it is necessary to apply new tools for managing parking in different parts of the city in order to reduce the number of cars in highly dense areas, within an easy walk of transit services, and on core transit streets.

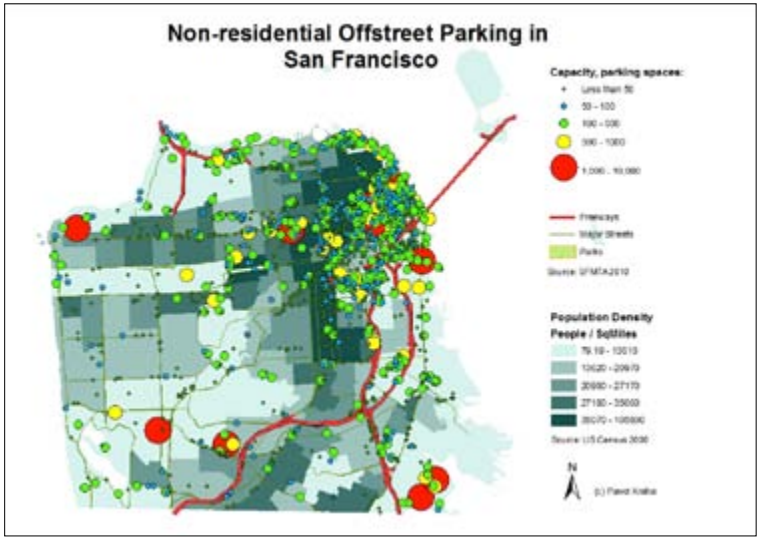
The 2009 American Community Survey counted about 818,000 residents in San Francisco. More than 500,000 additional people visit every day. With about 500,000 jobs in the city, the daytime population can swell to about 950,000 people. As a result of zoning policies that have segregated different land uses, the northeastern part of the city has a notably higher population density right next to the area most of the jobs are located. Due to spatial mismatch, the workforce that is employed in this area have to commute from outside and as a result commuters compete for parking with local downtown residents. Such intensive land use is supported by a network of bus and light rail lines, as well as several regional subway stations. However, on the western side of the city, single family homes form bedroom communities that are highly dependent upon private automobiles for transportation.

There are about 430,000 registered vehicles in San Francisco. Almost 40% of workers drive, causing tremendous traffic congestion and parking shortages in the city, especially in the downtown area. It is estimated that there are about 603,000 total parking spaces and that 320,000 of them are on-street. To accommodate high parking demand in the downtown area there are about 67,000 off-street parking spaces (SFMTA, 2009). Map 1 illustrates the distribution of all off-street parking facilities. These parking facilities are displayed using different colors and dot sizes to represent capacity. The parking facilities are displayed on top of population density. The map only shows off-street non-residential parking. Map 2 shows the north-eastern part of San Francisco in more detail.

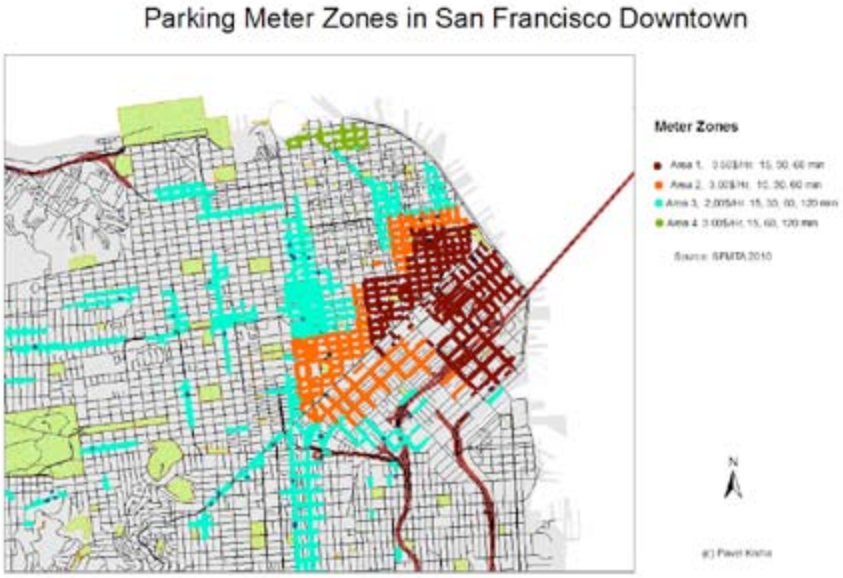
Map 1 Residential Density in San Francisco. Source: SFMTA



Map 2 Job Distribution in San Francisco. Source: SFMTA.



Map 3 San Francisco Parking Meter Zones. Data Source: SFMTA



Residential Parking Permit Program

One of the first attempts to regulate parking issues in residential areas was the Residential Parking Permit Program (RPP). It was created in the mid 1970s to address parking spillover in residential neighborhoods next to major trip generating facilities such as universities, transit hubs, hospitals, and large employment centers. The RPP established specific parking zones for non-metered parking spaces and set time limits for vehicles that do not have a residential parking permit. Each household within a specific parking zone is allowed to have up to four permits that cost $98 a year each (City and County of San Francisco, 2008). If a household needs more than four permits it can still purchase them for an extra charge. In theory, there is no limit to how many permits a household may have. Almost 90,000 permits are issued every year, more than the total number of all on-street parking spaces available in every RPP zone combined (SFMTA, 2009). While created with the best of intentions nearly 40 years ago, the program does not fully address modern day parking management needs. Several negative sides of the program have been identified.

First, the program benefits a relatively narrow group of people who store automobiles on streets during the day. Essentially, for a flat fee of $8 a month an owner receives the unlimited right to store a vehicle conveniently close to his or her residence. Usually parking demand varies in different areas and depends on the time of the day. Many of the program participants use their permits to keep cars on the street even when they have garages available, which they use as storage instead. According to a survey conducted in the Mission District, in some areas 49% of all garages are "used for something other than automobile storage" (Brown, 2007).

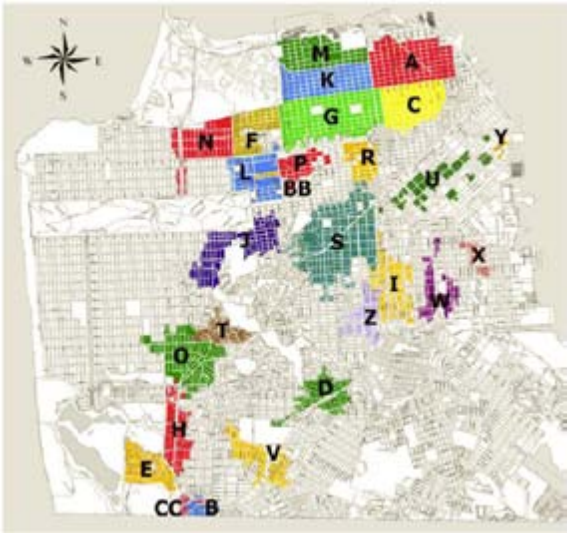
The second disadvantage of the RPP is that it is developed and designed without considering the amount and location of metered parking in the area. As a result, visitors may park in the RPP zone, not in a metered spot after 4:00pm. Then when permit holders come home after 5:00pm, they are forced to park at the metered spaces and pay until 6:00pm. Obviously, this violates the intent of the General Plan, which calls for parking priority to be given to local residents.

The third negative aspect of the Residential Parking Permit is that the location, size and shape of the RPP zones are irregular. In the past,the zones were designed around different facilities and were not coordinated with each other. The usual process of application and creation of RPP zones is based on the political will of local residents, not on supply and demand of parking in the area. This results in oddly shaped and illogically placed zones. Note the irregular size and shape of the RPP zones in Map 4.

It may by confusing for many new residents who may not realize what zone they are in. They may accidently park in a zone for which they do not have a permit. The way the program works can cause frustration and anger among new residents, visitors or tourists. For example, drivers that do not have permits and come to a zone for more than two hours are forced to move their cars even if there is plenty of parking available. As a result, they move their cars from areas of low demand onto streets where there may be less parking available. Another problem is that no signs specify how far a car has to be moved. Very few drivers know that it has to be one city block away from the original location.

Arguably, a substantial flaw of the program is that its flat fee pricing structure

Map 6 San Francisco Residential Parking Program Map. Source: SFMTA



encourages people to have more cars than they may need by passively subsidizing on-street storage. Underpriced parking permits cause revenue loss to the City and leave the parking in the permit zones poorly managed. Summarizing, some adjustments to the program are necessary:

- Permits should be priced depending on the location of the zone and parking demand in the neighborhood.
- RPP pricing should be linked to the rates of the metered spaces to effectively manage the areas of the highest demand.
- There should be a limit on how many permits a household may have, as this could discourage excessive car ownership.
- When issuing a parking permit, the City should consider whether an applicant has garage space available.
- The hours that the permits are in effect need to be reconsidered. Each neighborhood is unique and the hours of enforcement could be extended.

SF*park*

The Victoria Transport Policy Institute, famous for its innovative approach to parking and transportation management, issued a report: *Parking Management Strategies, Evaluation and Planning*. This report investigates problems with current parking planning practices, describes specific parking management strategies and suggests how they can be implemented. According to the report, "cost-effective parking management programs can usually reduce parking requirements by 20-40% compared with conventional planning requirements, providing many economic, social and environmental benefits"(Victoria Transport Policy Institute, 2007). To effectively use pricing as an approach to managing

Map 7 SF*park* Study Area. Source: SFMTA

parking supply, a performance-based pricing strategy was introduced in San Francisco "to optimize parking facility use, which means that about 15% of parking spaces are vacant and available at any time" (Victoria Transport Policy Institute, 2007).

Following these strategies, the San Francisco Municipal Transportation Agency (SFMTA) designed SF*park*, a program that implements new parking management approaches and technology to manage parking in areas of high demand. This project identifies several pilot and control areas: the Financial District, SOMA, Mission Bay, Mission, Civic Center, Fillmore, Inner Richmond, Marina, Union Square and Fisherman's Wharf neighborhoods as shown on Map 5.

The SF*park* program is designed to track inventory of both on-street and off-street parking supply in real time and to adjust pricing accordingly. Parking sensors installed in street parking spaces and in city-owned garages wirelessly transport occupancy information to a database. From that database, parking availability information is provided to the public via street signs and smart phone applications. New parking meters respond to changes in demand by adjusting meter rates based on the current availability of spaces. Instead of flat rates, the SF*park* meter rates fluctuate and may be higher or lower than regular meters and vary from $0.25 to $6.00 per hour. They may go up to $18.00 per hour during special events for on-street spaces and $1.00 to $10.00 in the garages. The goal is to use variable pricing to avoid imbalances and to achieve an even distribution of parked cars according to demand.

Ideally, this program would keep metered space occupancy within a range of 65% to 90%. This percentage is called the "availability standard" and may also be adjusted for different areas. Parking availability, location and pricing will be communicated to drivers via street displays, the SF*park* website and smart-phone applications. This policy will allow the City to encourage short-term

parking use for short shopping and business trips and discourage long term commuter parking. If successfully implemented, it will fulfill Policy 17.1 of the General Plan Transportation Element, which recommends reducing long-term parking in downtown areas and near major employment centers.

Some skeptics argue that adjusting meters by $0.50 increments may not be an accurate representation of the real-time demand change. Others express concern about the safety of using hand-held devices (such as smart phones with a SF*park* application) while driving and looking for a parking spot at the same time.

Parking Maximums in Better Neighborhoods Plans

Another way to address parking issues in residential areas that are well served by transit, would be to limit parking in new residential buildings. The Metropolitan Transportation Commission (2007) has published *Reforming Parking Policies to Support Smart Growth* for communities interested in planning and implementing parking policies that are supportive of Smart Growth and transit-oriented development. According to the handbook, San Francisco neighborhoods like North Beach, Noe Valley or the Market and Octavia area are identified as City Center/Urban.

The Better Neighborhoods Program identifies Balboa Park, Central Waterfront and Market and Octavia neighborhoods as potential testing grounds for the new policies. For example, the Market and Octavia Area Plan supports a lifestyle that does not have to rely on automobiles (Policy 5.2.4). According to the plan, more than 40% of the households in the Market and Octavia neighborhood live without a car. The area's access to transit, local shopping and downtown makes it an ideal place to live with less dependency on the private automobile. Policy 5.2.1 of the plan calls to eliminate minimum off-street parking requirements and establish parking caps for residential and commercial parking. Fewer cars driving and parked on streets can free up space for more efficient public transportation.

In keeping with the Transit-First Policy, the plan aims "to improve the reliability, frequency, and overall dignity of transit, bicycle, and pedestrian services and amenities in the area, while managing the parking supply to provide efficient and easy access to a variety of users"(San Francisco Planning Department, 2010). Eliminating parking requirements will also reduce construction costs and provide more space and funds for affordable housing or small-scale commercial uses and services. Housing above ground-floor retail creates walkable neighborhoods, where everyday activities will not need to generate new car trips. Eliminating parking requirements has to be done in conjunction with the promotion of services such as car sharing, vanpooling and taxis to provide people with multi-modal transportation options. Parking maximums should depend upon the overall intensity of use expected in the future and a site's proximity to transit and services. "The City should investigate the full costs to the public of parking in new developments; and should consider recovering these costs and using the proceeds to fund transit improvements and to increase the quality of streets for pedestrians" (San Francisco Planning Department, 2010).

Case Study: 299 Valencia

New policies are not always implemented the way they were originally intended. It is common for the developers to try to include as much parking in a project as possible to maximize profit. A project at 299 Valencia Street is a good example of this trend as it became a controversial test case for the new parking policies.

This five story, 36-unit mixed-use building with four below-market rate units and about 5,000 square feet of retail space on the ground floor was proposed to replace a surface parking lot at the corner of 14th and Valencia streets. The project falls under the Market and Octavia Plan area and is located in a NCT-3 zone, which allows a maximum parking ratio of 0.5 (one parking space for every two units). Thus, the code allows 18 parking spaces by right. However, JS Sullivan Development applied for a conditional use (CU) permit to build 25 residential parking stalls and two more spaces for car sharing so that the units would be more marketable.

In November 2008, the Planning Commission unanimously voted in favor of the CU permit. The Commission was convinced that the developer had done everything necessary to meet the requirements in the Planning Code for the extra spaces. The Planning Department believed that the CU permit is justified by locating the underground garage access on Stevenson Street and by providing bicycle storage and car share parking in the building.

The decision was appealed to the Board of Supervisors by the Hayes Valley Neighborhood Association, Livable City, the San Francisco Bicycle Coalition, the Sierra Club, and the AIDS Housing Alliance. The appellants argued that extra parking violates the policies of the Better Neighborhoods Plan and is not necessary in the transit rich area. However, the Board failed to collect the super-majority of votes needed to overturn the Planning Commission's ruling. The Board explained that without the additional seven spaces the developer would not be able to afford the excavation for an underground garage. The remaining option of placing the garage on the ground level would reduce the commercial space to less than 1,000 square feet. Such a configuration is not allowed on that lot under its current zoning law, so not permitting additional parking essentially would jeopardize the entire project. The Board found that the project itself would be a desirable addition to the neighborhood, would be in compliance with the city trend for mixed-used development, would bring new businesses and would provide in-fill housing. For these reasons, the proposed project was approved.

Map 6 shows that the Board may have failed to take into account the street pattern. Added traffic from the project will cause additional congestion and will put a disproportionate load on one intersection. This could seriously affect public transit lines and bike lanes on Valencia Street. The red arrows on the map indicate traffic converging on Valencia Street from adjacent side streets.

As seen on Map 6, all the cars from the new building will exit onto Stevenson Street and will be funneled onto a relatively small one-way street. Following the street, all the cars would end up on Valencia Street, inevitably slowing down the buses and crossing the bike lane at the intersection with Clinton Park Street. These problems appear even worse when considering the other section of Clinton Park Street between Guerrero and Valencia, another one-way street with 15

Map 6 Traffic Pattern around Proposed 299 Valencia Project. Data Source: Google Maps.

garage doors. Based on observations from visiting the location, 20-25 cars can be estimated to be stored in those garages. These cars will all inevitably exit into the same intersection. At the same time, the increased traffic will interfere with the drivers dropping off and picking up students at the San Francisco Friends School located on the corner. The combined traffic from Stevenson and Clinton Park streets cannot comply with Section 151.1(f) of the Planning Code. This section applies to NCT zones and requires that cars interacting with the project "not unduly impact pedestrian spaces or movement, transit service, bicycle movement, or the overall traffic movement."

The decision to approve 299 Valencia essentially suggests that marketability of units can be used as a legitimate justification for a conditional use permit. Opponents of the project claim that this case has set a precedent for later conflicts and will affect future decisions. In essence, "marketability" of the units is being used as an excuse to go over the allowed parking limits in the area. After the effort put into the design of the Market and Octavia Plan and after many hours spent at the drawing board, these thorough and carefully drafted parking policies have not been properly implemented.

Conclusion

Planning for parking management is an ongoing process and some positive results of the hard work can be seen already. The new development at Octavia Boulevard includes beautiful new open spaces, vibrant walkable neighborhoods, improved traffic flow and diverse transportation options rather than dependence on automobiles. San Francisco heeds some of the best practices in the nation and is a pioneer in the development and implementation of new, unique policies. Whether they can be successfully applied or not will only be seen as individual projects are designed and built.

The relationships between new development, public transit, traffic and parking components should be constantly monitored so that land use planning can address changing demands. It is essential that the needs of the community and the entire city are considered. In order for San Francisco's transportation system to be successful, it must be managed and developed with creativity and be responsive to current and future trends. It must be sensitive to land use considerations as well as the environment it serves. This will require cooperation and coordination from the Planning Department, SFMTA, private developers, community members and other interested parties. Today, public participation plays an increasingly important role in the planning process. Decisions over controversial issues like parking are often made as a compromise. Nevertheless, those decisions are still another step towards a beautiful, safe, mobile, and sustainable San Francisco.

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Author Biographies

Tyler Evje
Tyler Evje is a senior in the Urban Studies and Planning Department at San Francisco State University and completes his degree in May 2011. He's interned in the Alameda-Contra Costa Transit District's Service Development Department and is currently a volunteer intern in the San Francisco Metropolitan Transportation Agency's bicycle program. After graduation Tyler plans on gaining additional experience in the real estate, planning, or transportation fields before entering graduate school in 2012. When he's not staring at transit maps you can find him trying new microbrews, learning more about various languages (including his own), and fantasizing about his next backpacking trip. He can be contacted at tylerevje@gmail.com.

Nikolara Jansons
Nikolara Jansons is graduating this spring from the Urban Studies and Planning Department at San Francisco State University with her BA. She will be continuing her studies at University of Hawaii at Manoa this fall in urban and regional planning with a concentration in disaster management and humanitarian assistance. She enjoys contemplating the streets where she likes to walk and observe the workings of the City. Curiosity has spurred Nikolara's life; she enjoys photographing the world around her and reading myriad subjects. In her leisure time she enjoys lingering in farmer's markets, gardening till it's dark and dancing till it's early. She can be reached at: njansons@mail.sfsu.edu.

Cristobal Bonal
Cristobal Bonal was born in San Jose, California and raised in Tijuana, México. After finishing high school in Tijuana, he attended Southwestern Community College in Chula Vista, California and completed an AS in Architecture. While in community college, Cristobal joined the hundreds of thousands of people who work or go to school in the San Diego area and live in México. His strong interest in housing for the lower income brackets led him to San Francisco to pursue his BA in Urban Studies and Planning. After graduating from San Francisco State University in the spring of 2011, Cristobal is planning on working in different fields of the planning profession to gain valuable experience to later pursue a graduate degree. He enjoys observing the urban and natural environments, meeting new people and having good meaningful conversations. Cristobal's hobbies include cycling, hiking, snowboarding and watching both movies and documentaries.

Hilary Finck
Hilary Finck is pursuing her BA in Environmental Studies with an emphasis in the urban environment. Although interested in an array of environmental issues, she is particularly intrigued by urban watershed management, improving water conservation and efficiency measures, and sustainable urban policy and planning. In her free time, Hilary likes to explore San Francisco and beyond via bike or foot, relax with friends in one of the city's gorgeous parks and take in the plethora of art galleries and museums the city has to offer.

Winston Parsons
A fourth generation San Franciscan, Winston Parsons is currently a senior at San Francisco State University, pursuing a BA in Communications with a minor in Urban Studies and Planning. His interest in planning was piqued after visiting Los Angeles and enduring abominable traffic and witnessing neighborhoods without sidewalks. His return to San Francisco gave him increased appreciation for the city he grew up in and a newfound passion for improving the quality of spaces and life for urban dwellers. He loves exploring both urban and outdoor environments as an avid cyclist (with the goal of riding down Highway 1), amateur rock climber and photographer. He aims to combine the skills provided from his communications and planning backgrounds to better inform the public on planning issues. He is also interested in how to better organize groups with the goal of empowering them to have a say in development in their area. He is also interested in sustainable development, environmental justice and efficient transportation. He currently works at McKesson in organization design and change management support. He has previously worked for the Presidio YMCA working in after-school and camp programming. He has recently been volunteering with San Francisco's Friends of the Urban Forest to help organize a tree planting in his neighborhood. He can be reached at: presparsons@gmail.com.

T. Michael Liles
T. Michael Liles is an urban studies and planning student, a published author and a periodicals aficionado at San Francisco State University. He is currently working with the American Planning Association California Chapter Northern Section Sustainability Committee to create a learning and practice network for city planners who are interested in sustainability planning. Dedicated to education and equity, he worked as a coordinator for the Book Loan Program at City College of San Francisco and has worked with Equality California to help achieve equal rights for lesbian, gay, bisexual and transgender persons. Although Michael has lived in several states (Montana, Utah, Washington and New York), he calls California his home. In his spare time, he enjoys contemplating the mysteries of the universe and drinking coffee. For questions or comments, you can reach Michael at: need2learn@hotmail.com.

Edson Veizaga
Edson Veizaga was born in Oruro, Bolivia. When he was five years old he immigrated to Buenos Aires, Argentina and afterwards he moved several times. Being able to experience and live in different extreme environments awoke his interest in architecture and urban studies. In Buenos Aires he attended architecture school at Universidad de La Plata (ULP) and Universidad de Buenos Aires (UBA). In 2005, he moved to San Francisco where after six years he feels at home. In the future, he would like to continue his education in urban design and architecture and dreams of upgrading slums. Besides working and going to school, Edson enjoys travelling, swimming, playing soccer, dancing and performing traditional Bolivian music. He can be reached at fredsonline@gmail.com.

Will Heywood
An Urban Studies and Planning major with a minor in Geography, Will arrived at San Francisco State University in the spring of 2009. Moving from the coastal city of San Clemente in Southern California, Will was used to being surrounded by surfers and soccer moms. Needless to say, moving to San Francisco has been quite a change from Southern California. It has opened Will's eyes and he now sees firsthand how vibrant cities can be. Will's interests in the field of urban planning range from land use politics in San Francisco to conditions of slums in the developing world. Upon graduation Will plans to pursue a career in urban planning and he also hopes to eventually enter a master's program... or maybe he'll just continue to ride his skateboard instead.

Goliad Muse
Scholar of the university of life and keen observer of urban street culture, Goliad Muse could not have asked for a better major that reflects the lens of his urban experience. When he first started the urban studies and planning program, Goliad's initial aspiration was to learn how to design cities; however his assumptions of the major changed. After taking classes like Cities in a Global Society and Urban Poverty, he realized that the urban environment has more depth than high-rise buildings. Listening to Grandmaster Flash and the Furious Five's "The Message" Goliad understood how poverty and public policies creates social hierarchy based on injustices. Goliad hopes one day to become a professor and create his own non-profit combating water scarcity in developing nations. In his free time Goliad enjoys creating music, writing poetry and seeking higher learning. Email him at gmuse3412@gmail.com.

Ralf Gel Abueg
Ralf Gel Abueg was born in Manila, Philippines where he spent his early childhood before moving to Vallejo, California at the age of nine. Growing up in a poverty-stricken country--where food was scarce and the next day was never certain--taught him to never take things for granted and to work hard to achieve success in life. As a child, he showed great interest in learning world history and the major events that shaped the world we live in today. As an adult, this interest developed into a passion for politics, a field where history is being made every day. Currently, he is an active member of Zeta Chi Epsilon fraternity, has a part-time job and interns at the California Assembly District Office in San Francisco. Ralf has recently earned his BA in Political Science and plans to attend graduate school to earn a master's degree in public administration.

Pavel Kniha
Pavel Kniha was born in Belarus and immigrated to the US when he was 18 years old. After a short trip around the country, he came to San Francisco and immediately fell in love with the city. Pavel graduated with honors from the City College of San Francisco with an AA in Real Estate and continued his education at San Francisco State University in pursuit of a degree in urban studies and planning. Besides school and work, Pavel volunteers in the Office of Supervisor Eric Mar in San Francisco's City Hall. Pavel is known to his friends as a person who can talk non-stop about San Francisco places, culture, history and politics. Pavel enjoys riding his motorcycle, making 3D architectural models and learning about urban planning, design and history. Pavel would like to thank Professor Henderson, Professor Rubin and his classmate Rachel Moody for their help, their support and the knowledge they have shared throughout his school years. Pavel is open to ideas and comments about his submission and can be reached at: pkniha@gmail.com.

Justin Giarritta
Justin Giarritta is a senior at San Francisco State University looking to achieve his urban studies and planning and political science degrees in the spring of 2011. Born in Sonoma, California, a small town in Northern California, Justin came to San Francisco hoping for culture shock and to learn more about the way people grow up in an urban setting. This is derived from an obsession Justin has had since the first grade, where he would use milk cartons, construction paper and large rolls of index paper to create his own cities on his living room floor. Since then, his interests in the field have become more focused towards land use planning and transportation development. In the future, Justin hopes to attend graduate school and earn his master's degree in urban planning. Justin loves spending his leisure time with his family and friends, taking road trips, listening to music, supporting the San Francisco Giants and Golden State Warriors and relaxing in the outdoors.

Rachel Ortega
Rachel Ortega was always fascinated by the drama of the city. As a child, she'd spend summer days building an entire town for a diverse group of characters (her beloved stuff animals) complete with grocery stores, parks and modes of transportation, all within the confines of her backyard. Rachel is a Bay Area native and grew up observing the cities around her expand and transform. She later moved to San Luis Obispo where she appreciated small-town living and studied electrical engineering for two years. While she realized that mathematics and physics are important applied subjects of our world, she also realized that electrical engineering was not a major she wanted to pursue. Rachel became interested in social justice, sustainability and urban development and in 2010, received her BA in Urban Studies and Planning from San Francisco State University. Currently, she works at a non-profit affordable housing developer, revisiting her old math skills, as well as expanding her knowledge in urban development. Rachel hopes to pursue her master's in city and regional planning and dreams of living in different parts of the world, being an avid learner of cities and cultures. Email: ortega.rachel@gmail.com.

Lisa González
Lisa received her BA in Urban Studies and Planning at San Francisco State University with the AMAZING support of her elementary school sweetheart, mi amor, Renée. Lisa moved to San Francisco a decade ago to enjoy the multi-faceted diversity that city life provides. Her hobbies include enjoying the simple things, such as: reading a great (paper) book; walking her dog Nula; enjoying affordable local food; attending any kind of art event; taking a car trip without an agenda and map; and sleeping in on Sunday mornings, having a great breakfast

and drinking a great cup of fair-trade, shade-grown, organic coffee with the Sunday newspaper. Her future endeavors professionally and personally will include giving back to the community that enriches and inspires her.

Jacob Lile
Originally from a small town in Montana, Jacob Lile graduated with High Distinction (Magna cum Laude) from the University of California, Berkeley where he studied cultural anthropology and social literature of Latin America. Additionally he holds a credential in family development from Cornell University and is pursuing a Master of Public Administration at San Francisco State University. Having been homeless on more than one occasion as a child, he has a dedicated passion for serving families in crisis. Jacob has been working with at-risk youth and families since 1999 in a career that has taken him across the United States and into Mexico. He has been employed with Shelter Network since 2005 and has served as Bilingual Case Manager and Housing Specialist. He is currently the Program Director of the Family Crossroads transitional shelter in Daly City, California as well as all rental subsidy and workforce development programming. He also collaborates in the grant writing process and represents Shelter Network on various committees including the San Francisco Bay Area Steering Committee on Homelessness and Housing. Jacob's fluency in Spanish has been tremendously beneficial to serving the participants in his programs. He enjoys running, weightlifting, boxing and MMA. Any spare time he has is spent with his wife and eighteen month-old son, traveling, cycling or relaxing at home. Questions about this study may be directed to: jlile@mail.sfsu.edu.

Yumi Felsinger
Born in Seoul, Korea, Yumi Felsinger immigrated to the United States where her family established roots in the Bay Area. Always fascinated with city life, Yumi eventually settled in San Francisco, where she has been a resident for fifteen years. Yumi's urban policy concerns range from social equity, preserving income diversity in the city, as well as the outmigration of families and affordable housing. When not at work or school, Yumi enjoys volunteering, museums, inspired conversation, long city walks and relaxing with friends and family.

Vince Skelly
Vince Skelly went to Sycamore Elementary in Claremont, California. He is a graduating senior at San Francisco State University studying Visual Communication Design. Vince is inspired by typography, art history, architecture, the appropriation of children's toys and found objects. There is satisfaction in assisting the evolution of discarded materials. Much of his design process involves experimenting with methods on and off the computer, to allow the embracement of physical interaction. Vince is attracted to design that is driven by intricate underlying systems, but trusts intuitive design. For more information visit Vince's website at www.vinceskelly.com.

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Louie Jones; 26
Vince Skelly; 120