

A PROJECT OF  
UCLA LUSKIN  
COMMUNITY  
SCHOLARS

JUNE 2014  
VISION DOCUMENT



# **ENVISIONING A GREENER LA:**

**Environmental and Economic Sustainability  
for Boyle Heights, Pacoima & Wilmington**

## UCLA LUSKIN COMMUNITY SCHOLARS PROGRAM

The Community Scholars Program, created in 1991, is a joint initiative of UCLA's Department of Urban and Regional Planning and Center for Labor Research and Education that recognizes the important role that community and labor leaders play in shaping community development policy in Los Angeles. The Program brings together these key players with graduate-level urban planning students in a targeted applied research seminar to study issues in depth and to enhance skills required to influence policy.

Community Scholars 2014 has focused on exploring the potential for "green" economic and job revitalization strategies in three of Los Angeles' most disadvantaged and "toxic hot spot" communities—Boyle Heights, Pacoima and Wilmington. Students and scholars have developed community-specific and city-wide policy recommendations to facilitate the City, in coordination with community-based organizations, worker organizations and other stakeholders, in carrying them forward.

*Disclaimer:* Neither the University of California nor the Luskin School of Public Affairs either supports or disavows the findings in any project, report, paper, or research listed herein. University affiliations are for identification only; the University is not involved in or responsible for the project.

## EDITORIAL TEAM

KRISTY SANDOVAL, COMMUNITY MURALIST

These designs were created especially for this report by Kristy Sandoval, muralist and one of the UCLA Community Scholars. Her work is dedicated to increasing social awareness through public art. She has played a vital role in the development of "Mural Mile" along Van Nuys Boulevard in Pacoima and continues to work with that community to collaborate on new mural designs.

DESIGN & EDITORIAL TEAM

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INTRODUCTORY NARRATIVES FOR EACH COMMUNITY

Written by the Community Scholars on the Boyle Heights, Pacoima, and Wilmington teams, respectively.

## PROJECT COMPONENTS

This project report is available in three components:

### EXECUTIVE SUMMARY

The Executive Summary highlights the community-specific and city-wide policy recommendations, and provides a brief overview of the specific "greening" strategies studied for each community.

### VISION DOCUMENT

The Vision Document expands on each of the community strategies identified and highlights specific research findings and recommendations.

The Executive Summary and Vision Document are available for download at the following links:

[bit.ly/greenerla](http://bit.ly/greenerla)

[libertyhill.org/communityscholars2014](http://libertyhill.org/communityscholars2014)  
[labor.ucla.edu/community-scholars-2014](http://labor.ucla.edu/community-scholars-2014)

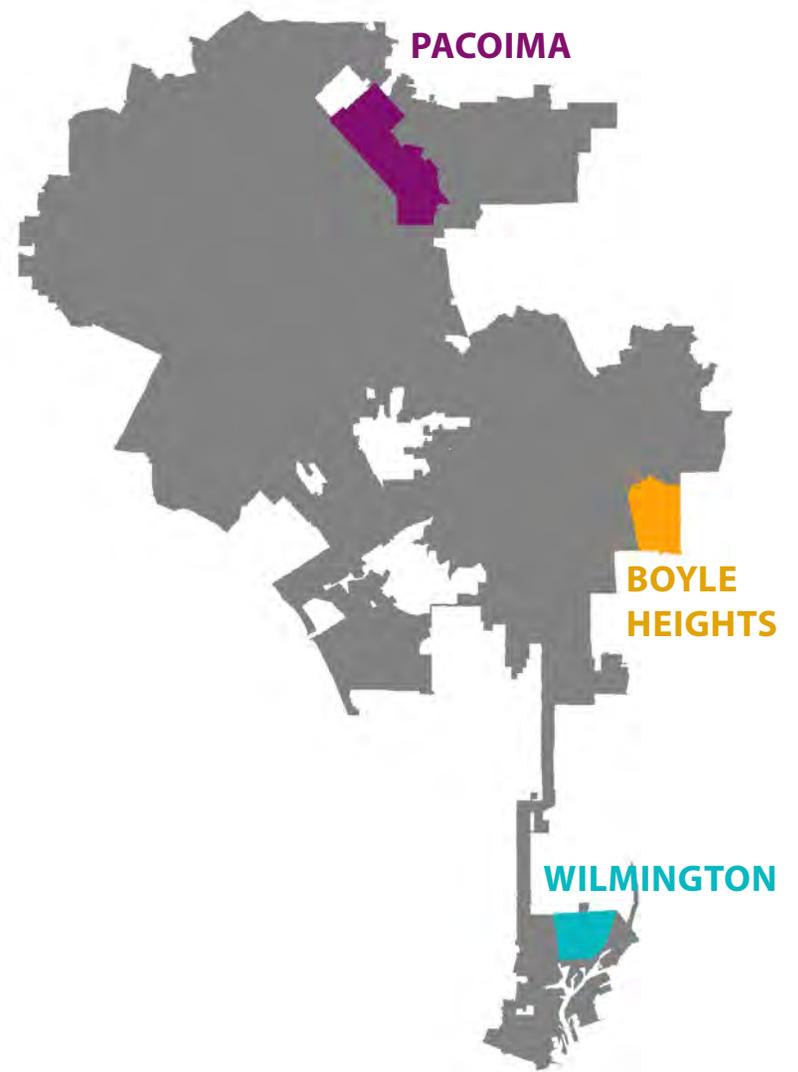
### STUDENT CAPSTONE DOCUMENT

The Student Capstone Document is available by request at the UCLA Young Research Library on the UCLA campus. The Student Capstone Document provides in-depth research and analysis of each community strategy identified.

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## PROPOSED GREEN ZONE COMMUNITIES



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Colleen Callahan, UCLA Luskin Center for Innovation  
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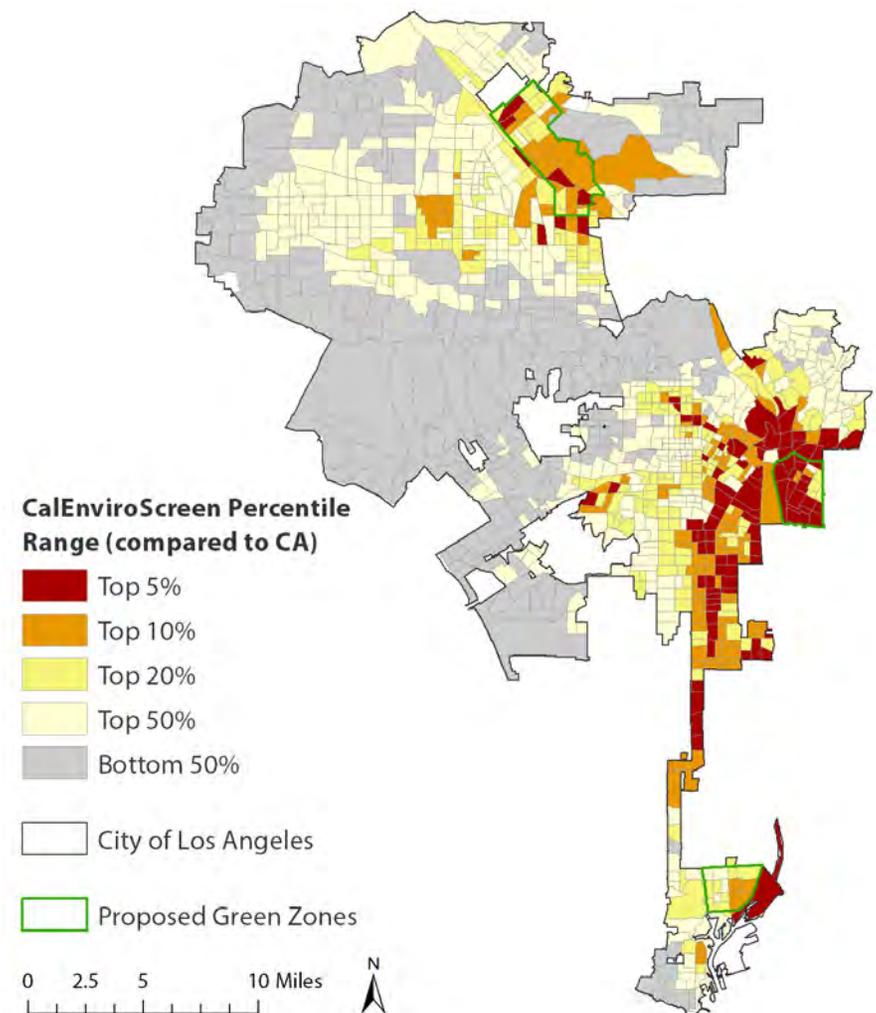
# INTRODUCTION

The UCLA Luskin 2014 Community Scholars Research Project highlights a promising opportunity now emerging for many of Los Angeles' most vulnerable—yet resilient—neighborhoods. Many of our City's communities stand poised to attract millions of dollars in new investment to reduce their carbon footprint, improve environmental health, and revitalize public infrastructure while creating new jobs. Now is the time for the City of Los Angeles to act.

The State of California demonstrated early and unprecedented leadership to tackle climate change and reduce greenhouse gas (GHG) emissions with the passage of Assembly Bill (AB) 32, The Global Warming Solutions Act of 2006. One of the strategies, the cap-and-trade program, involves the sale of pollution credits which are expected to generate tens of billions of dollars over the next decade for the Greenhouse Gas Reduction Fund to be used to reduce total emissions.

The UCLA Luskin 2014 Community Scholars set out to learn about the possibilities for investing Greenhouse Gas Reduction Funds in three of Los Angeles' most polluted neighborhoods: Boyle Heights, Pacoima, and Wilmington. These communities have been identified by the Clean Up Green Up (CUGU) campaign as pilot areas for a new land-use approach that would create "Green Zones" where pollution prevention, reduction, and community revitalization would become priorities for City agencies and programs. In close proximity to freeways, goods movement corridors and industrial facilities, these areas (as well as many others in Los Angeles) have long been known as toxic "hot spots" which suffer from high rates of asthma, heart disease, and other harmful health impacts—especially for children and the elderly. Further, these "environmental justice" communities are home to high proportions of Latino, African-American, and immigrant families.

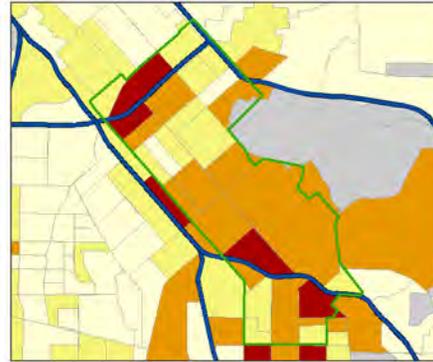
In 2012, Senate Bill (SB) 535 (de León) was adopted, requiring a minimum of 25 percent of the Greenhouse Gas Reduction Fund monies to benefit disadvantaged communities, with a minimum of 10 percent allocated directly to them. A new science-based tool, "CalEnviroScreen 2.0," assesses pollution burdens and socio-economic characteristics across California, and will help determine which communities are most able to gain from the investment of these funds to set us on the course towards short and long-term environmental sustainability.



## BOYLE HEIGHTS



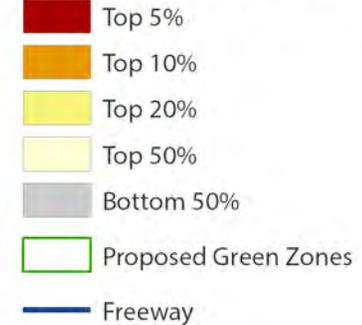
## PACOIMA



## WILMINGTON



### CalEnviroScreen Percentile Range



According to UCLA Graduate Student Emily Gable's calculations, the City of Los Angeles contains a very large proportion of the State's most impacted communities which can benefit from the Greenhouse Gas Reduction Funds: the City of Los Angeles contains 25 percent of the top 10 percent, and 23 percent of the top 5 percent of the State's most vulnerable census tracts according to CalEnviroScreen 2.0. In the three proposed "Green Zone" communities, more than half of the census tracts are in the top 10 percent of the State's most vulnerable areas. Boyle Heights is especially burdened; 80 percent of their census tracts fall in the top 10 percent of the State's most disadvantaged areas. Of the census tracts in the City in the top 10 percent statewide, 18 percent are in the proposed Green Zones.

Over the course of six months, our UCLA Urban Planning Graduate Students and Community Scholars learned from Los Angeles' leading environmental, labor, government and community-based organizations about far-reaching and practical ways to combat climate change. We explored cool roofs, energy and water conservation, solar retrofits, urban greening, diesel truck pollution and waste reduction, and active transportation to encourage bicycling and walking. We investigated separating polluting industrial sites from residential neighborhoods and the possibility for an eco-industrial park, and surveyed whether environmental sustainability strategies could provide critical support to small businesses which struggle to meet their "bottom line." With many of these "green" approaches, we found strong potential for stimulating jobs and local businesses in neighborhoods most in need of reinvestment and revitalization.

Our goal is that the UCLA Luskin 2014 Community Scholars' research findings and policy recommendations will help to galvanize action. In partnership with environmental and community-based organizations, labor and small business, we urge the City of Los Angeles to move swiftly to seize the exciting moment before us.

Sincerely,

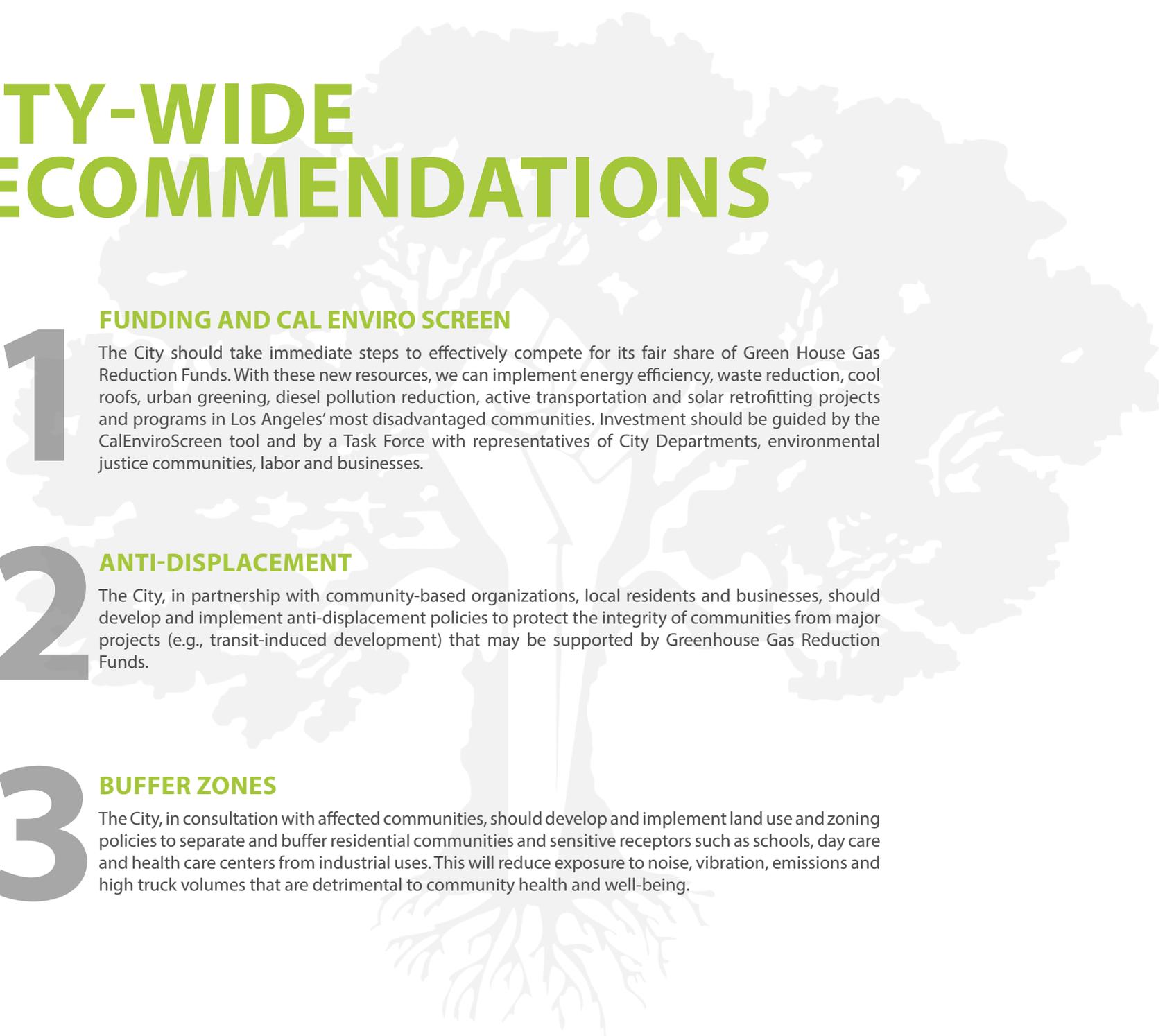
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**THE CITY OF LOS ANGELES  
 CONTAINS 25% OF THE TOP  
 10%, AND 23% OF THE TOP  
 5% OF THE STATE'S MOST  
 VULNERABLE CENSUS  
 TRACTS.**



# CITY-WIDE RECOMMENDATIONS



1

## **FUNDING AND CAL ENVIRO SCREEN**

The City should take immediate steps to effectively compete for its fair share of Green House Gas Reduction Funds. With these new resources, we can implement energy efficiency, waste reduction, cool roofs, urban greening, diesel pollution reduction, active transportation and solar retrofitting projects and programs in Los Angeles' most disadvantaged communities. Investment should be guided by the CalEnviroScreen tool and by a Task Force with representatives of City Departments, environmental justice communities, labor and businesses.

2

## **ANTI-DISPLACEMENT**

The City, in partnership with community-based organizations, local residents and businesses, should develop and implement anti-displacement policies to protect the integrity of communities from major projects (e.g., transit-induced development) that may be supported by Greenhouse Gas Reduction Funds.

3

## **BUFFER ZONES**

The City, in consultation with affected communities, should develop and implement land use and zoning policies to separate and buffer residential communities and sensitive receptors such as schools, day care and health care centers from industrial uses. This will reduce exposure to noise, vibration, emissions and high truck volumes that are detrimental to community health and well-being.

## STRATEGY & COMMUNITY

BOYLE HEIGHTS
  PACOIMA
  WILMINGTON

## GOALS

MITIGATES AIR POLLUTION      MITIGATES WATER POLLUTION      ADDRESSES POLLUTING SOURCES      IMPROVES HEALTH



Clean and Safe Trucking in Boyle Heights   
 Diesel Pollution: Addressing the Challenges of Drayage Trucking   
 Toxic Neighborhoods: Solutions Along the Montague Branford Industrial Corridor

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Active Transit for Active Living   
 Complete Streets: Addressing Need and Building on Opportunity for Van Nuys Boulevard

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Breathing Life into the Alleyways of Boyle Heights   
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## GOALS CONTINUED

## COMMUNITY & STRATEGY

CREATES AND PRESERVES GOOD LOCAL JOBS

PROMOTES ECONOMIC VITALITY

ADDRESSES DISPLACEMENT PRESSURES

PLACEMAKING / PROMOTES LOCAL IDENTITY

GHG REDUCTION FUND

 BOYLE HEIGHTS  PACOIMA  WILMINGTON



Clean and Safe Trucking in Boyle Heights



Diesel Pollution: Addressing the Challenges of Drayage Trucking



Toxic Neighborhoods: Solutions Along the Montague Branford Industrial Corridor



Active Transit for Active Living



Complete Streets: Addressing Need and Building on Opportunity for Van Nuys Boulevard



Reinvesting in Boyle Heights: Energy and Water Performance Plan



Sustainable Connections: Retrofitting Buildings and Local Businesses



Education and Financing Campaign for Energy Saving Equipment for Small Markets



Residential Water Efficiency: Towards Greater Savings and Improved Stormwater Capture



Residential Energy Efficiency: Weatherization and Energy Efficiency in Pacoima



Reducing the Heat Island Effect in Pacoima through Cool Roofs



Cool Roofs for a Cooler Wilmington



Powering Pacoima: Solar Generation Potential



Realizing Solar Retrofit Potential in Wilmington



Solar Retrofits: Catalyzing Demand to Facilitate Workforce Development



Breathing Life into the Alleyways of Boyle Heights



Living Streets in Boyle Heights: Opportunities for Economic and Environmental Equity



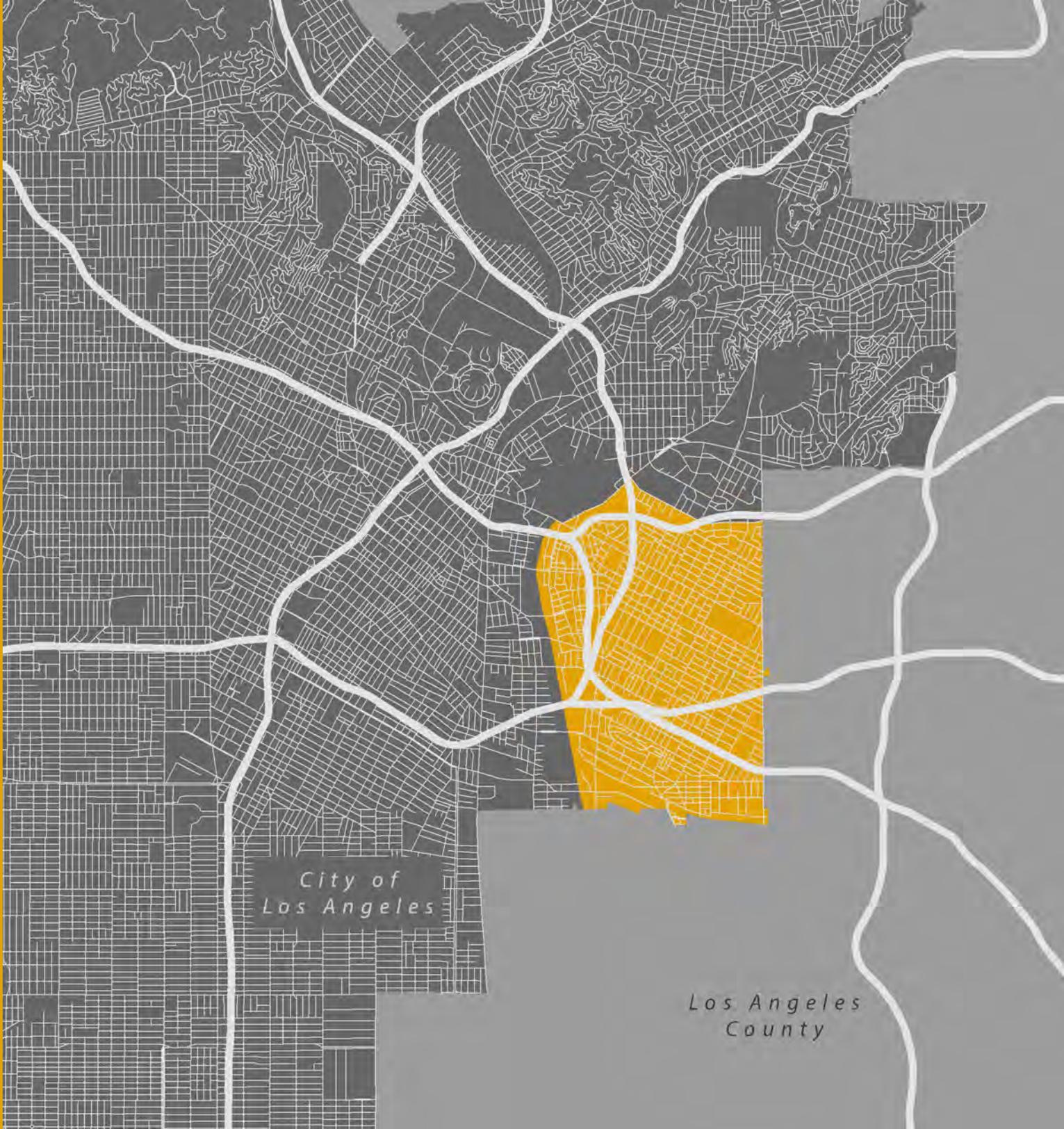
Pacoima's Ignored Asset: An Alleyway Greening Strategy



Living Streets: Environmental Buffers and Economic Vitality in Wilmington

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# BOYLE HEIGHTS



## VISION STATEMENT

WE ENVISION AN  
ECONOMICALLY RESILIENT  
AND ENVIRONMENTALLY  
HEALTHY BOYLE HEIGHTS WITH  
VIBRANT CULTURAL NETWORKS  
AND COMMUNITY-ORIENTED  
TRANSPORTATION.



# RECOMMENDATIONS



1

## INDUSTRIAL

The Los Angeles Departments of City Planning and Transportation should, working with the community, create a truck routes plan for Boyle Heights that would limit the impacts of trucks in residential areas while designating and improving selected routes for safe and efficient goods movement.

2

## PUBLIC SPACE

The City should promote a pedestrian and bike-oriented transportation network, improving sidewalks, street crossings, bike lanes, alleyways, and public transportation, to prioritize safety, mobility, open space, and health in Boyle Heights.

3

## BUSINESS AND RESIDENTIAL

The Los Angeles Department of City Planning, Boyle Heights Chamber of Commerce and Councilman Huizar's office should collaborate with business owners, community-based stakeholders, and building owners to form a Boyle Heights District Association which enhances business corridors through street and sidewalk improvements and the implementation of a commercial zero waste plan that promotes a strong, vibrant, and diverse business center.

# BOYLE HEIGHTS

## A COMMUNITY OF TRADITION AND TRANSITION

The history of Boyle Heights goes back to the founding of the Pueblo of Los Angeles in the 1780s, when it was considered undesirable land east of the Los Angeles River because of the hardship associated with crossing the River's banks. Initially used for vineyards and sheep pastures, it became a residential development named Boyle Heights in the 1870s to commemorate one of the founding landowners. At the same time, the first bridge linking Boyle Heights to the rest of the City was built.<sup>1</sup> In the years that followed, six other bridges were constructed.

A construction and development boom in the City of Los Angeles began a long tradition of the presence of an immigrant workforce in Boyle Heights. In the late 1890s, European Jews began to settle in Boyle Heights, becoming some of the neighborhood's first residential landlords. Because of the Chinese Exclusion Act of 1882, Japanese immigrants became the new source of cheap labor and moved to the area.<sup>2</sup> African Americans moving away from injustices in the South settled in Boyle Heights, a neighborhood accessible to them because of the employment and housing opportunities there. In the early part of the 20th Century, Russian and Mexican immigrants fleeing domestic unrest joined the other ethnic groups living in the neighborhood.

**FIGURE 1: ANTI-NAZI MARCH ON BROOKLYN AVENUE (NOW CESAR CHAVEZ AVE), NOVEMBER 1938.**



Photo Credit: Los Angeles Times photographic archive, UCLA Library. Copyright Regents of the University of California, UCLA Library.

Starting in the 1930s, repatriation campaigns targeting Mexican-Americans and the forced removal of Japanese-Americans after the start of World War II dramatically changed the population of Boyle Heights. The Bracero Program, which brought Mexican contract workers to fill the voids in cheap labor left by interned Japanese-Americans and in agricultural jobs left by the deported Mexican-American workers, increased the Mexican immigrant population in Boyle Heights. In the mid-1940s, tensions erupted in Los Angeles in a series of "Zoot-Suit Riots" in which white servicemen attacked young Mexican males because many of them were wearing what the servicemen considered unpatriotic attire.<sup>3</sup> Although not considered racially-motivated at the time, the riots were very much rooted in the race politics of the era and were inflamed by economic and social disparities as well as anti-war sentiments. The riots inspired a new generation of civil rights leaders including Cesar Chavez and Malcolm X.

Although approximately one third of the City's Jewish population lived in Boyle Heights in the 1940s, social tensions and the new opportunities in other parts of the City led to a drastic reduction in their share of the Boyle Heights population in the 1950s. The construction of the I-5 Freeway and the East Los Angeles Interchange in the 1960s demolished existing housing and dissected the neighborhood, further eroding the ethnically diverse community which had called Boyle Heights home for decades.



**FIGURE 2: HOMES AT THE INTERSECTION OF BESWICK ST AND PRADO ST, ADJACENT TO THE INTERSTATE 5 FREEWAY**

Photo Credit: José Fernández

## DEMOGRAPHICS

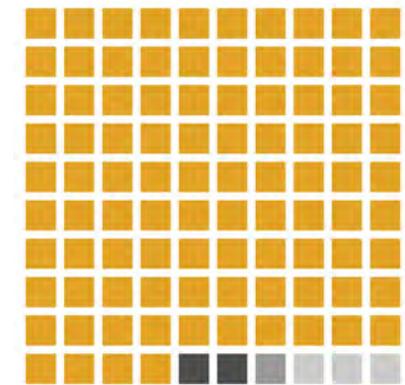
By the 1960s, the population of Boyle Heights had become predominantly Mexican and Mexican-American with pockets of Japanese American and Jewish residents living in the neighborhood. The ethnic composition of Boyle Heights has remained more or less the same. The current population of Boyle Heights is over 86,000 people. Sixty-three percent of the population is age 34 or less. Just 18 percent of the population is between the ages of 35 and 49. The middle agers, between ages 50 to 64, and elderly, age 64 or higher, comprise about 10 percent and 9 percent of the population, respectively.<sup>4</sup> Many of the older and long-time Boyle Heights residents have less than a high school education.<sup>5</sup> As a result, a large percentage of the neighborhood's workforce is employed in the service and manufacturing sectors. The salary levels associated with these jobs have made it difficult for many residents to achieve homeownership; as of today, 77 percent of the neighborhood residents are renters.

In the most recent U.S. Census, we can see significant demographic changes occurring in the zip codes designated for Boyle Heights (90023, 90033 and, 90063), as a result of the completion of the MTA Gold Line Stations and new housing developments affordable only to young professionals.<sup>6</sup> The growing interest in Boyle Heights by non-locals is increasing the potential to displace and impact long-time residents and businesses. An important factor driving this is the influx of young professionals, some of whom are non-local and others that are former residents returning to Boyle Heights because of its abundant supply of cheap housing and solid public transit infrastructure. This is particularly alarming for the existing community, since Boyle Heights remains a predominantly working class Latino community with strong cultural networks.

A large percentage of the neighborhood's residents continue to be rent burdened. Currently, 15 percent of residents pay 30-40 percent of their income towards their rent, 11 percent pay 41-50 percent of their income towards rent, and 34 percent pay more than 50 percent of their income towards rent.<sup>7</sup> Rent-burdened residents are a highly vulnerable population—their housing hinges on a stable monthly income and they must decide which necessities to prioritize every month. With a median family income of \$33,250, which is much lower than the City's median income of \$49,745, housing costs remain a challenge for retaining long-time residents in the community. There is overcrowding of dwelling units, especially in the rental market, because residents are trying to cut housing costs or lack the financial ability to relocate to a larger dwelling. The neighborhood's average household size is relatively high at 3.9 persons per household, compared with the City's average of 2.8.<sup>8</sup> Renters' inability to invest in improving their own homes or apartment units and inadequate private and public investment is resulting in chronic deterioration of the neighborhood's century-old housing stock.

The most significant changes in demographics have been the increase in the proportion of the population of youth and young adults ranging from the ages of 15 to 34. According to the American Community Survey's 5-year estimate from 2008 to 2012, this group now makes up 34.9 percent of Boyle Heights' population. Meanwhile, Boyle Heights is experiencing an increase in educational attainment within the age range of 25-34. For instance, in the 90023 zip code area, this age range currently has the highest proportion of people with a high school diploma (61.4 percent) and a college degree (8.5 percent).<sup>9</sup>

The growing population of young professionals in the neighborhood has correlated with increasing income levels. For example, in the 90063 zip code area, the percentage of income earners in the range of \$50,000 to \$74,999 is 19.2 percent, according to the 2012 American Community Survey's 5 year estimate from 2008 to 2012. Some of these are the previously mentioned young professionals who are starting businesses located next to long-established small businesses. Many of these new arrivals have taken advantage of recent real estate developments. These changes, in turn, leave Boyle Heights susceptible to the effects of gentrification, or "Gentefication" as it was labeled in a recent *New York Times* article.<sup>10</sup> Gentefication refers to a different trend wherein young Latino professionals native to the area invest in their own neighborhood, attracting a new generation of wealthier residents in turn. Gentefication, much like gentrification, has contributed to the increase in the cost of living in general, putting long-time residents at risk of displacement.<sup>11</sup>



## HOUSING & DEVELOPMENT PRESSURES

Historically, Boyle Heights has been an initial destination for newly arrived working-class populations seeking affordable, multi-family, medium density housing. With new federal money available after the Great Depression, the City invested these funds into developing public housing, (e.g., Estrada Courts, Aliso Pico, Ramona Gardens, and Aliso Village) while also providing support for the privately developed Wyvernwood Garden Apartments. These large affordable housing developments have provided opportunities for new and existing families to live and remain in Boyle Heights without requiring great wealth.

Recent infrastructure and commercial development has made Boyle Heights—a highly dense area of 6.42 square miles just across the Los Angeles River from downtown Los Angeles—prime real estate attractive to both public and private investment. The growing trend for transit-oriented development has the potential for both direct and indirect displacement as current housing is demolished and replaced and as increased property values incentivize circumvention of the City’s rent control ordinance and illegal displacement of long-term tenants. Community advocates fear investment will flow into the area at a faster rate than policies protecting existing small businesses and renter populations vulnerable to increasing property values can be strengthened.

### RECENT PUBLIC INVESTMENT

**Edward R. Roybal Metro Gold Line Eastside:** The Metropolitan Transportation Authority (MTA or Metro) is one of the major players commencing and encouraging new development in the area, specifically with the investment of \$848 million to extend the Gold Line. In November 2009, eight new stations (two underground) started to provide service after five years of construction. The newer stations include Pico/Aliso, Mariachi Plaza, Soto and Indiana. Current residents are uneasy as City officials decide the fate of Metro-owned lots left vacant after rail construction. There are continued efforts toward “transparency” from Metro and ongoing contention preventing a unified perspective from community leaders and community-based organizations (CBOs) regarding the appropriate use of these parcels, including how and by whom they should be developed.<sup>12,13</sup>

FIGURE 5: OPENING OF THE EDWARD R. ROYBAL METRO GOLD LINE EASTSIDE



Photo Credit: AECOM

FIGURE 3: HOUSES IN BOYLE HEIGHTS



Photo Credit: José Fernández

FIGURE 4: RESIDENT AT THE WYVERNWOOD GARDEN APARTMENTS



Photo Credit: homesforall.org

## PENDING & PROPOSED DEVELOPMENT PROJECTS

**Sears Tower Project at Olympic & Soto:** The future of this structure is still undetermined. Because of its size and historical significance, developers and stakeholders are hard pressed to find a use for the building that could possibly include affordable housing and retail uses that meet the needs of lower income residents. The building is largely unused, with the retail occupancy the only active space. It stands tall and barren with much potential. But community organizations including InnerCity Struggle, East Los Angeles Community Corporation and Unión de Vecinos have expressed concern that new development aimed at attracting higher income residents will add to the gentrifying forces Boyle Heights is already facing. Developers have come and gone, but residents continue to be engaged in forums aimed at determining the fate of the Sears Tower.<sup>14</sup>

**Linda Vista Affordable Housing Renovation:** This property is comprised of two old hospital buildings and has been vacant for two decades. Occasionally used for filming, it has continuously experienced unfulfilled renovation plans from companies unable to fully finance projects. In 2011, AMCAL, an affordable housing development company, was awarded a \$9 million grant from the federal Neighborhood Stabilization Program (NSP) by the Los Angeles Housing and Community Investment Department to start reviving the abandoned property. Currently, renovation has been completed on one of the buildings and is beginning on the other. The total transformation is estimated to cost \$40 million. Senior affordable housing is proposed among the renovation plans.<sup>15</sup>

**Wyvernwood Garden Apartments Redevelopment Project:** One of the most controversial projects in Boyle Heights is known by locals as “Eighth Street Apartments” and currently houses 6,000 residents in 1,187 units across 70 acres. The developer, Fifteen Group, has continued its efforts to build a project that would include extensive open space, community civic space, condominiums, offices, parks and shopping centers. The development would also include 15 percent affordable housing units for the next 30 years, but stakeholders are concerned that the Residential Retention Plan will not be upheld. Furthermore, “temporary” displacement would be inevitable during construction that is estimated to take a decade. While Councilmember Jose Huizar and the Los Angeles Conservancy have opposed the project, religious leaders, the Los Angeles County Federation of Labor, Homeboy Industries, and Jovenes, Inc. have supported the project because of its potential for job creation. Promoters of the project also highlight economic development, transportation access, improved amenities, and more green space.<sup>16,17</sup>

**Sixth Street Viaduct Replacement:** A proposal is in place to demolish the deteriorating but iconic viaduct to provide technological advancements deemed necessary as a preemptive measure in case of seismic activity. A chemical reaction of the viaduct’s concrete to water has weakened the foundation over eighty years by a gradual “cement cancer” that has led to an incurable structural condition.<sup>18</sup> At a press conference in 2012, Mayor Antonio Villaraigosa and Councilmember Jose Huizar announced the winner of an international design competition that included a panel of architects, community leaders and City officials.<sup>19</sup> The project is projected to cost \$400 million and create 5,000 jobs. Construction is expected to start in 2015 and end in 2019.<sup>20</sup>

**First and Soto Mixed-Use Affordable Housing:** An announcement in March of 2014 revealed plans for a 64,000 square foot mixed-use structure near the Gold Line Soto Station. The proposed structure includes six stories, 50 residential units, 3,400 square feet of street level commercial space, 8,500 square feet of office space, and parking. The parcels identified for the construction project are currently residential, so displacement of residents currently living in the housing located on these parcels is expected. Information is not yet available regarding relocation plans or clarity on how many new affordable housing units will be included in the new structure.

**First and Lorena Mixed-Use Supportive Housing:** Announced in January 2014, the 49-unit affordable housing development would be built on the vacant Metro-owned parcel at the Gold Line Indiana Station. The five-story structure would also include 7,000 square feet of street-level retail space as it aligns with requirements for transit-oriented development. The project is scheduled to open in 2016.

**FIGURE 6: PROPOSED DEVELOPMENT, SEARS TOWER**



Source: Izek Shomof and Leo Pustilnikov via Curbed LA

**FIGURE 7: PROPOSED DEVELOPMENT, WYVERNWOOD APARTMENTS**



Source: Studio Yves, Inc.

## DEVELOPMENT PRESSURES GOING FORWARD

Numerous pending housing projects, transportation renovations, and business projects extend beyond the new Gold Line Extension. These projects—despite the proposed inclusion of affordable housing in some of them—may improve the physical landscape of the City but may lead to a demographic transformation from a low-income immigrant population to higher income residents. There are attractive opportunities for development that would not require replacing existing housing resources and could benefit existing residents. For example, great potential exists in the mostly vacant Sears Building, on the southwest corner of Olympic Boulevard and Soto Street, with a vast amount of potential space for community-serving amenities.

Community organizations and active residents continue to be engaged in the plans for the future of Boyle Heights. Community advocates fear investment will flow into the community at a faster rate than policies protecting existing small businesses and a renter population vulnerable to increasing property values. East Los Angeles Community Corporation (ELACC) continues to be part of this transformation, working with residents to stay informed and monitor new projects to ensure development is accountable to the community. They have led the efforts to ensure community-driven projects arise on the currently vacant Metro-owned lots as well as incorporating recommendations from the existing community in every affordable housing project they develop. Additionally, ELACC continues to provide support to street vendors, vital participants in the local economy, and has secured a motion for a Citywide ordinance to end the criminalization of street vending. Through their work, they remain active in the changes happening in Boyle Heights and aim to prioritize the history, culture, and people that currently make up the neighborhood.

## BUSINESS LANDSCAPE

Boyle Heights has a strong business sector of over 850 businesses.<sup>21</sup> The most economically vibrant business corridors in Boyle Heights are along Marengo Street, Mission Road, Cesar Chavez Avenue, First Street, Fourth Street, Whittier Boulevard, and Olympic Boulevard. Business services range across licensed businesses in retail, healthcare, food and beverage, manufacturing, professional services, social enterprises, and unlicensed small businesses. According to the 2010 U.S. Census, the highest concentrations of businesses in Boyle Heights are manufacturing, wholesale trade, retail trade, accommodation and food services, healthcare and social assistance.<sup>22</sup>

Businesses are represented by the Boyle Heights Chamber of Commerce (BHCC), a private nonprofit membership organization founded in 1979. The BHCC has been a strong advocate for business and offers educational resources and events, while building important relationships between government and private business.<sup>23</sup> In an effort to increase support for local businesses, the Chamber attempted to start a Business Improvement District in Boyle Heights and was not successful due to a lack of staff capacity.<sup>24</sup> The Chamber is maintained by volunteers. The Boyle Heights Chamber of Commerce continues to support efforts to improve businesses and the community environment by endorsing Clean up Green Up. The President of the Chamber, Cesar Armendariz, stated in his endorsement letter “...it makes good business sense to reduce existing levels of pollution, and provide incentives to encourage local businesses in Boyle Heights to clean up and green up, and to attract new green businesses to our community.”<sup>25</sup> Small businesses in Boyle Heights will greatly benefit from initiatives that support market adaptation, capital investment, and mechanisms to reduce greenhouse gas emissions through reduced utility (energy and water) consumption and increased pedestrian access.

## BUSINESS CHALLENGES AND CONCERNS

According to a 2012 business registry study by the Valley Economic Development Corporation (VEDC), Boyle Heights businesses face many challenges in sustaining and growing their businesses due to poor service on infrastructure improvement and maintenance from the City, vacant storefronts, and a lack of access to capital for basic improvements.<sup>26</sup> The VEDC group documented 685 businesses along six corridors, of which 271 were interviewed, a participation rate of 40 percent.<sup>27</sup> Business owners frequently identified “poor City services” such as the lack of basic street maintenance: lighting, sidewalk repairs, parking,

**FIGURE 8: SMALL BUSINESSES,  
BOYLE HEIGHTS**



Photo Credit: Roxana Aguilar / Raquel Armenta

and trash pick-up. Business owners also identified public safety and a lack of police presence as a main concern. Another obstacle for small businesses is a lack of property ownership or formal lease. Many business owners rent or lease their properties and may not even have a lease. In order to make capital improvements to the business, a business owner must have permission from the property owner.

#### SUPPORT FOR SMALL BUSINESSES

Several City programs provide support to small businesses in Boyle Heights. The Mayor's Business Source program offers one-on-one consulting, financing, employee hiring/workforce development, business plan development, tax incentives and credits, and business courses.<sup>28</sup> Businesses interested in reducing utility bills can access support through the Department of Water and Power and the Southern California Gas Company. The VEDC recently opened a Boyle Heights Capital Access Center in the Boyle Hotel to serve as a transitional financial and retail assistance service center in this underserved neighborhood. Boyle Heights business owners can access micro-loans from VEDC. However, access to these programs by small businesses in Boyle Heights is limited. Outreach for these programs needs to expand to include more small businesses in Boyle Heights.

#### OPPORTUNITIES FOR BUSINESS ECONOMIC AND ENVIRONMENTAL SUSTAINABILITY

There are several opportunities for businesses to become economically and environmentally sustainable. According to the 2010 U.S. Census, there is concentrated buying power of \$171 million per square mile and a total buying power of \$420 million in Boyle Heights.<sup>29</sup> Over 60 percent of the population is under the age of 34, with a potential for a large customer base if business development is concentrated within Boyle Heights. A Local Initiatives Support Corporation (LISC) study found shoppers leaving the area for traditional convenience goods and services such as food, clothing, and health products.<sup>30</sup> Adapting to demands of the local population will increase local business profits and increase economic sustainability for Boyle Heights businesses. Participating in small business improvement programs that reduce utility (water and energy) consumption and costs will result in net savings and environmental sustainability for businesses in Boyle Heights.

#### BUSINESS SURVEY BACKGROUND

In order to gain a better perspective of the business environment in the Boyle Heights neighborhood, a handful of Community Scholars surveyed various businesses along Cesar Chavez Avenue. While there are other business corridors in Boyle Heights, Cesar Chavez Avenue is home to many local businesses that have been around for more than fifteen years. The longevity of these businesses is the result of historic and supportive relationships between the business owners and community. The survey was composed of seven questions: (1) business name; (2) years business has been open; (3) number of employees; (4) clients per day; (5) amount of utility bills, especially for lighting and water use; (6) use of City programs; and (7) needed improvements to community and business area. The business outreach team spoke to fifteen businesses including clothing stores, restaurants, a pharmacy, a liquor store, grocery stores and a bike shop. The information collected came from store owners and employees. The UCLA Community Scholars from Boyle Heights spent two weekends, one in April and one in May of 2014, going door to door to collect data on the above-mentioned questions.

#### BUSINESS SURVEY RESULTS

One-third of businesses had received information about energy and water saving programs, another third had not received information about these programs and the last third were unsure if they had received information. All businesses were open to receiving more information about programs that would help them save on utility bills. The businesses that had used City programs felt that they had not seen a significant reduction in their bills, but were committed to staying in the programs.

Both employees and owners saw a variation in customers depending on their type of business. Businesses experienced as few as five customers per day to as many as five hundred per day. On average, stores that sold food attracted more customers than clothing stores. Generally, stores that were struggling had the most input regarding street improvements to help increase foot traffic nearby.

**FIGURE 9: LACK OF MAINTENANCE  
AROUND LOCAL BUSINESSES**

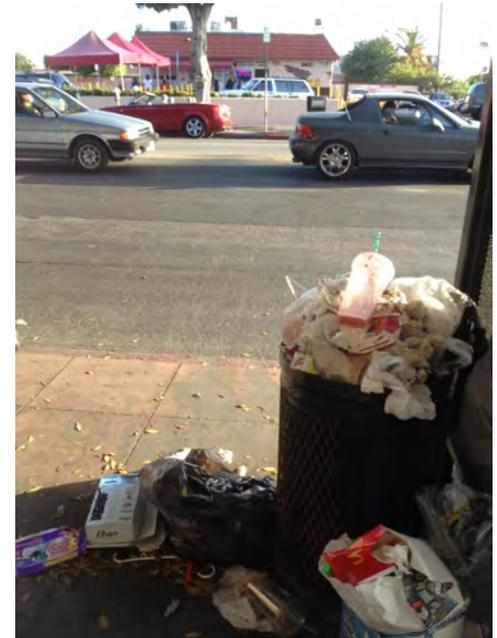


Photo Credit: Roxana Aguilar / Raquel Armenta

Three main themes that arose from asking businesses what improvements they would like to see around their location and in the community along Cesar Chavez Avenue were: (1) increase parking availability; (2) fix sidewalks broken by tree roots; and (3) clean and maintain streets through trash collection. Parking along Cesar Chavez Avenue is metered and businesses expressed that it was difficult for their customers to find parking. They were also interested in making improvements to make their business more accessible. Connected to accessibility is the unevenness of pavement along Cesar Chavez Avenue. While there are a significant number of trees along Cesar Chavez Avenue providing shade for pedestrians, many tree roots have taken over sidewalks making it difficult to walk, especially for the elderly and children. Lastly, trash was a major issue for all businesses that were surveyed. Many businesses reported that they took their own trash home at the end of the workday since they had no designated place to put their trash. Walking along Cesar Chavez Avenue, almost every trash receptacle was filled to capacity and some even overflowed. This was a concern for all owners because it deters customers from wanting to shop in the community and it portrays a negative image of the neighborhood. The majority of businesses all have taken the initiative to help clean up the area around their business such as sweeping in front of their store, recycling cardboard and some even compost their leftover food. Through this survey, there is evidence that local businesses could benefit from cleaner streets that support their stores and more affordable water and energy efficiency programs.

## PUBLIC HEALTH & THE ENVIRONMENT

Boyle Heights faces many pressing public health issues brought on by its built environment and surrounding land uses. According to the CalEnviroScreen 2.0 tool's index of census tracts in California, 17 of the 24 tracts within the Boyle Heights Clean Up Green Up boundary (or 71 percent) are in the 95th percentile based on a combination of pollution concentrations and population vulnerability.<sup>31</sup> High prevalence of cardiovascular and respiratory disease, high rates of traffic-related injuries or deaths to pedestrians and cyclists, and high obesity rates among both young people and adults are the major public health issues facing Boyle Heights' residents. The imminent effects of anthropogenic climate change will likely exacerbate these public health issues.

### FREEWAY POLLUTION

Boyle Heights has had a history of detrimental land use planning, and the neighborhood design and the infrastructure we see today is a cumulative result of both opportunity and heartbreak. One of the most impactful land use decisions affecting Boyle Heights has been the construction of the East Los Angeles Interchange. It is among the busiest and most congested highway interchanges in the country, carrying over 500,000 automobiles each day.<sup>32</sup>

Built in the 1960s and comprised of intersections between four major freeways (I-5, I-10, US-101, and CA-60), interchange construction left the surrounding community with a severe loss of housing supply. Today, it serves as a heavily utilized connection between cities across Los Angeles County, but also results in disproportionately high levels of air pollution for residents and workers in Boyle Heights. In addition, vehicles take surface streets through Boyle Heights to bypass the heavy congestion on the freeways on a daily basis.

Studies have shown that concentrations of particulate matter less than 2.5 micrometers in diameter and diesel particulate matter are higher in Boyle Heights than in 90 percent of all census tracts in California.<sup>33</sup> These air pollutants are particularly damaging to respiratory and cardiovascular health and have long-lasting effects.<sup>34,35,36</sup> Boyle Heights' close proximity to heavy traffic creates noise pollution that further diminishes the population's quality of life. Projected higher temperatures in the LA region due to climate change will also increase concentrations of harmful ground-level ozone, which is a by-product of heat and vehicle exhaust.<sup>37,38</sup>

**FIGURE 10: INTERSTATE 5 RUNS NEXT TO HOLLENBECK PARK IN BOYLE HEIGHTS**



Photo Credit: José Fernández

## INDUSTRIAL POLLUTION

Other health hazards stem from the industrial corridors along the Los Angeles River and Olympic Boulevard. Boyle Heights was once seen as the cornerstone for employment in the manufacturing industry, but along with the “white flight” of Caucasian residents during the 1950s, the neighborhood has simultaneously experienced a huge decrease in the industrial sector’s employment opportunities. Today, Boyle Heights continues to provide hundreds of jobs in various industries, but also suffers from incompatible land uses within close proximity to each other. For example, many homes are located next door to industrial uses. Boyle Heights is home to many locally owned and operated auto repair shops, auto body and paint shops, dry cleaners, printing shops, and other small businesses that provide jobs to local residents and support the local economy, but are highly polluting.<sup>39</sup>

Boyle Heights is also in close proximity to industrial activity from neighboring cities, further exposing it to high levels of toxic pollutants. In early 2014, testing conducted at residences and schools in Boyle Heights and surrounding communities revealed elevated levels of lead contamination in the soil.<sup>40</sup> This potential public health concern galvanized citizens and elected officials to push State agencies to regulate the polluter, Exide Technologies, more closely.<sup>41</sup> Currently, the polluter has to either mitigate the emissions from its battery recycling plant, located just south of Boyle Heights in the City of Vernon, under a very short deadline or cease operating the plant. Although many welcome the prospect of the Exide battery recycling plant permanently shutting down, the plant’s closure could jeopardize the jobs of numerous employees, many of whom are United Steelworkers union members and residents of Boyle Heights. As of March 22, 2014, the battery recycling plant has shut down its operations in order to retrofit the plant to mitigate toxic emissions. On April 21, 2014, Exide Technologies announced the temporary suspension of employment for 20 of its salaried employees and 104 of its hourly employees at the plant in Vernon in order to meet the operational costs required to purchase, install, and test new emissions reduction equipment.<sup>42</sup>

FIGURE 12: TRUCK TRAFFIC RUNS THROUGH RESIDENTIAL AREAS



Photo Credit: José Fernández

FIGURE 11: RALLY FOR “HEALTHY ‘HOODS, NOT TOXIC HOTSPOTS” OUTSIDE EXIDE TECHNOLOGIES IN VERNON, CA



Photo Credit: Ramya Sivasubramanian / NRDC, April 14, 2014

## CUMULATIVE IMPACTS

Due to close proximity, lack of effective regulatory oversight, and additive effects of pollution from multiple industrial and countless mobile sources, Boyle Heights is exposed to a disproportionate amount of pollution. Additionally, according to the Hidden Hazards report by the Los Angeles Collaborative for Environmental Health and Justice, a large number of sensitive receptors in Boyle Heights are exposed to these environmental hazards. Sensitive receptors are places that are generally occupied by those who are most vulnerable to the health impacts of environmental hazards, including children and the elderly.<sup>43</sup>

## PEDESTRIAN AND BICYCLIST SAFETY

Thirteen percent of the households in Boyle Heights, as opposed to 7 percent for the City's average, do not own vehicles. The transportation mode for the typical Boyle Heights resident for commuting purposes is twice as likely to be on public transit, on bike or on foot compared with the typical resident of the City. The actual breakdown is public transit: 20 percent (City average is 11 percent), walking: 8 percent (City average is 4 percent), biking: 1 percent (City average is less than 1 percent). Unfortunately, Boyle Heights ranks third in the City for annual rates of motor vehicle collisions with pedestrians and bicyclists at around 10 per 10,000 residents. The rate for those under the age of 18 is even higher at about 15.<sup>44</sup> These numbers are a reflection of inadequacies with the current walking and biking infrastructure in the neighborhood. There is only one dedicated bike lane and only a handful of "bike-friendly" streets in the neighborhood with little to no continuity or safety barriers.

Inadequate walking and biking infrastructure in Boyle Heights encourages those who drive to continue driving, while those without a car may be at times forced to detour out of their way from stretches of broken sidewalks or streets to find a more comfortable route, which increases their safety risk and travel time. The development of better walking and biking infrastructure can lead the population to be less fearful of biking and walking and more willing to stop driving. This change in attitude may increase the population's daily dose of physical activity, as well as reduce motor vehicle emissions that are contributing to climate change and worsening air quality.

## PARK SPACE

Boyle Heights has only about 0.90 acres of park space per 1,000 residents, which is far below the City average of 8.9 acres per 1,000 residents.<sup>45</sup> A population of almost 90,000 shares the use of just 10 public parks. The paucity of park space in the neighborhood has an impact on the youngest generation. Today, the prevalence of childhood obesity in Boyle Heights is nearly 35 percent, 10 percent higher than the City's average.<sup>46</sup> Obesity caused by a sedentary lifestyle increases the risk of diabetes, heart disease, and stroke later in life. The neighborhood also lacks tree canopy cover with only about 11 percent of its surface covered, while the City's average is about 21 percent.<sup>47</sup> Ten percent of adults in the community suffer from depression, which is higher than the 6 percent of the City, according to Health Atlas for the City of Los Angeles. Increasing park space and tree canopy cover in Boyle Heights can have a positive impact on the population's mental health and general well-being.<sup>48</sup> In addition, trees and other vegetation have been shown to be effective in absorbing particulate matter, ozone, and nitrogen dioxide from the air, along with reducing the effects of climate change and heat island effect in urban areas.

## CONCLUSION

By utilizing Assembly Bill 32 (AB32) Cap and Trade funds intended for communities with environmental justice impacts, Boyle Heights can address many of the environmental issues described above. Developing green infrastructure, reducing truck movements in and through the community, and reducing the potential for displacement of current community residents through a focus on anti-displacement policies, rehabilitating and retrofitting existing residences and constructing a substantial amount of affordable housing can be advanced through use of Greenhouse Gas Reduction Fund proceeds and other funding sources that may be tapped for the community. Given the park poor statistics and the conditions of sidewalks and alleys, Boyle Heights would also be a candidate for urban greening to plant more tree canopy.

**FIGURE 13: PROYECTO JARDIN IS A COMMUNITY GARDEN IN BOYLE HEIGHTS**

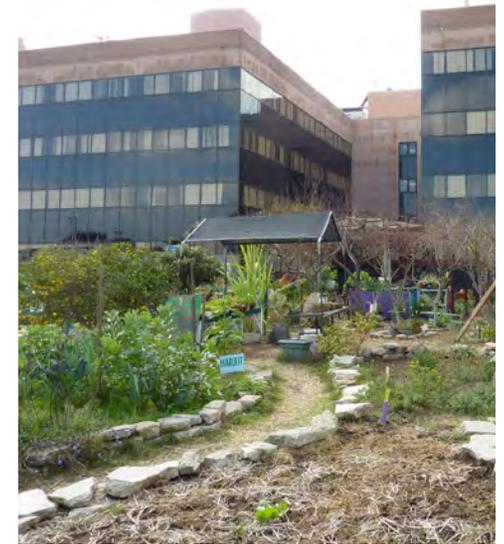


Photo Credit: Emily Gable

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# CLEAN TRUCKING

EMILY GABLE

## CLEAN AND SAFE TRUCKING IN BOYLE HEIGHTS

Boyle Heights suffers from some of the worst air pollution in the state as a result of the surrounding freeways, traffic within the community, and the local manufacturing sector.<sup>1</sup> Although emissions from traffic on the freeways is a huge problem, the area also has a high proportion of diesel truck traffic on neighborhood streets, traveling to and from warehouses, distribution centers, manufacturers, and wholesalers.

Reducing the emissions from trucks operating within the community is one avenue to improve health and quality of life for residents as well as limit contributions to climate change. To achieve this we recommend three areas of policy and action: create a truck routes plan that keeps trucks out of residential neighborhoods but allows for efficient goods movement, reduce idling, and fund truck fleet replacements. Funding truck and facility retrofits and replacements can support local businesses and preserve jobs. Policies and programs in Los Angeles' Clean Up Green Up (CUGU) pilot and the Boyle Heights Community Plan update can also support and drive these local improvements.

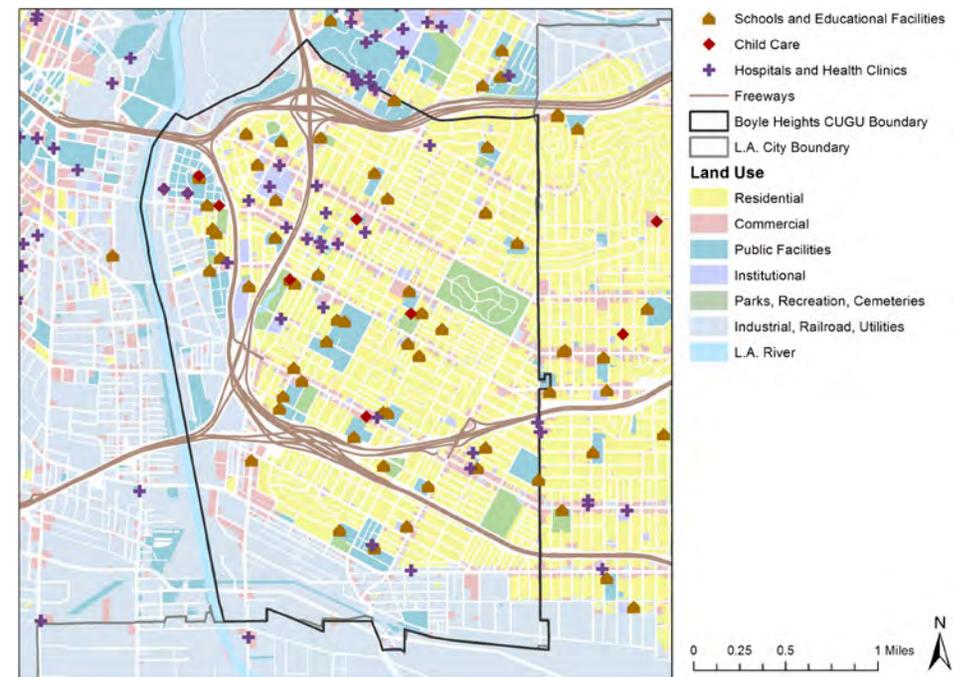
## BACKGROUND AND RESEARCH

In Los Angeles, as in many places, historic discrimination and injustices shaped land use decisions and have resulted in working class communities of color burdened with high levels of pollution. In Boyle Heights, the construction of the East Los Angeles Freeway Interchange in the early 1960s plowed through the existing neighborhood (Figure 3), destroying homes, dividing the community, and putting hundreds of thousands of polluting cars and trucks a day on a path adjacent to many sensitive uses such as schools and hospitals (Figure 1).

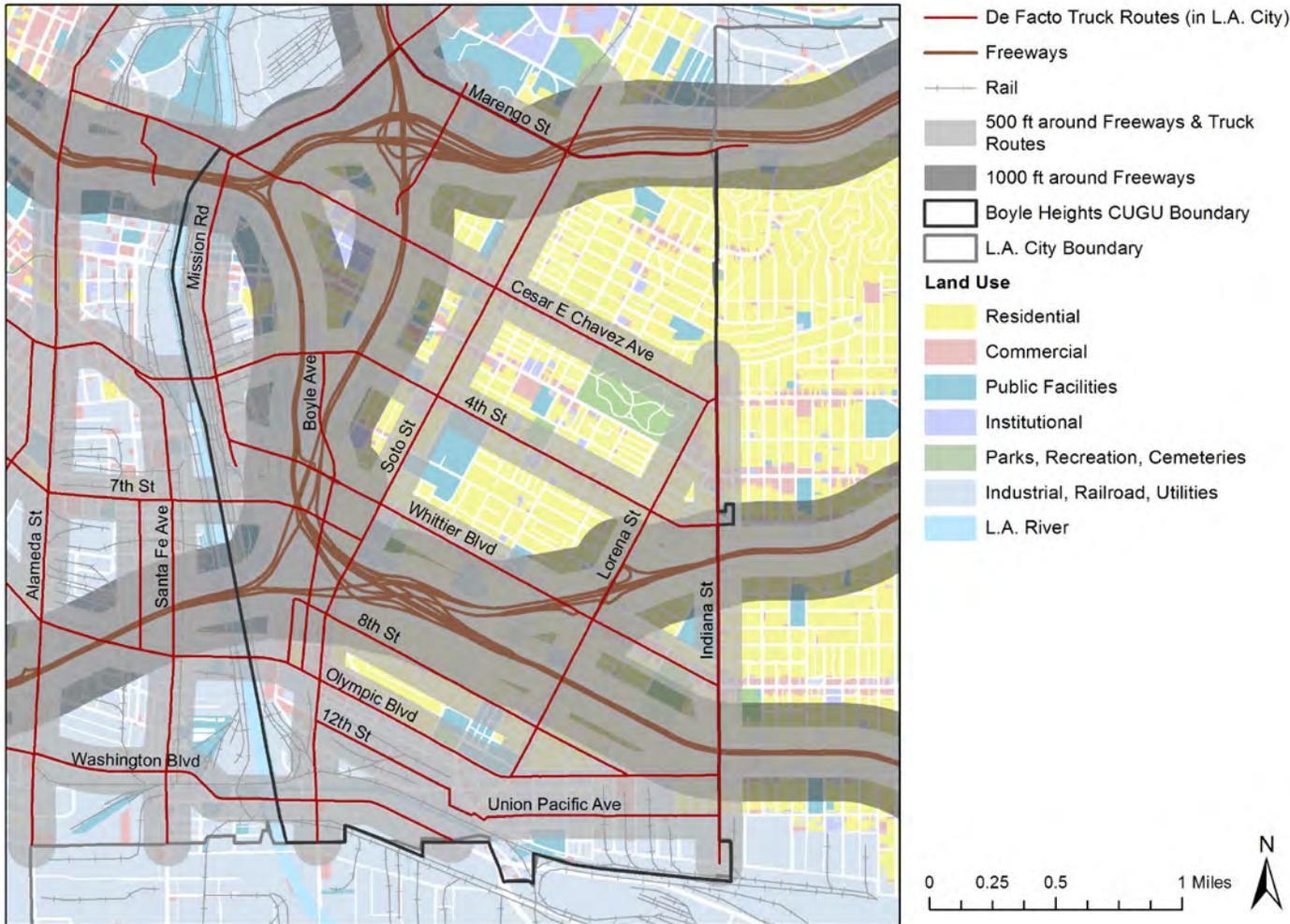
Goods movement is a key industry in Los Angeles and Boyle Heights and diesel trucks are a major presence—an LADOT study found that truck traffic accounts for 10 to 30 percent of total traffic in the Central City East area that includes most of Boyle Heights.<sup>2</sup> Diesel engines emit a mix of gases such as nitrogen oxides (NOx) and tiny particles known as particulate matter (PM). Diesel exhaust causes serious respiratory and cardiovascular health effects and is responsible for 84 percent of the cancer risk we experience due to air pollution.<sup>3</sup>

Adverse health effects from diesel are present at least 1,000 feet from a freeway but are worst within 300-500 feet of a freeway or major roadway.<sup>4</sup> The State does limit siting new schools within 500 feet of a freeway or major urban roadway (100,000 vehicles per day), but the California Air Resources Board (ARB) recommends local jurisdictions also place limits on the siting of housing, day care centers, playgrounds, and health care facilities.<sup>5</sup> The City of Los Angeles places an advisory notice on all projects applying for certain discretionary actions within 1,000 feet of freeways, but it is not mandatory and applies only to freeways.<sup>6</sup> Figure 2 shows the freeways as well as streets that are frequented by trucks, both those identified by the LADOT study and

FIGURE 1: SENSITIVE USES IN BOYLE HEIGHTS<sup>7</sup>



**FIGURE 2: GOODS MOVEMENT IN BOYLE HEIGHTS: FREEWAYS, DE FACTO TRUCK ROUTES, AND BUFFERS**



additional routes identified by Boyle Heights residents. It also shows 500 and 1,000 foot buffers around the freeways (based on the recommendations from ARB and the LA City Planning Commission, respectively) and 500 feet around surface streets frequently used by trucks.

Based on queries for certain North American Industry Classification System (NAICS) codes identified by the CUGU team as “priority industries,” Figure 4 and Table 1 show trucking, wholesale, and warehousing companies in Boyle Heights.<sup>9</sup> These businesses are likely to have their own truck fleet or contract with a fleet. Fifty-eight percent of the trucking-related businesses in Boyle Heights—which account for at least 8.5 percent of trucking-related jobs in the community—have three or fewer employees. Many are single owner-operators of individual trucks.

Although State regulations on truck emissions and operations exist, they are not sufficiently enforced, compliance can be unaffordable for many small local fleets, and most trucks are currently allowed on all neighborhood streets. Local action by the City and targeted funding from the Greenhouse Gas Reduction Fund can improve the situation.

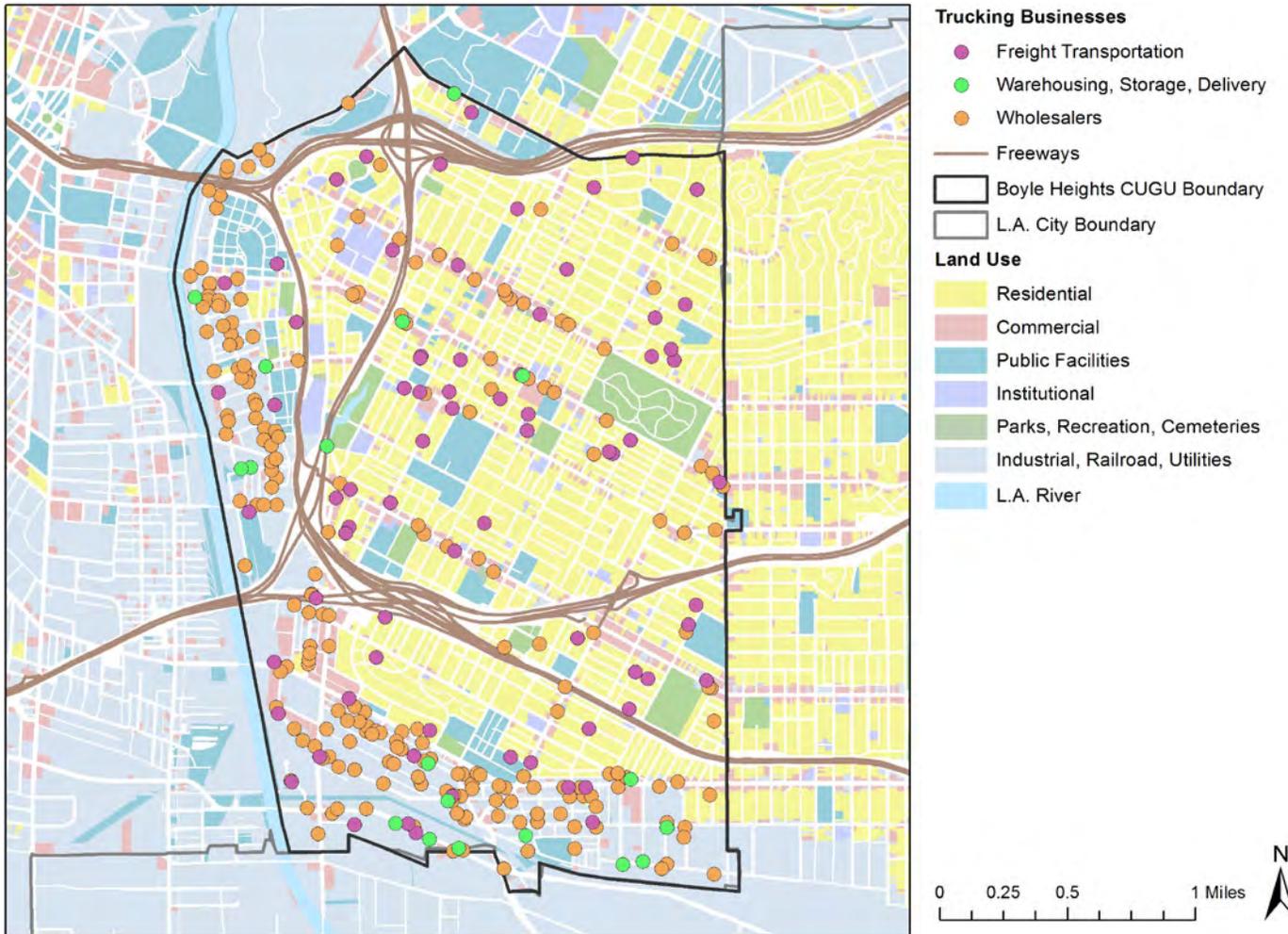
**74.5%**  
**OF LAND IN BOYLE HEIGHTS**  
**IS WITHIN**  
**500 FEET**  
**OF A FREEWAY OR MAJOR**  
**TRUCK ROUTE**

**FIGURE 3: THE EAST LA INTERCHANGE. ENGINEER HEINZ HECKEROTH POINTS OUT FEATURES ON A MODEL OF SOUTHERN CALIFORNIA FREEWAYS**



Photo Credit: Los Angeles Times Photographic Archive, UCLA Library. 1958.

**FIGURE 4: TRUCKING BUSINESS LOCATIONS (BY GENERAL NAICS CODE) AND LAND USE IN BOYLE HEIGHTS<sup>8</sup>**



**TABLE 1: TRUCKING BUSINESSES**

NAICS Definition	NAICS Code	# of Firms	# of Employees
Wholesalers	42--	275	3499
Freight Trucking & Transportation Arrangement	48--	83	885
Warehousing & Storage	49--	18	1039
<b>Total</b>	<b>--</b>	<b>376</b>	<b>5423</b>

Businesses within the Boyle Heights proposed Clean Up Green Up boundary that are likely to run or contract with truck fleets, based on their North American Industry Classification System (NAICS) code.<sup>8</sup>

**KEY POLICY RECOMMENDATIONS**

**POLICY 1: REDUCE OR ELIMINATE TRUCK TRAFFIC ADJACENT TO SENSITIVE USES**

Truck movement is overseen and protected at both the federal and state levels. However, the City of Los Angeles may prohibit truck use of a street by creating a maximum weight limit. At this time, only two short street segments near the East LA Interchange within Boyle Heights have weight restrictions: Seventh St. between Boyle Ave. and Soto St., and South Breed St. between Whittier Blvd. and Seventh St.<sup>9</sup> Apart from these segments, all but the biggest trucks are allowed on any City street.

New sensitive uses should be prohibited from locating in the dangerous areas close to heavy diesel traffic, but maximum weight limits should also be implemented to protect existing sensitive uses. The Department of City Planning and LADOT should involve the community in designing such restrictions for residential areas while simultaneously designating and improving alternative routes that would encourage trucks to stay off the restricted streets and improve safety and the efficiency of commerce.

**58%**  
**OF THE 376 TRUCKING-RELATED BUSINESSES IN BOYLE HEIGHTS HAVE 3 OR FEWER EMPLOYEES**

## POLICY 2: REDUCE IDLING

Existing California Air Resources Board (ARB) regulations that limit idling of diesel trucks over 10,000 pounds to five minutes or less are often not followed or enforced. Increased education efforts for truck drivers and the community are needed to promote compliance and community reporting of violations, and enforcement must be stepped up. The City should also study additional strategies to reduce running diesel engines unnecessarily, such as the establishment of staging areas where trucks can wait with their engines off and incentivizing “shore-power” plug-ins for refrigerated units.

## POLICY 3: FUND TRUCK FLEET REPLACEMENTS

Relatively stringent State emissions standards are being phased in between 2012 and 2023. In concert with these regulations, there are compelling reasons to allocate Greenhouse Gas Reduction Fund monies to assist with purchases of low and zero-emissions trucks in Boyle Heights and other similar communities. Incentives to purchase low-emissions trucks that comply with the state regulations will speed up adoption and reduce pollution ahead of schedule. A focus here on small fleets and individual truck owners is important because these businesses need the most assistance—financial and otherwise—to comply with state regulations. Simultaneously, funding to assist with purchases of emerging hybrid and zero-emissions truck technologies helps to move these markets forward so the state can achieve much larger emissions reductions in the future. There is a need for training regarding operations and maintenance for these new technologies and the actual maintenance costs should be tracked to determine whether unanticipated costs are borne by fleet owners. The California Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP), the Truck Loan Assistance Program (both established by AB 118), and the Carl Moyer Program provide financing for or subsidize filters and new, clean trucks for a range of business types.

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All maps in this section produced by Emily Gable.

**A STUDY FROM THE UCLA FIELDING SCHOOL OF PUBLIC HEALTH ESTIMATES THAT IF PM2.5 LEVELS IN BOYLE HEIGHTS WERE REDUCED TO MEET THE FEDERAL CLEAN AIR STANDARD, OVER THE NEXT 20 YEARS THE COMMUNITY WOULD EXPERIENCE 460 FEWER DEATHS, 120 FEWER CHILD ASTHMA-RELATED EMERGENCY ROOM VISITS, AND GAIN 56,000 DAYS OF WORK AND 3,400 ADDITIONAL YEARS OF LIFE THAT OTHERWISE WOULD HAVE BEEN LOST.<sup>10</sup> BECAUSE DIESEL PARTICULATE MATTER POSES EVEN GREATER RISKS TO HEALTH THAN DOES PM2.5, WE CAN EXPECT EVEN MORE IMPRESSIVE GAINS TO RESULT FROM REDUCTIONS IN DIESEL EMISSIONS.**

**FIGURE 5: A TRUCK DRIVES BY A HOUSE IN BOYLE HEIGHTS.**



Photo Credit: José Fernández.



# ACTIVE TRANSIT

GUSTAVO DE HARO *WITH* DELIA ESMERALDA ARRIAGA | MIGUEL RAMOS

## ACTIVE TRANSIT FOR ACTIVE LIVING

This report researches opportunities within the Los Angeles neighborhood of Boyle Heights to increase public transit use and decrease vehicle miles traveled (VMT), thereby reducing greenhouse gas (GHG) emissions. In California, automobiles and light trucks account for approximately 50 percent of air pollution (40 percent of GHG emissions) and 70 percent of petroleum consumption. Numerous studies have shown that investments in transit and bicycle infrastructure improvements increase rates of transit use and bicycling while reducing VMT. This report provides an assessment of existing transit stop infrastructure and walkability conditions for six specific transit stops along one of the busiest commercial corridors in Boyle Heights: Soto Street.

## VEHICLE & BICYCLE COLLISIONS IN BOYLE HEIGHTS

It is estimated that transit, bicycle and pedestrian improvements can provide GHG reductions in the realm of 8-14 percent when implemented on a regional scale. Indeed, a single bus can replace 40-60 single passenger automobiles. In addition to reducing GHG emissions, improvements in the transit, bicycle and pedestrian urban experience have also been shown to improve the level of safety for all travelers on the road. By implementing safety infrastructure improvements, such as lighting, bike sharrows (pavement markings that remind motorists that bicyclists are allowed to use the full lane), and pedestrian crosswalks, collisions can be decreased, thereby saving both health costs and lives.

Between 2000 and 2010 as a result of collisions between vehicles, bicycles, and pedestrians, Boyle Heights reported an average of five fatalities annually. On the six point index of collision severity, with a score of six indicating the most collisions, Boyle Heights is reported as an area with a severity level of three (see Figure 1). The area with the most collisions in Boyle Heights is located adjacent to the I-5 freeway running parallel along Soto St.

Specifically, the MIT Media Lab released a map to illustrate the 2,043 reported bicycle collisions in 2012 for the City of Los Angeles (see Figure 2). Cutting through the southern part of Boyle Heights, Olympic Blvd. had the highest counts of collisions in

Los Angeles. Although the specific causes of such high collision rates on Olympic Blvd. are unknown, it can be assumed that the lack of bicycle infrastructure, missing safety features, and heavy vehicle usage are significant contributors to these collision counts.

## BIKE COUNTS ON THE RISE

Additional GHG reductions can be achieved when bicycle and pedestrian improvements are coordinated with transit and the development of walkable communities. A study of urban areas found that VMT reductions of up to 20 percent could be achieved if 50 percent of short trips under eight kilometers were achieved by walking or bicycling. Through efforts to increase local transportation options, Los Angeles, along with many other large U.S. cities, has contributed to the increase in the number of people who bike to work. Since 2000, the percent of people who biked to work in Los Angeles increased from 0.6 percent to 1.0 percent, according to 2008-2012 statistics from the American Community Survey. In addition, 3.7 percent of workers in Los Angeles are now reported to walk to work.

In Boyle Heights, bike usage mirrors the increase observed across the City. At count locations observed in both 2011 and 2013, overall bicycle ridership increased by 7.5 percent. According to the annual Bike & Pedestrian Count report issued by the LA County Bicycle Coalition, Angelenos are demonstrating a strong desire to ride, particularly where the City is investing in making the streets safer to bike. Cities across the U.S. are turning to bicycling as a cost-effective way to improve public health, air quality, neighborhood mobility and local retail business.

## YOUTH HEALTH & SAFE ROUTES TO SCHOOL

Educational and encouragement activities combined with infrastructure improvements can lead to significant reductions in congestion (10-13 percent) and associated greenhouse gas (GHG) emissions. Approximately 10-14 percent of morning congestion is caused by school related traffic. In California, over 50 percent of children that live within two miles of school are driven in a private automobile and nationally 40 percent of parents return home after school drop offs. Studies have shown that health care costs related to physical inactivity, which currently cost California more

than \$40 billion a year, could be reduced by as much as 15 percent by investments in active transportation networks. Boyle Heights is reported to have a youth population that is 30 percent obese. With strategic infrastructure investments the issue of youth obesity in Boyle Heights may be addressed by encouraging walking, bicycling, and using public transit to get to and from school.

The number of students who walk or bike to school has dramatically declined over the past three decades. Thirty years ago, 60 percent of children living within a 2-mile radius of a school nationally walked or bicycled to school. Today, that number has dropped to less than 15 percent. Roughly 25 percent commute by school bus, and well over half are driven to or from school in vehicles. Additionally, thirty years ago, the rate of children between the ages of 6 and 11 considered to be overweight was just five percent. Today, the number has climbed to 20 percent of children ages 6 to 11. This data aligns with and contributes to increasing rates of preventable childhood diseases, worsening air quality, and increasing congestion around schools.

Safe Routes to School (SRTS) is a nationally funded program that aims to increase the number of children who walk or bicycle to school by funding projects that remove the barriers that currently prevent them from doing so. Those barriers include unsafe infrastructure and a lack of existing programs that promote walking and bicycling aimed at children, parents and the community. SRTS programs have been shown to increase walking and bicycling in California schools in the range of 20 to 200 percent. Safe Routes to School Programs have been shown to reduce school vehicle trips by more than eight percent. According to a survey conducted by the LA Bicycle Coalition in 2013, youth are more likely to use a bicycle but less likely to ride to school because parents cite safety concerns as the biggest reason they prefer to drive their child to school, specifically mentioning that increased traffic is considered the most dangerous factor.

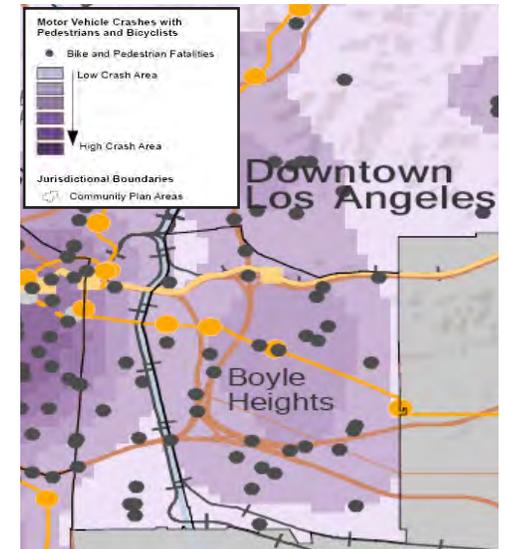
Within the neighborhood of Boyle Heights, Breed Street Elementary School (located along 4th and Breed St. in Boyle Heights) received the ranking of #37 on the list of Prioritization Phase One: Top 50 LAUSD Schools with the most need for SRTS funding. To make the most of City resources, the SRTS Strategic Plan will initially focus on the Top 50 LAUSD schools with the highest need, prioritized by: (A) number of vehicle-pedestrian/bike collisions; (B) number of students who live within 1/4 mile of school; (C) number of students eligible for Free and Reduced-Price Meals; and (D) lack of prior state/federal SRTS funding. As such, this report collected data along transit stops located near 4th Street and Breed Street, near Breed Street Elementary School and two other local Boyle Heights Schools. This data was used to assess the need for alternative transit improvements that will reduce greenhouse gas emissions and serve to stimulate walking and bicycle travel in Boyle Heights.

## COMMERCIAL CORRIDORS & STREET VENDOR “HOT SPOTS”

Investments in active transportation networks increase local property values and support local economies. The community of Boyle Heights has a long history of minority owned businesses. In recent years leaders of this community have begun to recognize the need to not only support traditional small businesses in commercially zoned corridors but also provide support for “street vendors” selling a wide variety of products and foods. According to LA County Department of Health officials, there are an estimated 10,000 sidewalk vendors currently operating in the City of Los Angeles. Currently, Los Angeles is the only one of America’s ten biggest cities where vendors can be arrested and prosecuted because the sale of food and non-food items on sidewalks is illegal.

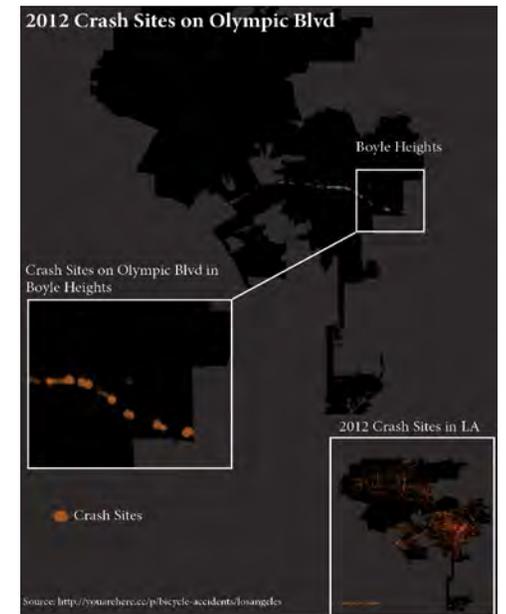
Recognizing the loss of tax revenue for the local economy, community business leaders and non-profit leaders in Boyle Heights have begun to advocate for a street vending permit process which will allow vendors to give back to the City from profits made through street vending sales. In 2013, Councilman Jose Huizar and Councilman Curren Price introduced a motion calling for a study that would look at how the City can legalize street vending. Advocates say legalizing street vending can provide long-term job opportunities as well as healthy food options for low-income neighborhoods such as Boyle Heights. It would also increase revenue to the City. Given this information, this report collected data at transit stops along specific commercial

**FIGURE 1: MOTOR VEHICLE COLLISIONS WITH PEDESTRIANS AND BICYCLISTS IN BOYLE HEIGHTS, 2001-2010**



Source: LA Department of City Planning, Health Atlas, Map 82

**FIGURE 2: CRASH SITES ON OLYMPIC BOULEVARD IN BOYLE HEIGHTS, 2012**



Source: <http://sourcehere.org/bicycle-accidents/losangeles>  
Source: MIT Media Lab

corridors containing traditional small locally owned businesses as well as street vendor “hot spots” (see Figure 3).

## HIGH USE TRANSIT STOPS IN BOYLE HEIGHTS

Boyle Heights is reported to have a large undocumented foreign born population and 47 percent of that population are without access to a vehicle or the ability to obtain a drivers license. Taking this factor into consideration, along with the reported fact that Boyle Heights has one of the lowest household area median incomes (\$33,250), and one of the highest densities (15,506 persons per square mile), it is understood that this community relies heavily on the public transit system. In 2010 over 30 percent of residents reported not having access to a vehicle for personal travel in Boyle Heights. As such, more people use the public transit system in Boyle Heights (19 percent) in comparison to bus use rates in the City as a whole (11 percent). Given this information, data for this report was collected at transit bus stops with the highest usage rates and offering the ability for passengers to transfer to other routes. This data was collected in an effort to identify needed infrastructure improvements that may increase the amount of passengers using the bus leading to an overall reduction of VMT and GHGs.

## METHODOLOGY OF STUDY: SIX STRATEGIC TRANSIT STOPS

Taking into consideration all of the variables mentioned above regarding the specific characteristics of interest in Boyle Heights for this study, data was collected at six specific transit stops along one of the busiest commercial corridors in Boyle Heights, Soto Street. Based on the considerations mentioned above, the following six bus stops were selected as specific focus areas: (1) Cesar Chavez Ave. & Soto St.; (2) 1st St. & Soto St.; (3) 4th St. & Soto St.; (4) Whittier Blvd. & Soto St.; (5) Olympic Blvd. & Soto St.; and (6) Marengo St. & State St. These six bus stops were prioritized strategically based on their perceived ability to facilitate several community benefits from the return of alternative transit infrastructure improvements. It is believed that specific investment at these six transit stops could yield improvements to the quality of safety, youth health, encourage more bicycling, facilitate economic stimulation, and overall reduce vehicle miles traveled and greenhouse gas emissions in Boyle Heights.

Our research team conducted a site analysis for walkability based on the Walkability Site Plan Checklist provided by the City of Los Angeles Planning Department. This walkability assessment was conducted at all six chosen research sites. Also, our research team conducted a transit site inventory assessment for existing transit infrastructure such as benches, lighting, shade structures, schedules, bike racks, and trash cans. This inventory assessment was also conducted at all six sites. Finally, our research team conducted a series of short interviews with transit users at each site to gain input as to their own perceived transit infrastructure needs. A total of 55 interviews were conducted across all six research sites.

## WALKABILITY ASSESSMENT RESULTS

Based on the walkability assessment, many of the sites scored very low on many of the key areas in the walkability checklist. As seen in Table 1, the results of the walkability checklist were not very impressive across many of the categories. Across the board the average score was 56 percent. The site with the highest-scoring result and thus considered the most walkable and pedestrian friendly was Soto & Whittier with a score of 67 percent. The second best score came in at 65 percent for Soto & Cesar Chavez. The lowest scoring transit site was Soto & Olympic.

## INFRASTRUCTURE ASSESSMENT

The conditions at each of the sites varied greatly. In some cases the transit site was very well equipped with shade structures, bike racks, benches, and good signage. In other cases the transit site was nothing more than a pole and a rock on the ground for people to sit on as they wait for the bus. Table 2 below shows a breakdown of each site with existing and needed infrastructure.

**FIGURE 3:**  
**STREET VENDOR “HOT SPOTS”**



Source: East LA Community Corporation (ELACC)

**FIGURE 4: BOYLE HEIGHTS VENDOR**



Photo Credit: Yuan Feng, yuanfeng27.com

**TABLE 1: WALKABILITY ASSESSMENT SCORES**

Location	Building Orientation	Building Frontage	On Site Landscaping	Off-Street Parking	Building Signage Lighting	Sidewalks	Crosswalks/Street Crossing	On-Street Parking	Utilities	Total Score
Marengo & State	40.00%	90.00%	33.33%	80.00%	100.00%	30.77%	25.00%	100.00%	50.00%	58.79%
Soto & Cesar Chavez	80.00%	70.00%	33.33%	80.00%	100.00%	23.08%	75.00%	100.00%	50.00%	65.71%
Soto & 1st	80.00%	50.00%	66.67%	50.00%	50.00%	30.77%	75.00%	100.00%	0.00%	53.60%
Soto & 4th	40.00%	30.00%	66.67%	50.00%	100.00%	76.92%	50.00%	50.00%	0.00%	51.51%
Soto & Whittier	80.00%	40.00%	100.00%	50.00%	100.00%	15.38%	25.00%	100.00%	100.00%	67.82%
Soto & Olympic	40.00%	10.00%	66.67%	10.00%	100.00%	15.38%	100.00%	50.00%	0.00%	43.56%

**TABLE 2: NEEDED INFRASTRUCTURE AT SURVEYED TRANSIT STOPS**

Location	Benches	Lighting	Shade Shelter	Bike rack	Bus schedule	Trash can	Signage
Marengo & State St			X	X			X
Cesar Chavez & Soto	X		X	X			X
1st St. & Soto		X	X			X	X
4th St. & Soto		X	X				X
Whittier & Soto		X	X			X	X
Olympic & Soto	X	X	X	X		X	X

**RECOMMENDATIONS**

The recommendations developed increase safety and, because Soto Street is near schools ranked in the top 50 LAUSD schools with the highest need for “Safe Routes to School,” incentivizes the community’s youth population to increase activity and take alternative transportation to school.

Based on site assessments and short interviews with transit users, the study identifies specific infrastructure and non-infrastructure improvements the City can pursue to increase alternative transportation. Funding for these strategies is possible through the State’s Active Transportation Program (ATP), slated to receive revenue from the Greenhouse Gas Reduction Fund.

- The City should improve bus stop infrastructure and design (based on site assessments) to increase ridership comfort, including increased shade and tree canopy, sidewalk accessibility, water capture systems integrated into the bus stop shade shelters, lighting for safety, and signage about transit ridership.
- The City should increase alternative transit education programs by providing wayfinding at transit stops to services like White Memorial Hospital and the library, increase education programs through local schools, and increase education campaigns at transit stops (through short videos, information printed on tickets, or bus stop signage).
- Since 99 percent of the rider interviews were conducted in Spanish, the City should provide education materials and transit information at bus stops in Spanish.

**FIGURE 6: CESAR CHAVEZ & SOTO TRANSIT STOP WITH NO SUN SHELTER**



Photo Credit: Miguel Ramos, 2014



# GREEN ALLEYWAYS

SHEELA BHONGIR WITH MARJORIE PHAN | SAMYRHA SABA

## BREATHING LIFE INTO THE ALLEYWAYS OF BOYLE HEIGHTS

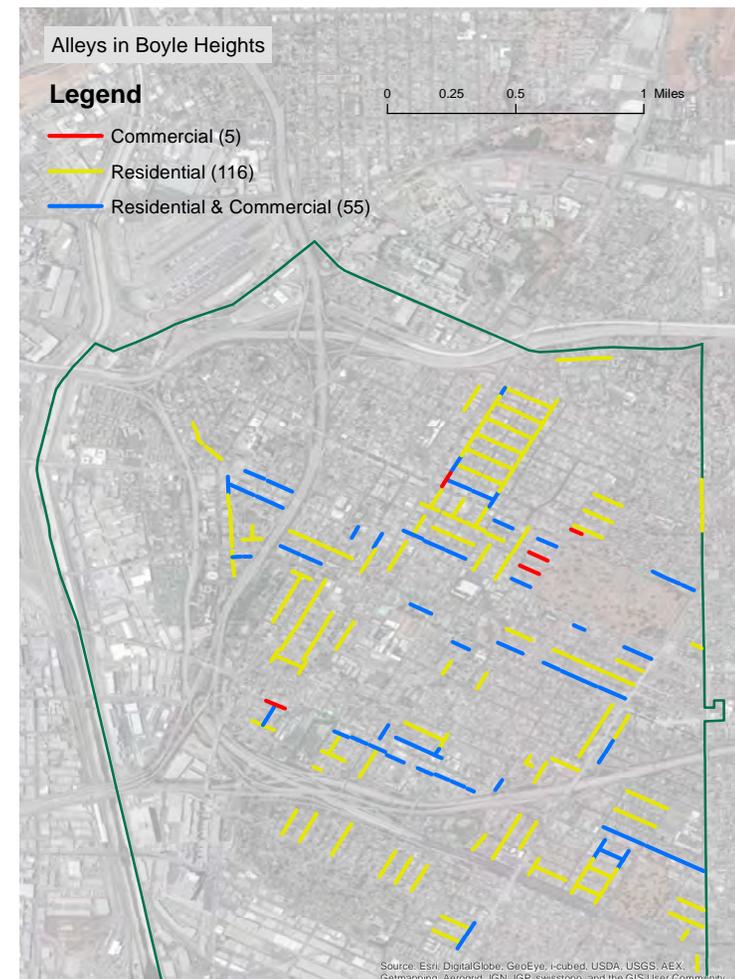
Trees are the lungs of a city purifying the air we breathe. California Proposition 84 defines greening as a “community-based effort to plan, plant, care, and manage flora, structures and spaces, which lead to increased forest canopy, reduced storm water runoff, improved air and water quality, energy conservation, open space and ultimately, more sustainable communities.”<sup>1</sup> The urban greening strategy team picked greening alleyways as a way to expand greening. Greening alleyways is a popular strategy which cities such as Chicago have successfully implemented.

“Alleys could offer enormous environmental and public health benefits—if they could be turned green.”<sup>2</sup> This solution can close the disproportional gap of park access in Boyle Heights, increase the percentage of surface area covered by trees and permeable surfaces, reduce the heat island effect, encourage recreation and ameliorate asthma. Additionally, green alleys reduce stormwater runoff which pollutes Los Angeles’ receiving water bodies with grease and oil from vehicles and waste from poorly contained trash and rubbish.

### THE POTENTIAL

“Los Angeles has enough alleys to make for quite a workout—900 linear miles in total. That’s enough pavement to run 34 marathons. If you laid these alleys side by side it’d be 3 square miles—twice the size of New York’s Central Park.”<sup>3</sup> Within Boyle Heights, there are approximately 176 alleyways totaling 17 miles. The majority of the alleyways (116) are located in residential areas, meaning residences are on both sides of the alleyway. Figure 1 depicts the 176 alleyways by adjacent land use. For fifty-five alleyways, one side of the alleyway is adjacent to homes and the opposite side is adjacent to stores. Lastly, five alleyways go through commercial uses. The sources used to determine the land uses for Figure 1 were ZIMAS and Google Street view.

FIGURE 1: ALLEYWAYS IN BOYLE HEIGHTS, DEPICTED BASED ON ADJACENT LAND USES



## ANALYSIS

The initial analysis set out to identify 5 to 6 alleyways the community should prioritize. The analysis then aimed to propose specific implementation solutions with associated costs. Further analysis can use the estimated cost figures to extrapolate the cost of improving all 176 alleyways in Boyle Heights. However, because of limited resources, it is important to prioritize efforts.

To prioritize which alleyways to green, various factors were considered in order to categorize the Boyle Heights community into high, medium and low favorability areas. The favorability index signifies the level of investment needed to improve the area. Lower favorability means the improvement is more desirable and needed. The favorability index can also indicate the current conditions and quality of life in Boyle Heights. From this knowledge it becomes easier to determine which alleyways 1) could quickly be transformed 2) need more investment and resources and 3) fall into the most distressed areas.

Using a GIS raster analysis, this study assesses the alleyways of Boyle Heights for their potential to serve as additional civic spaces based on their pathways to public transit, proximity to schools, adjacency to streets with high pedestrian-vehicle collisions, and their relationship to crime rates in the community. The expanded report details the GIS analysis taken to produce the final raster, seen in Figure 2, which categorizes Boyle Heights into the three favorability classes. These levels correspond to the colors green, yellow and red as seen in Figure 2. Most of Boyle Heights is colored red meaning the area has lower levels of resources, less accessibility to transportation, and higher crime than the other areas.

**“ALLEYS COULD OFFER ENORMOUS ENVIRONMENTAL AND PUBLIC HEALTH BENEFITS—IF THEY COULD BE TURNED GREEN.”**  
- SCOTT GOLD

**FIGURE 2: FAVORABILITY INDEX AND DETAILED AREA VIEW**

### Overall Favorability Classes

- Red: Low
- Yellow: Medium
- Green: High



Figure 2 displays the three Favorability Classes which indicate the current conditions and quality of life in Boyle Heights

## RECOMMENDATIONS

This study recommends selecting alleyways that fall between medium and low favorability (yellow and red zones in Figure 2). For example, the alleyways highlighted on Figure 2 are located on East 4th St. between South Chicago St. and South Breed St. This area can leverage the strengths of the medium favorability area to compensate for some of the poor (low favorability) spots. Executing an alleyway renovation in a higher favorability area, which has more resources, ensures the sustainability of the green alleyway compared to renovating an alleyway in a lower favorability area. Furthermore, executing a successful alleyway renovation is important to show the community immediate benefits in order to encourage more green alleyways.

The alleyways located on East 4th St. between South Chicago St. and South Breed St. could potentially serve as a safe corridor for students to walk to Breed Street Elementary School and Hollenbeck Middle School. Alleyways are also located near the Promise Hospital of East Los Angeles. Patients of the hospital could potentially walk through the alleyway as a form of exercise.

The challenge however is community support. Community support ensures the sustainability of a green alleyway. If the community actively supports the alleyway, for example with regular clean-ups, then a level of ownership is developed which can ensure the sustainability of a green alleyway. Secondly, strong community support potentially could mitigate the risks of gentrification. For example, homeowners could support the alleyway renovation under the condition that it will not impact rental rates. Ensuring community support however should not prevent the construction of green alleyways. Initially the support may not be present, however, the green alleyway can create the space to facilitate community engagement. Theater performances, art murals and clean-up activities can take place in the alleyways. These activities can promote liveliness and activity leading to opportunities for community support.

Once the alleyways are chosen, various greening treatments are available. Tree planting, bioretention and infiltration, as well as permeable pavement are all proven methodologies to increase green space and reduce storm-water pollution within the area. The following methodologies provide the benefits listed below:<sup>4</sup>

### METHODOLOGY BENEFITS:

TREE PLANTING	BIORETENTION & INFILTRATION	PERMEABLE PAVEMENT
<ul style="list-style-type: none"> <li>Reduces storm water runoff</li> <li>Reduces energy use</li> <li>Improves air quality</li> <li>Increases groundwater recharge</li> <li>Reduces atmospheric CO<sub>2</sub></li> <li>Reduces urban heat island</li> <li>Improves community livability</li> <li>Improves habitat</li> <li>Cultivates public education opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Reduces storm water runoff</li> <li>Increases available water supply</li> <li>Improves air quality</li> <li>Increases groundwater recharge</li> <li>Reduces atmospheric CO<sub>2</sub></li> <li>Reduces urban heat island</li> <li>Improves community livability</li> <li>Improves habitat</li> <li>Cultivates public education opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Reduces storm water runoff</li> <li>Increases groundwater recharge</li> <li>Reduces salt use*</li> <li>Reduces energy use</li> <li>Improves air quality</li> <li>Reduces CO<sub>2</sub></li> <li>Reduces heat island</li> <li>Improves community livability</li> <li>Cultivates public education opportunities</li> </ul>

\*Salt is not significant factor in Southern California, therefore this is not a relevant benefit.

FIGURE 3:  
CURRENT ALLEYWAY CONDITION



FIGURE 4:  
PROPOSED ALLEYWAY CONDITION



## IMPLEMENTATION COST

According to a study by the City of Los Angeles' Public Works Department, the cost to renovate a 75' long section of 20' wide alley (wide enough to accommodate driveways and trucks when needed) can range from \$16,462.50 for a basic improvement (that is, pavement and a concrete swale) to \$57,957.50, which incorporates a drywell and stormwater filtration system to better deal with both the volume of urban runoff and the water quality.<sup>5</sup> This is approximately \$220 to \$772 per linear foot.

Funding alleyways can come from a variety of sources. For example, in 2012 the Elmer Paseo alleyway project in Sun Valley received funding from four sources, which Boyle Heights is also eligible for: the Urban Greening Proposition 84 from the State's Strategic Growth Council, the Santa Monica Mountains Conservancy, Proposition O from the City of Los Angeles' Bureau of Sanitation, and the City's Department of Water and Power.<sup>6</sup> Since alleyway greening is a recognized strategy for stormwater management and GHG reduction through urban heat island effect mitigation, this strategy may be funded through the SB 535 Greenhouse Gas Reduction Fund.

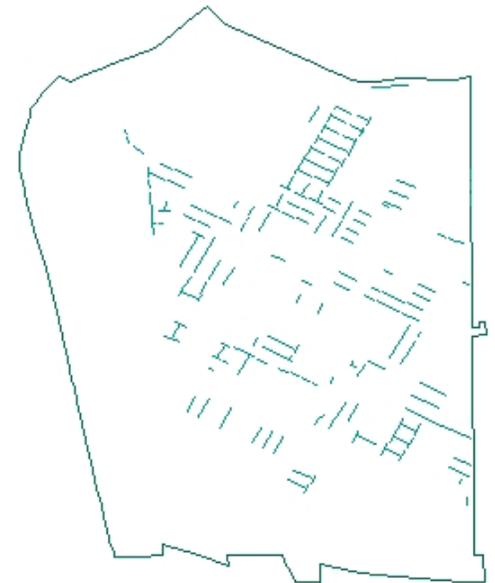
## NEXT STEPS

Gentrification is "a change process in historically low-wealth communities that results in rising real estate values coupled with shifts in the economic, social and cultural demographics and feel of the communities."<sup>7</sup> Future research on gentrification can provide the community with a clearer picture of the consequences from greening alleyways. The research can determine whether greening alleyways encourages displacement. Elizabeth Blaney from Unión de Vecinos, a Boyle Heights-based non-profit, highlighted that alleyway renovations may lead to gentrification if the physical improvements lead, for example, to increased rents. Further research can determine whether to choose alleyways in low favorability areas or in medium favorability areas. In conclusion, this report is the start of a larger effort which can breathe life into the alleyways of Boyle Heights.

## ENDNOTES

- 1 California Natural Resources. 2007. "California Resources Agency - Proposition 84 - Urban Greening." [http://resources.ca.gov/bonds\\_prop84\\_urbangreening.html](http://resources.ca.gov/bonds_prop84_urbangreening.html).
- 2 Gold, Scott. 2008. "Bringing L.A.'s Alleys out of the Shadows - Los Angeles Times." September 12. <http://www.latimes.com/local/la-me-outthere12-2008sep12-story.html#page=1>.
- 3 "Green Alleys : Curbed LA." 2014. Accessed June 2. <http://la.curbed.com/tags/green-alleys>.
- 4 Center for Neighborhood Technology. 2010. "The Value of Green Infrastructure A Guide to Recognizing Its Economic, Environmental and Social Benefits."
- 5 City of Los Angeles Sanitation Department of Public Works. 2009. "Rainwater Harvesting Program."
- 6 "How to Create a Clean Water Alley." 2013. February 1. <http://inthewatershed.org/category/elmer-avenue/>.
- 7 Neighborhood Works America. 2005. "Managing Neighborhood Change: Best Practices for Communities Undergoing Gentrification."

**FIGURE 5: IMAGINE GREENING THE 176 ALLEYWAYS OF BOYLE HEIGHTS.**





# LIVING STREETS

NATALIE NAVA WITH ROXANA AGUILAR | RAQUEL ARMENTA

## LIVING STREETS IN BOYLE HEIGHTS: OPPORTUNITIES FOR ECONOMIC AND ENVIRONMENTAL EQUITY

A vital movement dedicated to prioritizing green infrastructure is gaining steam at the regional and municipal level, although it is not always concentrated in communities that stand to gain the most. Los Angeles can improve the climate change resiliency and environmental health of Boyle Heights, while also creating jobs for community members, through a myriad of urban greening strategies. To realize these benefits the City must institute policy changes, develop financing strategies, and streamline municipal processes to make green retrofits accessible.

## ENVIRONMENTAL, ECONOMIC & COMMUNITY BENEFITS

Green infrastructure reduces atmospheric CO<sub>2</sub> through carbon sequestration and can improve the air quality and urban heat island effect in Boyle Heights. The Boyle Heights Neighborhood Council area of 3,668 acres has approximately 11 percent canopy coverage and 79 percent impervious surfaces (2,926 acres).<sup>1</sup> A Chicago urban forest study found increasing tree cover by 10 percent (+3 trees per building) reduced total heating and cooling energy use by up to 10 percent and urban temperature by 0.4-0.7°F.<sup>2</sup> Green infrastructure will reduce the urban heat island effect, screen sound from neighboring freeways, and recharge ground water. Boyle Heights' aging stormwater infrastructure transfers both dry and wet urban runoff, affecting the health of the Central Basin watershed, with many pipelines leading to the LA River. Any areas in Boyle Heights with contaminated ground water can be prioritized and treated through the use of Best Management Practices (BMPs) that are not filtration based or include liners.<sup>3</sup>

By integrating tree planting and water reclamation treatments with complete streets improvements, green infrastructure can reduce greenhouse gas emissions, create safer streets, and stimulate local jobs. Safer streets are important for cyclists and pedestrians who are walking to commercial corridors, schools, transit stops, and other neighborhood locations. Green For All estimates 120,000-200,000 jobs in California

could be created in green infrastructure.<sup>4</sup> Non-profit sector jobs in environmental fields, from street cleaning to water reclamation, provide jobs and job training programs for low-income youth. When paired with energy efficiency measures, greening can reduce energy costs for low-income business owners along commercial corridors.

## GENTRIFICATION CONSIDERATIONS

Boyle Heights has begun to attract people who cannot afford the higher rents in neighboring Downtown or those who wish to purchase homes at lower prices. While gentrification is an issue that goes beyond urban greening, community stakeholders have emphasized a need to be cognizant about the location and type of investments in the community as their application may exacerbate increasing rents. Therefore, investments in green infrastructure must be in the public spaces and provide multiple benefits that improve the quality of life for the most vulnerable members of the populations.

## DEMONSTRATION PROJECTS

Potential for demonstration projects include commercial corridors, community-identified complete streets improvements, and future projects connecting to the LA River. Cesar Chavez Ave., Wabash Ave., 4<sup>th</sup> St., and Lorena St. are commercial corridors with sidewalks and parking lots that could use improvements. The Cesar E. Chavez Avenue Streetscape Project was a CRA/LA comprehensive project to repair "broken and deteriorating sidewalks and enhanc[e] access to and use of alternative modes of pedestrian travel."<sup>5</sup> Many of the identified enhancements—including new sidewalks, curb extensions, pedestrian lighting, new trees, landscaping, and pedestrian crossings<sup>6</sup>—could integrate water reclamation treatments, potentially making the project more competitive for CAL FIRE funds. The City should leverage the Great Streets planning funds to partner with organizations to apply for CAL FIRE funds available in 2015-16. Lorena St. has many problems with pedestrian crossings, and intersections with Whittier Blvd. and Soto St. are also high use transit nodes. A senior walkability assessment using California Statewide Integrated Traffic Records System (SWITRS) data from 2000 through 2008 found more than one death or severe injury happened in four intersections: Cesar E. Chavez Ave. & Fickett St., Soto St. & Olympic

Blvd., Whittier Blvd. & Fresno St., and Whittier Blvd. and Lorena St.<sup>7</sup> In addition, most pedestrian/vehicle collisions occur along arterial streets for retail and business uses, such as Cesar E. Chavez Ave., 1st St., and Soto St., with 39 percent of pedestrian/vehicle collisions occurring when the pedestrian is in a crosswalk.<sup>8</sup>

Improvement priorities should be decided through a public process with involvement from various non-profit stakeholders and businesses.

#### WATER RECLAMATION AND TREE PLANTING TREATMENTS

Water reclamation treatments and porous pavements treat water and cool surface areas of sidewalks and buildings through planting of trees and shrubs. There are many distributed small scale green Best Management Practices. Planted curb extensions capture stormwater runoff from streets or driveways nearby and are designed with physical characteristics of vegetated swales, planters, or rain gardens. Others include bioswales in medians, parking lots, or adjacent to pedestrian areas. Planters are more expensive and require more maintenance, but are best for dense urban environments. Rain gardens are also used for corners and can be paired with curb extensions. These need to be coordinated with complete streets redesigns of pedestrian infrastructure and bus stops.

Planting medium-sized trees on the south and west sides of commercial buildings next to transportation nodes will provide shade and energy efficiency benefits to pedestrians and small businesses. Bioretention systems like biotreatment curb inlets are trees with a grate, and percolation curb inlets can also help improve the walkability of streets. Lastly, porous/permeable pavement is good for sidewalks and parking lots but should be used as an element of a design proposal, as the nexus with CO<sub>2</sub> reduction is difficult to prove.

#### CONNECTIONS TO THE L.A. RIVER

Public improvements using pervious street and sidewalk paving, cool paving, and installation of appropriate trees for shade, accompanied by storm water management techniques, provide the ability to clean water before it gets into the LA River. The LA River Revitalization Masterplan emphasizes reconnecting neighborhoods to the Los Angeles River through green streets that are bicycle and pedestrian friendly.<sup>9</sup> Specific Boyle Heights LA River projects include the Boyle Heights River Gateway Park and Street River Park, although these are not currently top priorities in the Plan. To complement the Community Plan process, a River Improvement Overlay (RIO) district is being created, and community input can influence this option through the upcoming Boyle Heights Community Plan update. Overall, the City should investigate how treatments upstream can both provide complete streets safety improvements, reduce urban runoff, and clean up groundwater contamination.

### CASE STUDIES

Chicago's Department of the Environment announced that it would provide twenty \$5,000 grants in 2006 for small-scale commercial and residential green roofs and received 123 applications.<sup>10</sup> Additionally, about 400,000 trees, on both public and private land, have been planted as part of the City's campaign for green streets.<sup>11</sup> Philadelphia's Green City, Clean Waters program has set an objective of applying green infrastructure to 10,000 impervious acres of public and private property to manage an inch of stormwater on site.<sup>12</sup> Their financing techniques include public-private partnerships and storm utility fee structures that have exemptions for low-income residents and seniors. While 80 percent of Philadelphia's stormwater fee is based upon a property's impervious area, the remaining 20 percent is based upon the property's gross area.<sup>13</sup> Lastly, in Kansas, the Lenexa City Council adopted the Systems Development Charge, which requires new development to pay a one-time fee at the time of building permit. This fee is put into a pool that recovers costs for capital improvement activities within the City's Rain to Recreation program.

**FIGURES 1 & 2: WATER RECLAMATION TREATMENTS**



Curb extensions paired with planters or rain gardens increase safety.  
Photo Credit: Greenworks PC, Portland



Bioswales can be used in medians for traffic calming or in parking lots.  
Photo Credit: Philly's Green Streets

## FUNDING OPPORTUNITIES

While Los Angeles' Low Impact Development ordinance sets new rules for the impacts of water flowing from private properties into the public way and moves those parcels toward better on-site storm water management, the ordinance does not regulate public space. Los Angeles must rely on a multitude of financing strategies since competitive federal and state grant and loan programs are not enough to pay for green infrastructure and often only cover capital costs. By adopting a range of methods from the following options, the City can develop a financing plan that is fair, stable, and scalable.

### GOVERNMENT FUNDING

Green infrastructure provides a clear nexus for greenhouse gas reductions. Due to the proposed expansion of the CAL FIRE program (California Department of Forestry and Fire Protection, Urban Forestry and Urban Greening Grant Programs),<sup>14</sup> the City should continue partnering with organizations like North East Trees and LA Conservation Corps, organizations that have been awarded CAL FIRE grants. Since water reclamation projects are also eligible under Active Transportation Plan funding, LADOT can apply for a planning grant so they can develop a regional vision, allowing them to be more competitive with other parts of California in future years.<sup>15</sup> This regional vision should include a task force made up of stakeholders from disadvantaged communities, including those active in the Clean Up, Green Up Communities. In order to apply for funding, the City can utilize resources from the US EPA such as predictive models and calculators for green infrastructure, and seek technical assistance to write these grant applications.

### LOCAL AND REGIONAL FINANCING STRATEGIES

City policies can require that green infrastructure be mandated for new development, integrated during normal maintenance and streetscape improvement plans, as well as offer financial incentives for retrofits. The City should determine appropriate impact fees to be applied during plan review and permitting fees for new developments in the Boyle Heights Community Plan area. For instance, value capture, a system where payments by developers are required as a condition of construction approval, could provide gap funding for green infrastructure needs in the same designated area where it is collected. Other U.S. cities have also structured their utility fees to provide a fee discount when green controls are installed. Another option is dedicating a certain portion of collected local tax revenues to a stormwater fund, thereby removing stormwater management from volatile and competitive general revenue funding at the local level. Many cities do provide exemptions to low-income residents, seniors, and other disadvantaged populations.

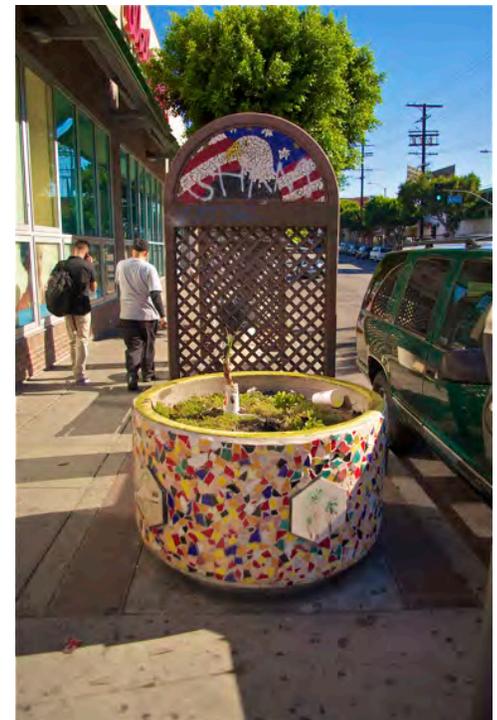
## RECOMMENDATIONS

- Develop partnerships with non-profits and schools that would like to apply for green infrastructure projects eligible for CAL FIRE funding, including complete streets projects and tree planting in commercial corridors and LA River access and open space projects.
- Apply for an Active Transportation Plan planning grant so the Los Angeles Department of Transportation can work with government agencies and community-based organizations to develop a regional vision that incorporates water reclamation, allowing them to be more competitive with other parts of California in future grant cycles.
- Apply value capture to developments coming into Boyle Heights to secure revenue for street developments in underserved areas.
- Institute a stormwater fee with low-income and other exemptions that includes incentives for installing Low Impact Development measures.
- Use revenue to fund increased public education & outreach, technical assistance, and a grant program for small-scale commercial low impact development and tree planting projects.

FIGURE 3: CESAR E CHAVEZ AVENUE BUS STOP



FIGURE 4: CESAR E CHAVEZ AVENUE ABANDONED BUS STOP WITH PLANTER



The Cesar E Chavez Ave. Streetscape Plan can integrate water reclamation treatments, making the project more competitive for future CAL FIRE funds.

Photo Credit (Figures 3 & 4): Sahra Sulaiman / LA Streetsblog

- Continue to streamline government application processes for new streets initiatives in order to increase access for disadvantaged communities.
- Boyle Heights could benefit from a neighborhood association to manage the additional continued maintenance. Hiring non-profits like the Los Angeles Conservation Corps will provide cost-savings and jobs to youth in the program.

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**FIGURE 5: LIVING STREETS WORKSHOP**



The City should prioritize community-identified living streets projects.

Photo Credit: Living Streets Initiative



# ENERGY EFFICIENCY

NATALIE NAVA WITH ROXANA AGUILAR | RAQUEL ARMENTA

## REINVESTING IN BOYLE HEIGHTS: ENERGY AND WATER PERFORMANCE PLAN

As the City of Los Angeles faces increasing heat waves and decreased rainfall, public investment in water and energy conservation is critical for the region's economic and environmental vitality. Currently, the Los Angeles Department of Water and Power (LADWP) has a 10 percent reduction goal for residential and commercial energy use and has invested \$128 million in conservation measures over the last two years. Since small businesses represent 72 percent of LADWP's commercial customers,<sup>1</sup> an investment in expanding existing efficiency programs and financing options will decrease overall energy and water consumption and directly reduce greenhouse gases. With support from the City Council, the LADWP can implement a 15 to 20 percent energy reduction goal by 2020 and designate funds for energy and water reduction measures where vulnerable communities are a first priority.<sup>3</sup> A focus on commercial corridors in disadvantaged communities like Boyle Heights will provide a variety of social, economic, and environmental benefits, increasing the competitiveness of this approach for Greenhouse Gas (GHG) Reduction Funds as criteria for project selection are based on maximizing co-benefits. However, access and information about these programs must be expanded through outreach and financing strategies that save customers money, reduce greenhouse gas pollution, and create quality jobs.

## COMMERCIAL CORRIDORS IN BOYLE HEIGHTS

Close to 42 percent of the building stock in Boyle Heights was built before the 1940's. In addition, the majority of the 850 small businesses in Boyle Heights are located along Cesar Chavez Ave., Lorena St., Whittier Blvd., 1st St., 4th St., and Soto St. Businesses along these corridors are mainly comprised of retail, restaurants and food services, consumer services, auto-repair shops, small markets, and liquor stores. The main energy uses include lighting, cooling, powering electronic appliances, freezing and refrigeration. Water use is designated for kitchens, bathrooms, laundry rooms, and landscaping. Therefore, significant energy and water retrofits to this aging infrastructure will help reach LADWP's water and energy reduction goals, provide cost savings to small business owners, and create jobs and job training opportunities for residents.

## SMALL BUSINESS INTERVIEWS

Community Scholars conducted interviews with fifteen small businesses owners along Cesar Chavez Avenue. Only two out of fifteen businesses interviewed were aware of any existing LADWP energy efficiency programs.<sup>7</sup> Business owners expressed a great commitment to reducing energy and water use but stated they did not have the capital to invest in new equipment or retrofits given current rebate and financing options.<sup>8</sup> They were also concerned about not seeing their energy or water savings reflected or honored in a shared meter system. Based on our review of existing program requirements, case studies from other cities, and these small business interviews, we believe increasing access to financing, along with expanding existing programs, can increase the energy and water efficiency of commercial corridors in Boyle Heights.

## INCREASING ACCESS TO EXISTING PROGRAMS

Los Angeles and other many other cities have begun to meet their regions' energy and water challenges by adopting innovative and ambitious energy efficiency policies with new programs. Existing programs to reduce commercial energy consumption include the Small Business Direct Install program, Chiller Efficiency program, Commercial Lighting Efficiency Offer, and Commercial Refrigeration program, among others. Energy and water saving measures include basic upgrades to energy efficient lighting systems and lamps, LED exit signs, pipe and water heater insulation, water efficient devices such as pre-rinse spray valves, low-flow showerheads, and low-flow toilets. Assessing and fixing water leaks from a toilet can save thousands of gallons of water each month or 20 gallons per day. LADWP's Commercial Refrigeration Program can help to reduce electricity bills and the cost of new refrigeration equipment by replacing or retrofitting existing refrigeration equipment with state-of-the-art, energy-efficient refrigeration technologies. Rebate measures include ice machines, solid and glass refrigerator doors, door gaskets, night covers, strip curtains, vending machine controllers, and other energy efficient measures. LADWP's Chiller Efficiency Program is offering cash rebates that benefit the owners and operators of buildings who use chillers for space conditioning. Rebates are available for air and water-cooled chillers of all types and sizes, including standard and non-standard installations. The

installation of a new energy-efficient chiller will result in substantial savings over its lifetime. The LADWP should combine these programs into one comprehensive program that brings customers face-to-face with staff in order to increase their success.<sup>4</sup>

Since April 2013, LADWP has provided 1,200 businesses with free energy efficiency upgrades through the Small Business Direct Install (SBDI) Program, a positive step forward in increasing access to energy efficiency for disadvantaged customers. LADWP has estimated the program reduces each customer's energy bill by an average of \$900 per year. This represents an energy savings of 6,332,000 kilowatt-hours (kWh) per year. That amount of energy savings is equivalent to avoiding CO<sub>2</sub> emissions of approximately 3,500 metric tons or removing 700 cars from the road each year.<sup>5</sup> In addition, the Small Business Direct Install program created employment opportunities for five community-based organizations (CBOs) with constituents in Los Angeles' most disadvantaged communities.<sup>6</sup> Together, the five CBOs have about 25 employees and volunteers conducting education workshops, canvassing areas, and pre-qualifying customers.

## CASE STUDIES

Two case studies exemplify best practices for benchmarking energy use, financing options for energy retrofits, and financing mechanisms to sustain energy efficiency programs. The City of San Francisco adopted and implemented energy benchmarks by passing a 2011 City Ordinance under which all non-residential buildings are required to benchmark energy use every year and get an energy audit every five years.<sup>10</sup> This ensures decision-makers can compare performance to other buildings, and have a plan for cost effective improvement. After submitting a benchmark, businesses can be eligible for energy improvements through City programs. The City provides technical assistance through their Department of the Environment. This policy is directly connected to the City of San Francisco's 20 percent energy reduction goal and 100 percent renewable energy goal. The Existing Commercial Buildings Energy Performance Ordinance was passed to help the local market maximize energy efficiency in San Francisco commercial buildings. The ordinance aims to empower owners, managers, operators, and occupants with key information to control utility costs and reduce greenhouse gas emissions by improving energy efficiency.

The State of Massachusetts has developed several programs for helping businesses optimize energy efficiency and reduce energy costs. The MASS Save program includes a financing option for business owners with loans of \$50,000 to \$500,000 and a set of project-related rebates or subsidies. Loans are only made for projects that receive approval for a utility rebate under a public utility sponsored energy efficient program. Funds may be used for retrofitting and building improvements and for a wide array of equipment. The program offers zero percent financing options. The Massachusetts Small Business Program is designed specifically for smaller business customers whose average monthly demand is 300 kW or less. This program reaches out to businesses with diverse energy needs.

Cape Light Compact, a utility in Barnstable, Massachusetts, is a leader in financing their energy efficiency program and creating cost savings for their businesses. Every residential and commercial ratepayer in Cape Cod and Martha's Vineyard contributes to a Distribution Charge which is an Energy Efficiency Reconciling Factor (EERF) and an Energy Conservation Factor (ECF). Commercial ratepayers pay \$0.01801 EERF and \$0.00250 ECF. With an average monthly use of 2,396 kWh multiplied by the EERF and ECF, this results in a total cost of \$49.14 per ratepayer to fund energy efficiency programs. Cape Light Compact's customer Friends Market in Orleans, MA took advantage of the utility's Small Business Enhanced Incentives Program in March 2006 to upgrade the store's refrigeration efficiency with NRM's Cooltrol® Cooler Control System. The business owner saved \$14,700 annually after energy efficient upgrades, achieved a 12 percent drop in electricity usage, and recouped the initial investment in four months.<sup>11</sup> The LED upgrade will increase the owner's overall annual savings to \$19,000 and produce a 15 percent total reduction in energy usage.<sup>12</sup>

**THE SMALL BUSINESS  
DIRECT INSTALL PROGRAM  
SAVES CUSTOMERS AN  
AVERAGE OF  
\$900  
PER YEAR.**

**THESE ENERGY SAVINGS  
ARE EQUIVALENT TO  
REMOVING  
700 CARS  
FROM THE ROAD PER YEAR.**

## POLICY RECOMMENDATIONS

### ANNUAL ENERGY & WATER USE BENCHMARKS AND AUDITS

Los Angeles Department of City Planning and LADWP should involve community stakeholders and business owners from Boyle Heights in creating an Existing Commercial Business Energy and Water Performance Plan which provides increased financial incentives and retrofit assistance to qualifying commercial customers and requires annual energy and water use benchmarks and audits. Although the LADWP programs described above offer subsidized energy and water improvements or rebates, these programs do not offer a continuous energy assessment—to collect energy use data for continual improvement—or financing options for energy retrofits. The California Energy Efficiency Strategic Plan Update from 2011 has set a goal that 50 percent of existing buildings will be equivalent to zero net energy (ZNE) buildings by 2030 through achievement of deep levels of energy efficiency and clean distributed energy generation. Retrofitting existing building stock to rigorous net-zero standards results in the greatest efficiency and savings.<sup>9</sup> However, benchmarks and audits must be an integral part of the system in order to reach net-zero goals. Reflecting actual use and costs often offers a reliable incentive for water-use efficiency. Installing meters and billing according to usage is the single most effective water conservation measure a water utility can initiate.<sup>13</sup> Therefore, the Plan should also require the installation of submeters in buildings with shared meters at no cost to the business owner.

### ACCESS TO FINANCING

The LADWP should create a broad range of financing options and subsidies to assist business owners with limited access to capital, including financing options of \$20,000 to \$200,000, at zero percent interest for energy retrofits and equipment purchases that qualify for energy rebates. Financial incentives for commercial ratepayers should be provided through monetary credits on bills for those who significantly reduce energy and water consumption. In order to increase demand for these services, the LADWP should expand Small Business Direct Install services to A-2 businesses—customers whose average monthly electrical use is between 30 kW and up to 300kW—as SBDI is currently limited to small businesses that use under 30 kW per month. In addition, if these programs are expanded this increased demand will also provide more job opportunities for residents in disadvantaged communities.

### JOB CREATION

The LADWP can increase investment in the Small Business Direct Install program and also contract with community-based organizations to conduct community outreach for conservation programs and expand opportunities to energy auditing and retrofitting. They could reach more small businesses through outreach, performing audits, and providing retrofits that will directly create the need for employment opportunities. In addition, the LADWP has the potential to develop living wage, union jobs in energy auditing and energy retrofits through an expansion of the SBDI program. Community-based organizations conducting energy efficiency audits and retrofits like PACE, the Los Angeles Conservation Corps, LA CAUSA Youthbuild, CRCD Youthbuild, and Venice Youthbuild offer a trained, diverse, and highly valuable workforce for energy auditing and retrofitting. A career pipeline can be developed through direct collaboration with IBEW Local 18 to expand their Utility Pre-craft training program to conduct energy audits and retrofits for small businesses that qualify based on federal income guidelines.

## CONCLUSION

These policy recommendations improve community resiliency and economic revitalization. These strategies are promising for Boyle Heights because they facilitate the reduction of greenhouse gases and reduce overall energy use on commercial corridors, an economic engine of the community. In order to remain competitive with other cities applying for GHG Funds in California, Los Angeles must take a multi-pronged approach to decrease energy and water consumption for businesses and identify the direct benefits to customers and community members in vulnerable communities. The Department of Water and Power stands to be highly competitive for SB535 funds through a strong collaboration between community-based organizations working on business development, environmental and workforce development, and the local City Councilmember's office.

**FIGURE 1: CONTINUAL ASSESSMENT OF ENERGY USAGE SHOULD BE PAIRED WITH RETROFIT INSTALLATIONS**



Photo Credit: LADWP SBDI Fact Sheet

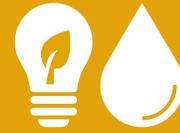
**FIGURES 2 & 3: COMMUNITY-BASED ORGANIZATIONS CAN CONDUCT OUTREACH AND AUDITING AND CONNECT TO IBEW'S TRAINING PROGRAM**



Photo Credit (Figures 2 & 3): RePower LA

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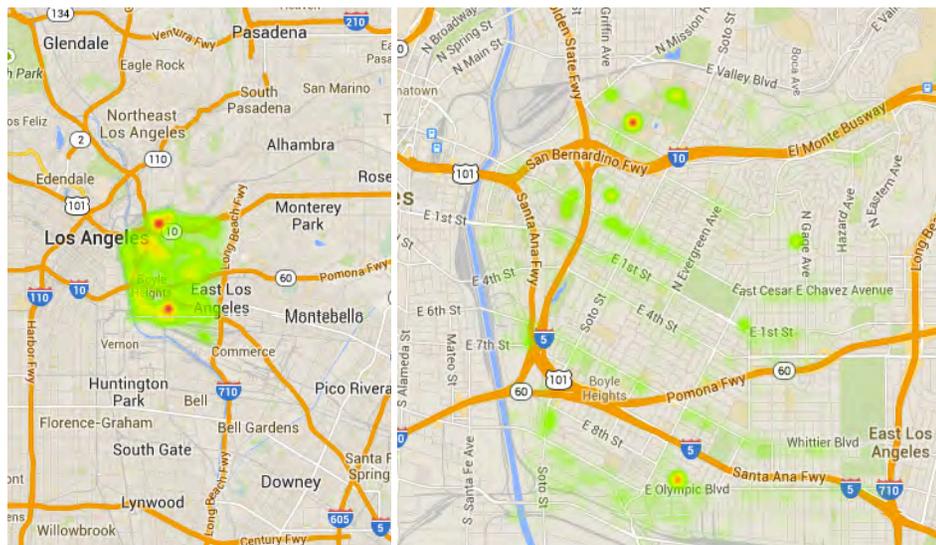
# ENERGY EFFICIENCY

DENNIS MARAVILLA WITH ROXANA AGUILAR | RAQUEL ARMENTA

## SUSTAINABLE CONNECTIONS: RETROFITTING BUILDINGS AND LOCAL BUSINESSES

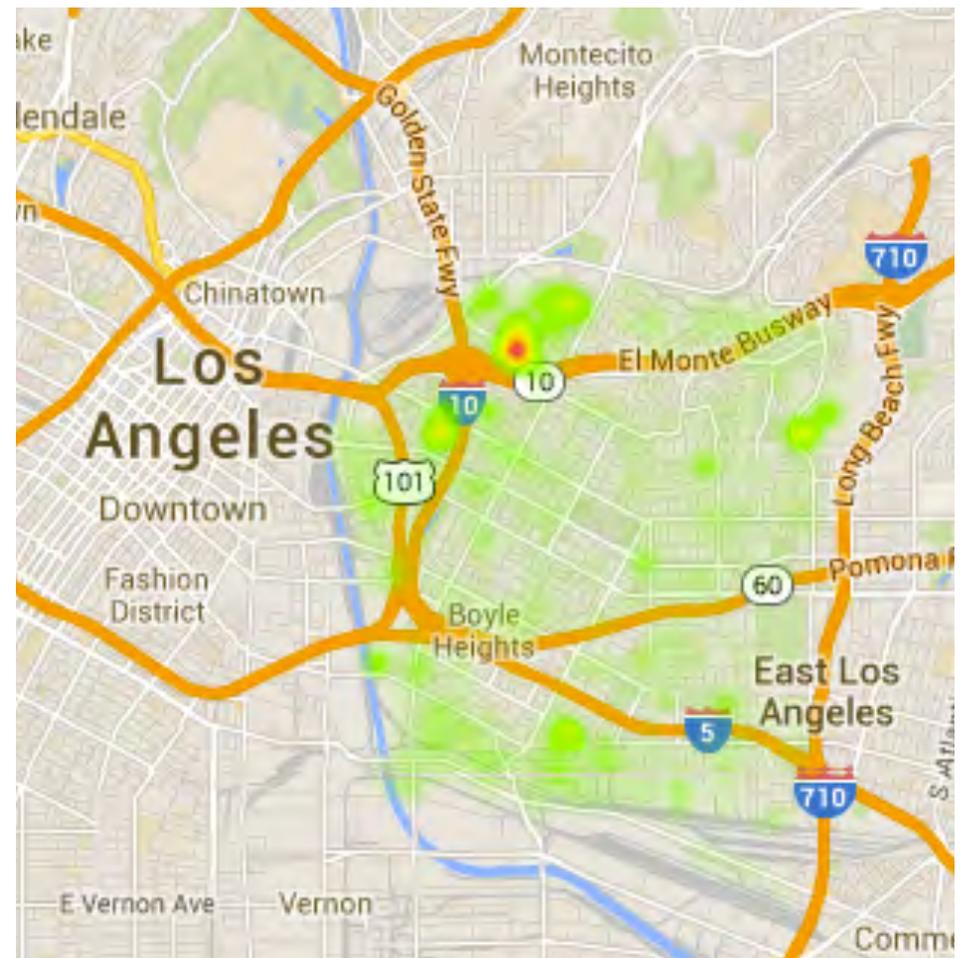
The small business retail sector in Boyle Heights is currently struggling, with a large share of local consumer spending taking place outside of the area. This causes residents and workers to drive or travel unnecessarily—a factor that contributes to increased vehicle miles traveled (VMT) and increased carbon footprint. By strengthening the small business environment in Boyle Heights, consumer demand can be kept local and can also capture dollars that will enable long-time small business owners to thrive and resist displacement in the face of increasing gentrification pressures. This study explores the retail market in Boyle Heights and how local businesses can succeed in the community through the use of the Greenhouse Gas Reduction Fund.

FIGURE 1: HOTSPOT ANALYSIS OF BUSINESS LOCATIONS IN BOYLE HEIGHTS



High Low Colors indicate high to low concentrations of businesses in Boyle Heights. Map Produced by Dennis Maravilla

FIGURE 2: HOTSPOT ANALYSIS OF NUMBER OF EMPLOYEES IN BOYLE HEIGHTS



High Low Colors indicate high to low concentrations of employees working in Boyle Heights. Map Produced by Dennis Maravilla

## RETAIL GAPS IN BOYLE HEIGHTS

Retail float is a measure of the amount of retail activity in an area. This amount is calculated as the difference between customer spending (demand) and the amount of retail store sales (supply). This study will analyze the retail activity in Boyle Heights. The study will allow residents and local entrepreneurs to identify opportunities for commercial revitalization, economic diversification, and ways to create new, local jobs. In addition, a retail leakage report will allow us to look further into the opportunities to keep investment in Boyle Heights. This analysis is sometimes called “a gap analysis” or a “supply and demand analysis” and can indicate how well the retail needs of local residents are being met. Furthermore, the retail analysis can help uncover the unmet demand and possible opportunities, understand the strengths and weaknesses of the local retail sector, and finally measure the difference between actual and potential retail sales.

Retail leakage (positive in Table 1) means that residents are spending more for products than local businesses capture. Retail sales leakage suggests that there is unmet demand in the trade area and that the community can support additional store space for that type of business. However, retail leakage does not necessarily translate into opportunity. For example, there could be a strong competitor in a neighboring community that dominates the market for that type of product or store.

A retail surplus means that the community’s trade area is capturing the local market plus attracting non-local shoppers. A retail surplus does not necessarily mean that the community cannot support additional business. Many communities have developed strong clusters of stores that have broad geographic appeal. Examples of these types of retailers typically include: sporting goods stores, home furnishing stores, restaurants, and other specialty operations that become destination retailers and draw customers from outside the trade area. The jewelry district is an example of a regional destination where customers can purchase jewelry from a variety of retailers.

Examining the leakage and surplus is only part of the evaluation of a community’s retail opportunities. Before any conclusions can be drawn about potential business expansion or recruitment opportunities, qualitative considerations such as primary and secondary trade areas along with buying habits in Los Angeles must be analyzed in the context of other market factors. A future study with demographic statistics cross-tabulated with information on lifestyles, attitudes and behaviors can help create psychographic profiles of a population. Factors to take into consideration include occupation and education level, activities and spending habits, and stage of life.

### RESULTS

An analysis of the retail activity in Boyle Heights indicates there is leakage of food and beverage (grocery) stores, sporting goods, electronics and appliance stores, health and personal care, as well as general merchandise retail stores. The addition of local businesses that carry a variety of products will drastically reduce the need for residents to travel elsewhere. This means keeping dollars in the same community that will go towards local schools, fire departments and pedestrian infrastructure.

For existing small businesses, sustainable building retrofits are one strategy to increase local investment and revenue within Boyle Heights. The majority of the commercial buildings in Boyle Heights are in need of some kind of repair. Retrofitting buildings in Boyle Heights to make them more energy efficient will help alleviate higher energy expenses. Using an energy performance metric suggested by the State of California will allow local residents and business owners from Boyle Heights to better understand the expenses that their leased space may have. The system should efficiently track and assess energy and water consumption along with costs and emissions. A Portfolio Manager will give building owners and potential buyers a better understanding of a building’s performance and may shift the market towards efficient, high-performing buildings. In addition, new retail spaces will attract clientele from outside the community and will allow the smaller businesses to capture dollars from outside. Finally, energy efficient infrastructure will bring new green jobs to Boyle Heights to help combat the pollution that currently surrounds the community.

**TABLE 1: RETAIL GAP AND OPPORTUNITIES IN BOYLE HEIGHTS**

General Merchandise Stores	\$45,439,711
Non-store Retailers	\$39,249,838
Other General Merchandise Stores	\$39,088,818
Electronic Shopping & Mail-Order Houses	\$37,178,738
Gasoline Stations	\$25,386,101
Health & Personal Care Stores	\$9,800,940
Bldg. Materials, Garden Equip. & Supply Stores	\$8,825,844
Electronics & Appliance Stores	\$7,841,394
Bldg. Material & Supplies Dealers	\$7,466,985
Sporting Goods/Hobby/Musical Instr Stores	\$6,810,683
Jewelry, Luggage & Leather Goods Stores	-\$2,971,008
Special Food Services	-\$5,869,724
Auto Parts, Accessories & Tire Stores	-\$5,914,133
Specialty Food Stores	-\$6,647,720
Beer, Wine & Liquor Stores	-\$6,703,970
Food & Beverage	-\$10,120,465
Clothing	-\$13,549,955
Limited-Service Eating Places	-\$15,596,413
Clothing & Clothing Accessories Stores	-\$16,129,026
Food Services & Drinking Places	-\$20,927,655

Positive numbers indicate retail leakage from the community. Source: <http://www.huntleyfirst.com/>  
Data compiled by Dennis Maravilla

FIGURE 3: RETAIL FLOAT IN BOYLE HEIGHTS



Source: <http://www.huntleyfirst.com/>  
 Data compiled by  
 Dennis Maravilla

POSITIVE NUMBERS IN TABLE 1 AND FIGURE 3 INDICATE RETAIL LEAKAGE AND OPPORTUNITY IN THE COMMUNITY. AN ANALYSIS OF THE RETAIL ACTIVITY IN BOYLE HEIGHTS INDICATES THERE IS LEAKAGE OF SPORTING GOODS, ELECTRONICS AND APPLIANCE STORES, HEALTH AND PERSONAL CARE, AS WELL AS GENERAL MERCHANDISE RETAIL STORES.

## RECOMMENDATIONS

The following policy recommendations will assist the City and Boyle Heights to reduce retail leakage, increase commercial building retrofits and assist local small businesses:

- Review and update both the Community and Neighborhood Commercial Zoning Districts to ensure that local businesses have priority and are not displaced. In addition, the Districts should promote desirable uses and discourage and/or prohibit inappropriate uses or uses that detract from the commercial district’s vitality.
- Form a Boyle Heights District Association with the collaboration of the Department of City Planning, Boyle Heights Chamber of Commerce, Councilman Huizar’s office and business owners, community-based stakeholders and building owners.
- Require that energy performance summary data be disclosed to the City, which should in turn make the data accessible to the public.

### IMPLEMENTATION

Require a City ordinance that all building owners annually submit their Energy Use Intensity index report (EUI) and the US EPA’s Energy Star score. The benchmark data should be accessible by the public in some form of interactive online map. Finally, owners should communicate with building occupants to engage them in an effort to save energy.

**THE ADDITION OF LOCAL BUSINESSES THAT CARRY A VARIETY OF PRODUCTS WILL DRASTICALLY REDUCE THE NEED FOR RESIDENTS TO TRAVEL ELSEWHERE. THIS MEANS KEEPING DOLLARS IN THE SAME COMMUNITY THAT WILL GO TOWARDS LOCAL SCHOOLS, FIRE DEPARTMENTS AND PEDESTRIAN INFRASTRUCTURE.**



# ENERGY EFFICIENCY

ARA KIM WITH ROXANA AGUILAR | RAQUEL ARMENTA

## EDUCATION AND FINANCING CAMPAIGN FOR ENERGY SAVING EQUIPMENT FOR SMALL MARKETS

One approach to fit under a “Green Commercial Zone” strategy is to focus on connecting small businesses to energy saving equipment investments. This could entail an education and financing campaign for energy efficient equipment through an existing program, the Corner Store Conversion program. Corner store conversion is an equitable community development strategy. The program promotes (1) access to nutritious foods, (2) small business development and (3) neighborhood revitalization through improved signage and storefronts. It involves converting small markets/ liquor stores into fresh food access markets and improves storefronts, infrastructure, and equipment.

We recommend the City use programs like the Corner Store Conversion strategy to target a specific industry like small markets, which are particularly prevalent in Boyle Heights. This program is aimed at increasing healthy food access in food desert neighborhoods, which are lacking full-service grocery stores. However, it also helps small businesses access equipment to refrigerate the fresh produce, and it also focuses on maintenance and street front beautification projects to support the economic viability of the business.

Creating a pilot Green Commercial Zone on Cesar Chavez Avenue would allow for these multiple strategies to converge. Cesar Chavez Ave. is a business corridor that caters to local, neighborhood needs. This area is a very low-density commercial corridor made up primarily of retail, auto-repair stores, and mom-and-pop businesses. There are many small markets in Boyle Heights. Boyle Heights has many retail and service businesses. Starting with restaurants and food stores, this strategy can use existing programs to target one of the most common commercial types in Boyle Heights to get energy efficient upgrades and small business support.

While small businesses want to access energy efficient equipment, dealing with the costs of larger infrastructure issues is the biggest challenge present for small businesses. Small businesses have fewer resources to invest in energy efficient durable goods. To help small businesses increase access to these things, it is critical that the strategy promote a strong education campaign to the small businesses and a strong financing campaign to support this issue. Accessing financing and loans is an enormous challenge for small businesses.

TABLE 1: COMPARISON OF USED EQUIPMENT TO NEW ENERGY STAR EQUIPMENT

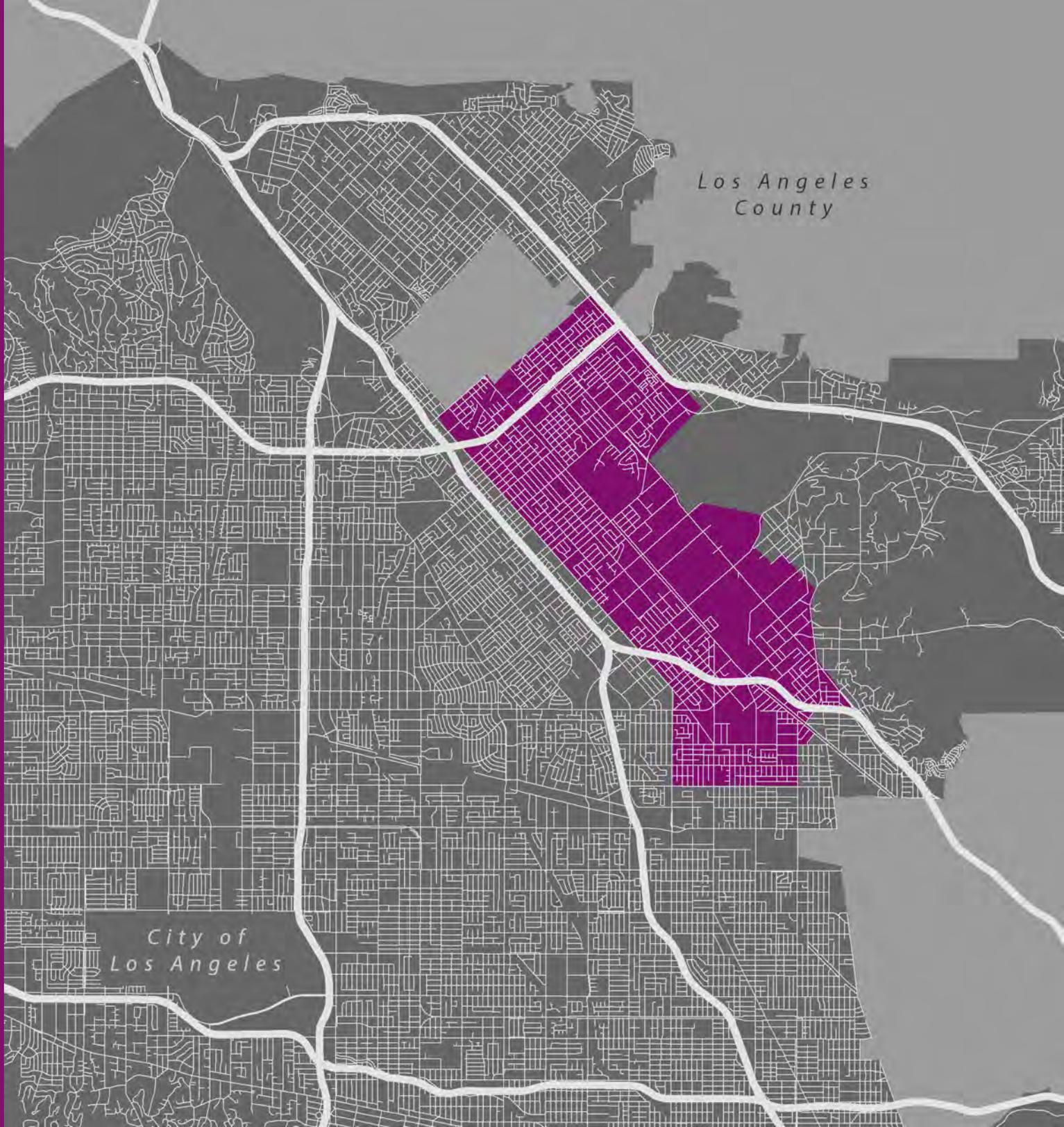
	Model	Description	Volume	Cost
Used Refrigerator	Everest ESR1	Stainless Steel, 1 Door	23	\$850
New Energy Star Refrigerator	Victory RS-1D-S7-EW	Stainless Steel, 1 Door	24.4	\$5,234
Used Freezer	True TS49F	Stainless Steel, Solid Door Freezer	72.4	\$2,200
New Energy Star Freezer	ColdTech CRF720-3	Stainless Steel, Solid Door Freezer	72	\$3,595

Source: Craigslist and Energy Star Website

## RECOMMENDATIONS

- The City should implement a program similar to the Corner Store Conversion program catered to small businesses. The City should create a “one-stop shop” model where businesses can easily access assistance and information about energy efficient durable goods, infrastructure funding, street maintenance, and storefront improvements.
- The program should conduct active outreach to businesses in different languages and using different techniques such as peer-to-peer outreach.
- The City should use the corridor-level strategy or an industry-level strategy to harness greater impact. Creating a system of small markets that are offering healthy food generates a larger community impact through increased access for residents. Additionally, economies of scale are realized as markets collectively order food in bulk, creating greater savings for small businesses. This would also create infrastructure for businesses to be able to work collaboratively on other sustainable food and food waste issues like composting.
- The City should pursue SB 535 funding to help small businesses access the energy efficient technology.

# P A C C O I M A





### VISION STATEMENT

WE ENVISION A PACOIMA BUILT ON ECONOMIC, SOCIAL, AND ENVIRONMENTAL EQUITY WITH STRATEGIES THAT: MAKE GOOD NEIGHBORS OF INDUSTRY, FACILITATE GREEN ENERGY GENERATION, MAXIMIZE ENERGY AND WATER EFFICIENCY, AND CREATE VIBRANT SPACES.

# RECOMMENDATIONS



1

## INDUSTRIAL

The Council Offices should direct the Department of City Planning to resolve land use conflicts through policies to create eco-industrial parks and facilitate the strategic relocation of toxic industries that are incompatible with nearby residential uses.

2

## PUBLIC SPACE

The Mayor's Sustainability Office and the Bureau of Sanitation should expedite applications for state and federal financing for innovative waste management infrastructure to support the City's Zero Waste plan.

3

## BUSINESS AND RESIDENTIAL

The Council Offices should collaborate with The Department of Water and Power to identify barriers to, and increase participation of, low-income neighborhoods in water and energy efficiency programs.

# PACOIMA

## FROM DEINDUSTRIALIZATION TO GRASSROOTS RENEWAL

Pacoima is a San Fernando Valley community in the northern part of the City of Los Angeles. The origins of Pacoima's name are traced to the Tongva, a California Indian Tribe known historically as the San Gabriel Band of Mission Indians, who occupied the land of the Los Angeles region. The neighborhood has a rich history with various economic trends that have impacted demographic composition, land use policies, development strategies, and community formation. Despite its history as a suburban community with a fluctuating demographic base, Pacoima has remained a solidly blue-collar, working-class neighborhood since its annexation by the City of Los Angeles in 1915.<sup>1</sup>

Currently the neighborhood has a mix of single-family home developments, high-density apartment complexes, combined with both commercial and industrial land uses along some of its major corridors.<sup>2</sup> Recent research shows that a significant number of single family homes in the area have informally or formally transformed into multi-family units, with home garage conversions and add-ons or extensions becoming quite common, contributing to a hidden density that is not always measured by traditional data gathering.<sup>3</sup>

Pacoima's journey as an economic hub began in 1877 when Jouett Allen purchased 1,000 acres of land from then Senator Charles Maclay.<sup>4</sup> Allen's land was located between the Pacoima and Tujunga wash and his territory was partially used to build a path for the Southern Pacific Railroad, which later included the company's site for a large brick passenger station. Construction of the rail facilities became the earliest business centered infrastructure projects that launched a history of major economic trends in Pacoima. In 1916, the Pacoima Chamber of Farmers was established, which is presently the Pacoima Chamber of Commerce, an organization dedicated to the growing business community. For many years, the fertile soil produced abundant crops of olives, peaches, apricots, oranges and lemons. As a result of the opening of the Los Angeles Aqueduct, the new supply of water greatly increased the number of orchards, farms and poultry in the area.

Following World War II, the African-American community settled in Pacoima as part of the second Great Migration from the South. In post-war California, communities were segregated and the racial covenants that restricted certain populations from buying property were attached to housing tracts and mortgage loans; this made it difficult for African-Americans to secure housing in many parts of Los Angeles. Pacoima, however, was not one of those communities. In addition, Pacoima was an attractive suburban area for blue-collar workers because of its close proximity to factories like Lockheed Martin in Burbank and General Motors in Van Nuys. Workers were attracted to the location because of the transportation ease provided by the construction of the I-5 freeway.

FIGURE 1: PACOIMA ARTWORK



This painting, by local artist Kristy Sandoval, depicts Pacoima's history from its agricultural roots through industrialization and the arrival of rail lines and heavy industry.

From the 1940's to 1990's, manufacturing remained one of the top industries for employment of Pacoima residents.<sup>5</sup> While this was a period of job stability for the area, it was also a period of major change in ethnic demographics. In the early 1960's African-American members began to move away to suburban areas like Palmdale and Lancaster, leaving space in the affordable housing market for newcomers. Simultaneously, Mexican immigrants and Mexican Americans were trying to escape rural poverty and were attracted by the growth in skilled blue-collar occupations such as masons, gardeners, mechanics, and carpenters. By the mid-1960's, the exodus of middle-class African-Americans was underway, with the population shifting dramatically from 75 percent African-American in the 1970's to 71 percent Latino by 1990 and 85 percent by 2012.<sup>6,7</sup> While the out-migration of African-Americans from Pacoima was mainly due to housing affordability elsewhere, it was also due to the demand for new types of service sector employees and the loss of manufacturing jobs.

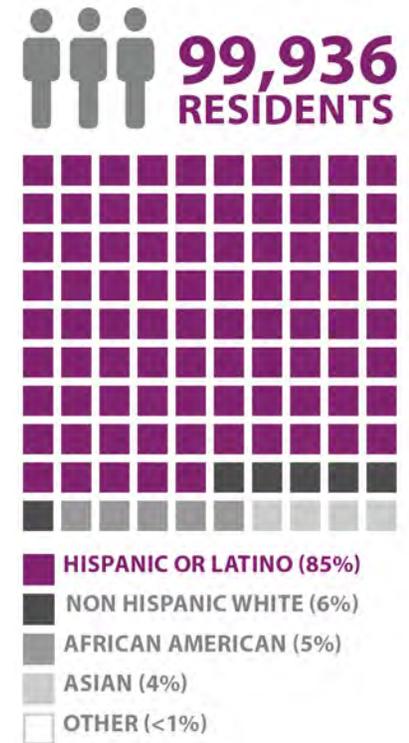
In the 1990's the Pacoima community experienced the local impacts of deindustrialization and global economic restructuring. Manufacturing facilities closed at a rapid rate for a chance to move overseas and, in the process, eliminated many of the region's manufacturing jobs. After major industries, such as GM Van Nuys and Price Pfister, began to migrate out of the San Fernando Valley, so did the middle-class jobs and the families that they supported. However, many residents stayed and some struggled to adapt to the changing economic realities of the community by looking for work in the growing service sector—jobs such as retail, leisure and hospitality.

Subsequently, the socio-economic challenges in the Northeast San Fernando Valley in the early 1990's also ushered in a period where new local leadership emerged throughout the Pacoima community. Latino elected officials like Congress Member Tony Cardenas, State Senator Alex Padilla, State Assemblyman Raul Bocanegra, and current Councilmembers Nury Martinez and Felipe Fuentes who were raised in the area began to run on platforms that better connected with the needs of the neighborhood. Moreover, service-based non-profits began to blossom. Pacoima Beautiful, for example, emerged from a group of mothers who organized themselves to tackle the large amount of litter and bulky items that were found on their streets.<sup>8</sup> In addition, organizations like Meet Each Need with Dignity (MEND) that had been helping needy families with food, shelter and furniture since 1971 by 1990 expanded its services to host a free medical and dental clinic.<sup>9</sup>

In the late 1990's to early 2000's, during this political and social transformation, the vacant lots of Pacoima became appealing to retail developers. At the old Price Pfister plant of Pacoima, community residents mobilized and spoke with a local group of mothers, the Community Inspectors of Pacoima Beautiful, after noticing construction workers were active at the site. Pacoima residents who once worked at the plant recalled toxins being stored under the building after use. Together, the former Price Pfister employees, leaders of Pacoima Beautiful, and the Community Inspectors began to focus on environmental justice issues as a way to hold leadership accountable in following up with the regulatory and enforcement agencies responsible for cleaning up abandoned and toxic industrial sites.

In 2008, Pacoima Beautiful partnered with other organizations in Los Angeles that were facing the environmental injustice of cumulative impacts after tracking, reporting and better understanding industrial corridors scattered throughout the neighborhood. Poor air quality is a major concern in the Pacoima community. Land use policy in the area has been historically dominated by industrial uses, conflicting with the residents who were settled into adjacent neighborhoods, a sobering fact that has produced a set of conditions that have put Pacoima and its neighbor, Sun Valley, high on the list of communities with the worst air quality and highest concentrations of polluting sources in the State. These sources are mostly concentrated in the San Fernando Road railroad zones, the original site of Pacoima's industrialization.

Pacoima's cumulative impacts that contribute to the asthma epidemic include: being bordered by three freeways (the I-5, CA-118 and I-210), a train track cutting through the community, a private airport that is home to diesel-burning planes and helicopters, over 7 active landfills, and factories which handle toxic chemicals. These are only a few of the issues that make this community environmentally vulnerable. Its land use policies have also allowed for businesses to host diesel trucks on their



properties. The greenhouse gases that are produced by the freeway and airport emissions, combined with other toxic facilities and diesel trucks, contribute to Pacoima's high ranking in poor air quality.<sup>11</sup>

In addition to poor air quality, the community is also park poor and lacks the proper infrastructure for pedestrians to feel safe in walking around their communities. According to The City Project's Healthy Parks, Schools and Communities: Green Access and Equity for Los Angeles County (2001) Pacoima is recognized as park poor with only about two park acres per 1,000 residents, well below the ten acres per 1,000 residents that is recommended.<sup>12</sup> Sidewalks are in poor condition, shade is scarce and litter continues to be an issue. These challenges are also common to other communities in Los Angeles living with cumulative impacts.

In 2008 Pacoima Beautiful, together with Unión de Vecinos, the Coalition for a Safe Environment, and Communities for a Better Environment, with the support of the Liberty Hill Foundation, created the Clean Up Green Up campaign to propose a pilot land use policy to establish "green zones" where new health-protective land use standards would apply to any new or expanding businesses, and where existing businesses would receive assistance and incentives to adopt new green technology.<sup>13</sup>

The business atmosphere is complex in the San Fernando Valley. Yet as a result of growing community awareness ignited during the early years of the Pacoima Beautiful Community Inspectors, now when new businesses open up in the community, they expect to meet new design and operating standards for becoming good neighbors. Some environmental victories have included recommendations for businesses to invest in solar panels for energy efficiency, native landscape and systems that promote groundwater filtration. The Costco, Best Buy and Lowes that were built with water retention filtration systems, native landscaping, and parking for green vehicles at the old Price Pfister plant serves as an outstanding example of what is possible when a community is well-organized around a sustainable environmental and economic vision. The development brought with it good paying jobs, green landscape and a public arts fund thanks to a Community Benefits Agreement (CBA).

Another green victory included the 2012 FedEx facility built on a remediated brownfield. The facility's entire infrastructure and landscape exhibits green standards (energy-efficient lighting, native plants, rain water capture, clean trucks, etc.). Moreover, private companies have renegotiated their waste disposal contracts in the last couple of years and worked with local leaders to shape Community Benefit Agreements in the Pacoima-Sun Valley community that require waste facilities to convert their fleets to low-emission trucks. As more companies comply with community expectations for environmentally-friendly and sustainable business practices, the more leverage the community will have to require new or permit renewal businesses to also green up.

Many examples of green victories have been secured in the Pacoima – East Valley Community in addition to those in the private sector. The Lake View Terrace Library, the Sun Valley Watershed Project, and the Woodman Median Project in Panorama City are all projects that demonstrate how public funds can be used to make capital improvements that serve multiple needs. The library, for example, was built with grant money and is considered one of the most sustainable buildings in California.<sup>14</sup> In addition, the Elmer Avenue and the Tuxford Watershed Pocket Park are examples of storm water capture projects that will soon be linked by the future Strathern Wetlands Park, which will tackle flooding problems in the East Valley. This is an example of how over time multiple capital infrastructure projects can tackle major environmental challenges.<sup>15</sup> Lastly, the Woodman Median Project is an example of state and inter-city agencies working together to address water sustainability while encouraging the social use of public spaces for recreation. The median not only works to filter water into the ground, but also provides a walking path for community members to traverse and thus facilitates physical activity.<sup>16</sup> Moreover, active members of Pacoima Beautiful are working to utilize the Pacoima Wash as a region to facilitate the greening of underutilized vacant lots and to build community spaces for recreational functions.<sup>17</sup>

By utilizing Assembly Bill 32 (AB32) Cap and Trade funds intended for communities with environmental injustice impacts, Pacoima has an opportunity to continue developing green infrastructure, such as the Pacoima Wash, as well as provide opportunities to assist businesses to 'green up' along the railroad corridor. After reviewing the Greenhouse Gas Reduction Fund priorities and

**"CUMULATIVE IMPACTS MEAN EXPOSURES, PUBLIC HEALTH OR ENVIRONMENTAL EFFECTS FROM THE COMBINED EMISSIONS AND DISCHARGES IN A GEOGRAPHIC AREA, INCLUDING ENVIRONMENTAL POLLUTION FROM ALL SOURCES, WHETHER SINGLE OR MULTI-MEDIA, ROUTINELY, ACCIDENTALLY, OR OTHERWISE RELEASED. IMPACTS WILL TAKE INTO ACCOUNT SENSITIVE POPULATIONS AND SOCIOECONOMIC FACTORS, WHERE APPLICABLE AND TO THE EXTENT DATA ARE AVAILABLE."<sup>10</sup>**

**FIGURE 2: AUTO DISMANTLERS**



**FIGURE 3: CEMENT FACTORY**



Pictured above, auto dismantlers and a cement factory represent the multitude of noxious/undesirable land uses that exist within the community and among residential areas. Photo Credit: Alycia Cheng, 2014

studying the Pacoima community, our group recommends that local leadership continues to build on the successful history of community organizing for environmental and economic sustainability by greening up the neighborhood while creating jobs. Given the large number of waste-related businesses, we believe Cap and Trade funds<sup>18</sup> should prioritize investment in new waste management technologies as well as implementation of a long-term waste management plan. Given the park poor statistics and the extreme, hot temperature in the region, Pacoima would be a perfect candidate for urban greening to plant more tree canopy, especially along the Pacoima Wash, San Fernando Road, and Van Nuys Boulevard. Lastly, as Cap and Trade funds are likely to be invested in conservation and weatherization projects, we strongly recommend that local leadership urge appropriate City departments to focus these resources in Pacoima. Given the high temperatures and high poverty levels in Pacoima, an ambitious weatherization program to conserve energy and water, install cool roofs and solar rooftops could provide a great service to the residents to reduce their overall utility bills. Just as significantly, Cap and Trade funds provide a unique opportunity to create local jobs, especially for youth. The Cap and Trade funds represent a new opportunity of great importance to Pacoima if we seize the moment and act now.

As a long term and structural solution to cleaning up communities with low air quality throughout the City of Los Angeles, our group recommends the Planning Department draft a rezoning and amortization policy to resolve conflicting land use between toxic industry and residential neighborhoods.

**FIGURES 4, 5, 6: COMMUNITY GARDEN**



A community garden has been taking root in Pacoima. Residents, especially the community's young people, are involved in caring for and decorating the garden. Local leadership can build upon and encourage this engagement.  
Photo Credit: Alycia Cheng, 2014

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# TOXIC NEIGHBORHOODS

BENJAMIN RUSSAK WITH JOHN GUEVARRA | ANDRES RAMOS

## TOXIC NEIGHBORHOODS: SOLUTIONS ALONG THE MONTAGUE BRANFORD INDUSTRIAL CORRIDOR

The Montague Branford Industrial Corridor (MBIC) and neighboring community is one of the areas most disproportionately affected by toxic exposure in California, ranking in the 95th percentile of the CalEnviroScreen evaluation tool that identifies areas overburdened by multiple sources of pollution. The EPA has classified 47 contaminated parcels (Figure 1)<sup>1</sup> within its less than three-quarter square mile area. The community is surrounded by a commercial airport and a high concentration of hazardous industries including chemical and plastics manufacturing, electroplating, truck yards, auto salvage yards, small-scale recyclers and waste collection operations. These noxious activities are often adjacent to residences, or even in backyards. Additionally, frequent passage of street-level trains along San Fernando Road increases diesel traffic on residential streets.

This locus of industrial activity is also one of the highest concentrations of well-paid employment in the San Fernando Valley. Any proposed solutions for reducing toxic emissions or separating industrial operations from families should be accomplished without losing the essential employment and economic base the industrial sector provides.

### A HAZARDOUS LEGACY

Nevertheless, in spite of the economic benefits and even leaving aside the negative health impacts on the community, the damage done to the natural environment is more than significant. The contaminated sites within the target area can be separated into three general classes:

- “Superfund” - Potentially significant threat to human health
- Brownfields - Flagged by the EPA as contaminated sites needing assessment or prioritized remediation
- RCRA Corrective Action - Indicates either present or past transfer, disposal or storage of hazardous waste

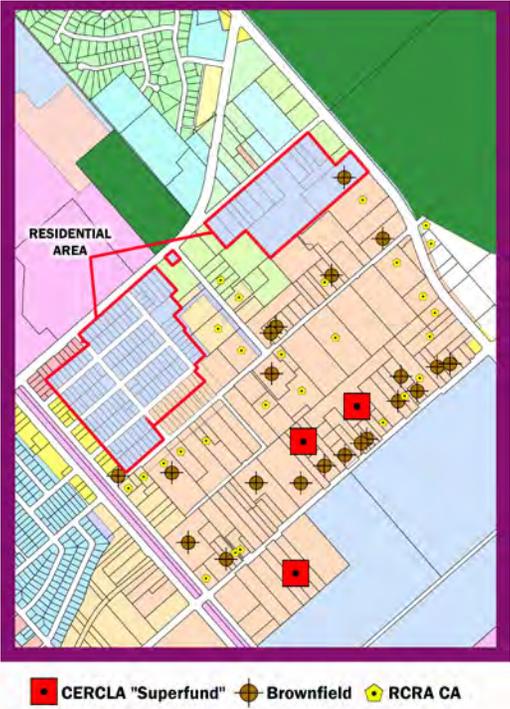
These sites do not only pose a physical threat, but also limit land use reorganization due to their unsuitability for residential use without possibly significant remediation measures. This would not only require extensive examination of each individual parcel, but efforts could take many years to remove the existing contaminants from the soil.

Addressing the issues within this area wrought by decades of neglect is an undertaking which provides no easy answers. Many of the current impasses faced by this community are unlikely to be addressed without a vision of long-term comprehensive planning.

Any successful remediation of the target area around the MBIC should accomplish three primary objectives:

- Improve the local environment by reducing toxic emissions
- Inform the creation of a vibrant residential atmosphere connected to neighboring green spaces and separated from noxious industrial operations
- Maintain robust economic activity and the numerous well-paid employment opportunities provided by current industrial operations

FIGURE 1: EPA IDENTIFIED TOXIC PARCELS



## CONDUCTING A LOCAL INVENTORY

The area of the census tract zoned for low-density single-family dwellings contains over 160 parcels upon which the Los Angeles County Assessor’s Office accounts for seven additional units. However, field inspections and a survey of Google Maps reveal the number of “granny flats” to be about 80. These residential informalities also extend into the surrounding industrial activity, as many backyards serve as places for shop-work, storage sites and dumping areas, sorting construction materials and other urban detritus into what either has value in its reuse, can be recycled and sold, or is purely inert and destined for the nearby landfills.

Physical manifestations of these informal salvaging and recycling operations can be seen on many parcels in various forms. The pictures on the right show a few of these iterations. On top, Cordova Construction which directly faces residential uses on Montague Street, consistently has piles of debris which are sorted with no cover. However, no company is listed with any debris sorting industry classification on premises. More inert waste sorting is visible in the second photograph, while photographs three and four show a “vacant” lot and a residential parcel, respectively, functioning as support for waste removal infrastructure with industrial-sized dumpster bins, transport trucks and a dump truck on premises. No business sector listing corresponding to the specific operations identified on any of these parcels was able to be found. There are many additional sites in the target area which mirror these activities.

### NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS) ANALYSIS

The study compiled data on existing businesses in the area to assemble a comprehensive list of current operations. Pacoima Beautiful, a local nonprofit with extensive experience battling environmental injustice in the area, provided a list of priority businesses of concern, of which 133 are located in the target area. This data was then supplemented with Duns & Bradstreet business listings, compiling a total of 243 businesses with their corresponding NAICS codes. Street-level surveys of parcels were then conducted to verify, correct, or complement the business listings compiled.

Although correctly identifying the two top sectors of manufacturing and auto trades, relying solely on NAICS code analysis within the target area leads to inaccurate data. For example, out of the 243 businesses in the target area, not a single one was listed as an auto wrecker. Instead, of the 55 auto-related businesses, 28 are listed as auto parts dealers, eight are listed under “other motor vehicle dealers” and 19 are classified as auto repair shops. Additionally, only three recycling operations were listed and one waste management company, which vastly underestimates firms involved in these sectors when compared with street-level analysis.

A closer look at comparing the NAICS codes listed on the parcel containing Cordova Construction provides a fairly representative look at industrial operations within the area. Cordova is listed in the specific industry group of Commercial Building Construction (NAICS 236220) and another company is listed on premises as a Copper Foundry (NAICS 331525), although no existing infrastructure for a foundry exists on premises. What does exist can be seen in Figure 2 on the rightmost parcel—a sorting area with industrial containers of separated materials in the bottom right corner. Also shown, are several other parcels dedicated to metal and inorganic waste sorting, most of which are zoned for commercial use with limited industrial applications (Figure 3).

### THE SALVAGING SUPPLY CHAIN

These waste sorting operations are where the supply chains of construction and metal manufacturing meet. Houses with limited resale value and their inhabitants provide informal backyard industrial activities and informal labor in support of salvaging building materials. Additionally, metal manufacturers, who make up nearly two-thirds of all manufacturing firms create scrap which salvagers separate and recyclers acquire, crush and bale. Auto dismantlers, of course, also play a significant role in this supply chain. The material which cannot be repurposed is then often shipped out, smelted, shaped and returned to metal manufacturers, and local freight services provide capacity to haul debris both from construction sites and out to landfills, larger scale recyclers and foundries. Finally, industrial machinery manufacturing and repair facilities service the needs of construction, recycling and manufacturing firms alike to keep production capabilities strong.

FIGURES 2, 3, 4: LAND USE CONFLICT AND INFORMALITY



Inert waste sorting on parcel with a shared lot line with a residence



A storage yard and a house, side-by-side on San Fernando Rd.



A semi cab and a dump truck are parked behind a residence

FIGURE 5: METAL AND INORGANIC WASTE SORTING



Cordova Construction and other sorting facilities near residences

TABLE 1: NUMBER OF FIRMS IN AREA

MANUFACTURING	62	INDUSTRIAL REPAIR	18
AUTO TRADES	55	SHIPPING/FREIGHT	12
MISC. WHOLESALE	33	RECYCLING/WASTE	4
CONSTRUCTION	28	OTHER	9
PROFESSIONAL SVCS	22		

(Sample Size: 243)

## STRATEGIZING REMEDIATION

The study ranked industrial activities according to four criteria: if the business was flagged in industrial analysis compiled by Pacoima Beautiful; direct observation of the physical environment; past toxic violations; and toxic releases associated with industry specific NAICS codes from the EPA's Toxic Release Inventory 2012 dataset.<sup>2</sup> Beyond what could be determined through NAICS analysis and zoning designations alone (Figure 3), a more accurate representation of actual industrial usage and their proximity to residential parcels was established (Figure 4). A brief analysis was then conducted for the potential of industries to remain at their current location with the adoption of available control technologies, or when the more appropriate action might be the acquisition of specific sites and the relocation of the polluting firms.

Next, the study reviewed the physical environment of individual parcels, including zoning, designated land use and site contamination to identify specific conflicts, the suitability of sites for residential usage, and to locate any underutilized land with the capacity to house industrial operations needing to be relocated. Finally, the study explored the potential for establishing "closed-loop" production capabilities, (utilizing industrial waste as inputs for new products), and strengthening a non-toxic waste conversion sector with the intention of preserving or increasing the provision of quality employment opportunities in the area.

## RECOMMENDATIONS

Significant threats to public health developed through decades of public sector neglect are likely solvable only through a comprehensive planning vision developed in collaboration with local residents and business owners. Remediation is proposed through three targeted arenas:

### IMPROVED PUBLIC HEALTH

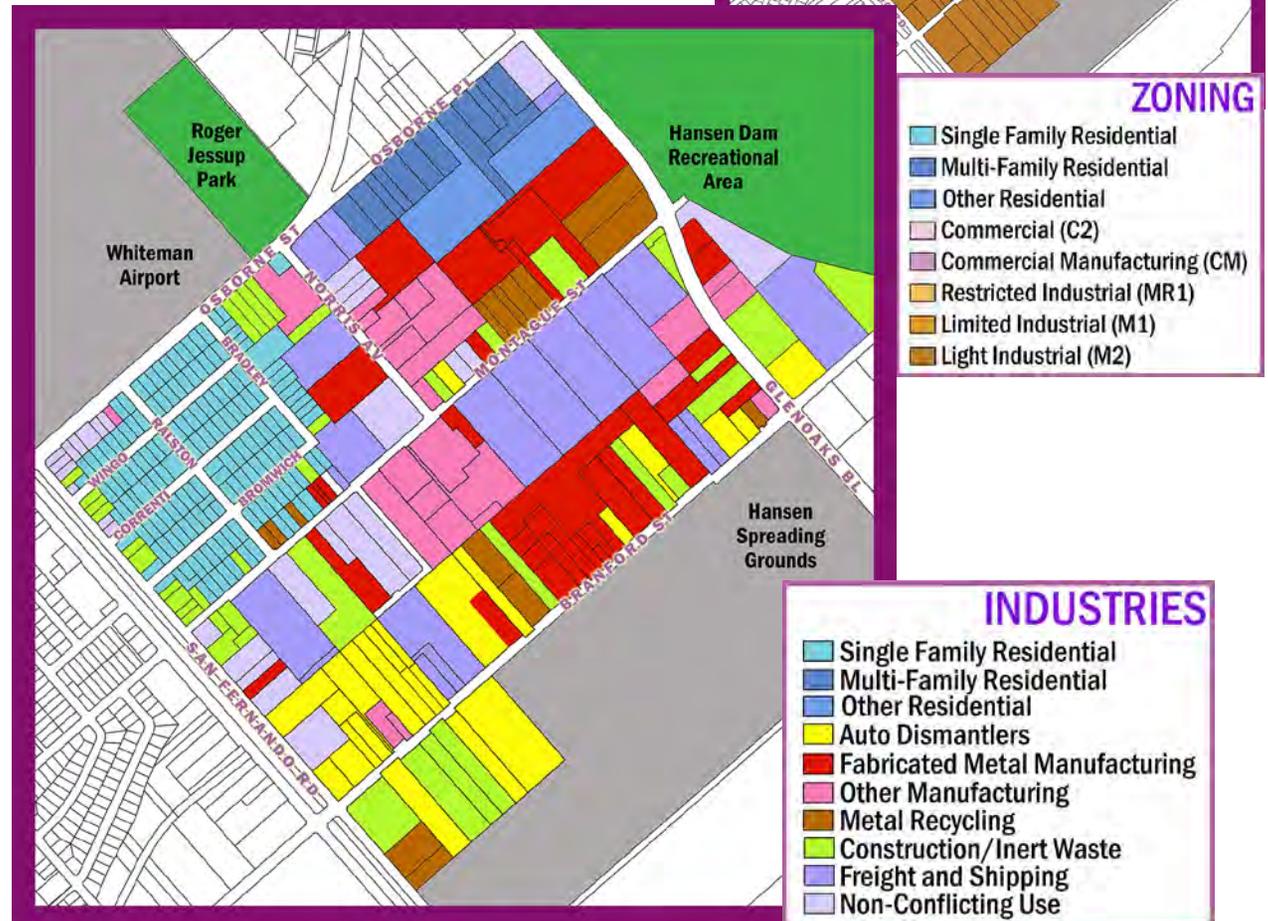
Reestablish access to Hansen Dam Recreation Area and Roger Jessup Park and Community Gardens:

- Relocate a limited number of industrial operations most of which are either structurally underutilized or unoccupied
- Rezone parcels on Norris Avenue to multi-family dwellings, reestablishing a connection between residences neighborhood along Osborne Street and Place from Ralston Avenue to Glenoaks Boulevard
- Realign traffic patterns by creating three micro-parks on Montague Street at San Fernando Road, and Ralston and Norris Avenues
- Take advantage of current updates to the City of Los Angeles Zoning Codes to establish a more restrictive commercial zone that protects communities from exposure to noxious industrial activities

FIGURE 6: ZONING DESIGNATIONS



FIGURE 7: ACTUAL INDUSTRIAL USAGE



## RESPONSIBLE AND RESILIENT INDUSTRY

Consolidate industrial operations into industry specific clusters and development of an eco-industrial park:

- Repurpose structurally underutilized and currently unoccupied parcels
- Ability to share advanced hazardous waste control infrastructure unattainable for individual firms
- Formalize the extensive but disconnected waste management activities common to the area
- Maximize capabilities to close loops along the manufacturing, construction and recycling supply chains

## REDUCTIONS IN CARBON FOOTPRINT

Explore implementation of alternative waste conversion technologies such as anaerobic digestion and composting:

- Support the Zero Waste goals of the City of Los Angeles
- Lower greenhouse gas emissions by diverting organic matter from landfills
- Production of renewable, decentralized energy and soil amendment products
- Possible incorporation into already proposed riparian improvements to spreading grounds
- Increased economic activity and additional employment opportunities providing career ladders for local workforce with informal waste management experience
- Potential for dual purpose of brownfield remediation through phytoremediation technologies that use plants to absorb toxins in soil and can be used as feedstock for anaerobic digesters

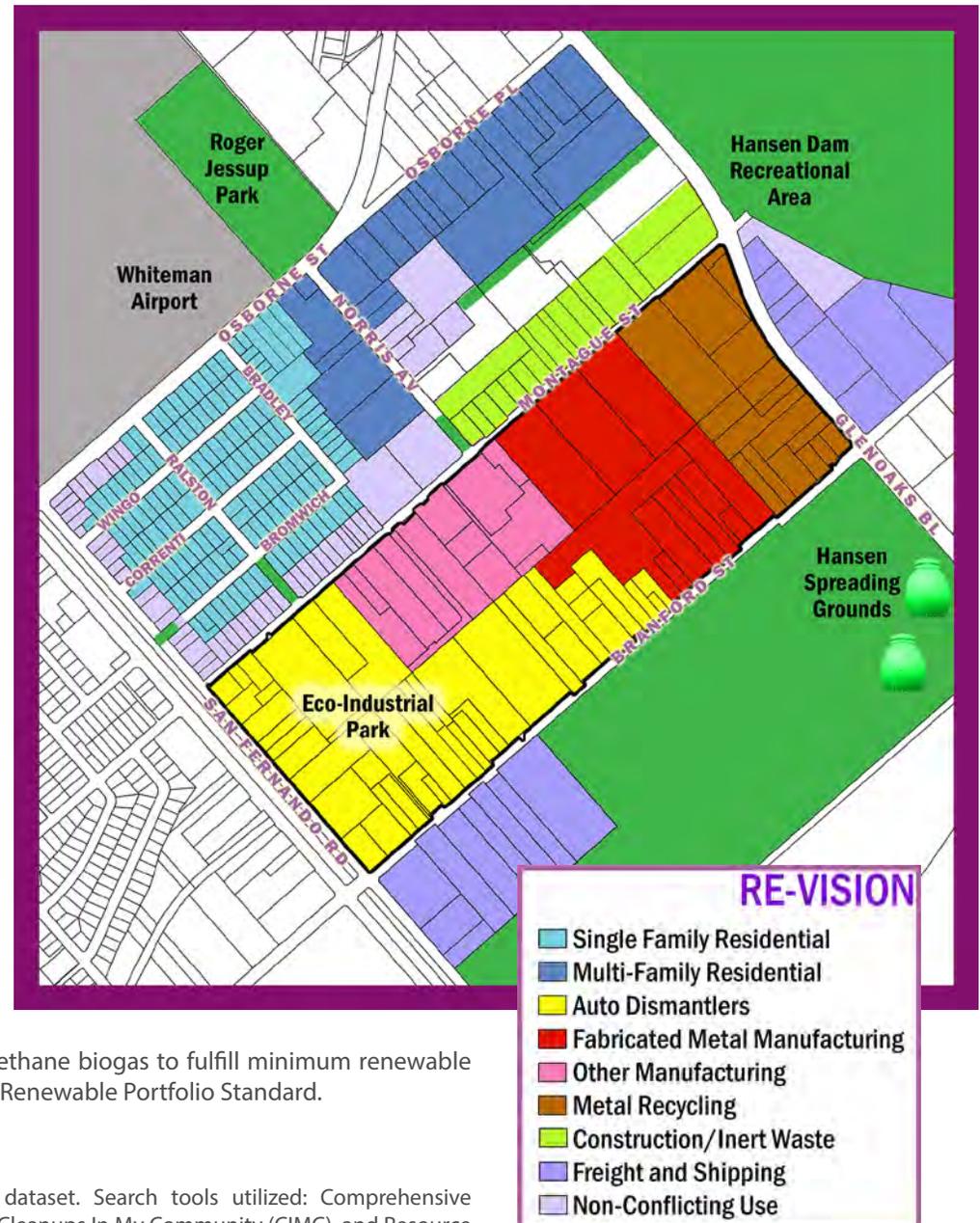
## FUNDING SOURCES

EPA Brownfield grants; direct loans and technical assistance from CalRecycle's Recycling Market Development Zone program; the Strategic Growth Council's Urban Greening Project and Sustainable Communities Planning Grant and Incentives programs; CAL FIRE's Urban and Community Forestry grants; \$30 million in funding set aside for anaerobic digestion in the 2014 - 2015 proposed Governor's budget; and backend revenues through an increased demand for methane biogas to fulfill minimum renewable energy purchasing requirements of utility companies mandated by the California Renewable Portfolio Standard.

## ENDNOTES

- 1 Environmental Protection Agency Envirofacts database. 2012 National Analysis dataset. Search tools utilized: Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), Cleanups In My Community (CIMC), and Resource Conservation and Recovery Act Information (RCRAinfo).
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FIGURE 8: A COMPREHENSIVE RE-VISIONING OF INDUSTRIAL & RESIDENTIAL USAGE



Figures 1, 6, 7 & 8: Produced by Benjamin Russak  
Figure 5 Photo Credit: Google Earth, 2014 imagery.  
Figures 2, 3, 4 Photo Credit: Benjamin Russak



# WATER EFFICIENCY

DOLLY SITHOUNNOLAT

## RESIDENTIAL WATER EFFICIENCY: TOWARD GREATER SAVINGS AND IMPROVED STORMWATER CAPTURE

California experienced its third consecutive year of drought in the state this year. In January 2014, Governor Edmund G. Brown Jr. declared a state of emergency, asking all Californians to reduce water consumption by 20 percent. The drought is largely due to the changing of our climate from human activities that emit carbon dioxide and other greenhouse gases into the air. Pacoima is located near 30 landfills (operating and non-operating), is surrounded by three major freeways and diesel truck traffic, bisected by railroad lines, home to a small commuter plane airport, and more than 300 industrial facilities in close proximity to single-family homes and apartments.<sup>1</sup>

The deficiency of precipitation increases the need to conserve water by residents in Los Angeles. Nonetheless, the area often experiences rain runoff even during the lightest rainfall, where the water flows across surfaces and picks up oils, pesticides, animal waste and trash. Rainfall capture could reduce rainfall runoff in Pacoima, where

FIGURE 1: PACOIMA RAINFALL YIELD FOR THE MEDIAN ROOFTOP

$V = A^2 \times R \times 0.90 \times 7.5 \text{ gals./ft.}^3$ where:	
V=	Volume of rain barrel (gallons)
A2=	surface area roof (feet)
R=	rainfall (feet)
0.9=	losses to system due to evaporation (no units)
7.5=	conversion factor (gallons per cubic foot)
20,824 gallons = 2,375 ft <sup>2</sup> x 1.30 ft x 0.90 x 7.5gal./ft <sup>3</sup>	

Source: 2009 Rooftop Data Provided by UCLA Luskin Center for Innovation, 2007 Rainfall Calculation Method Provided by Low Impact Development Center, Calculation by Dolly Sithounnolat

the median rooftop, 2,375 square feet, can capture 20,824 gallons of rain for reuse per year during the annual average rainfall for the City at 15.6 inches (Figure 1).

Significant amounts of energy are required to provide water for consumers. According to the California Energy Commission, an estimated 48,000 Gigawatt hours of electricity, equivalent to 19 percent of the state's total electricity consumption, was used for water-related energy use in 2001.<sup>2</sup> Los Angeles receives 90 percent of its water from Northern California, in which much of it is pumped up and over at the Tehachapi Mountains and lifted to the California Aqueduct over into Southern California regions.<sup>3</sup> The University of Southern California Center for Sustainable Cities found that the State Water Project used the most energy, while for local sources groundwater used the least energy and recycled water used more than twice the amount of energy (Figure 2).<sup>4</sup>

FIGURE 2: LOS ANGELES WATER TRANSPORT AND ELECTRICITY EMISSIONS

Delivery	KWh/AF	Electricity Supplier
Colorado River Aqueduct	2,000	Southern California Edison
Los Angeles Aqueduct*	-	-
State Water Project East	3,236	eGrid - CAMX2**
State Water Project West	2,580	eGrid - CAMX2**
Groundwater	530	LADWP
Recycled Water	1,328	LADWP

\*Los Angeles Aqueduct is gravity fed, no energy input is required

\*\*eGrid energy mix was used for SWP because energy inputs span over a large geographic area of California across multiple utilities

Source: University of Southern California, Center for Sustainable Cities, 2012

Similar to other parts of Los Angeles, Pacoima has impermeable surfaces that increase stormwater runoff and reduce groundwater recharge. Los Angeles' Low Impact Development (LID) Ordinance effective in May 2012 requires new development and re-development to use site-design approaches and best management practices (BMP) that are designed to address runoff issues at the source. The ordinance seeks to mitigate the impacts of runoff and stormwater pollution, while utilizing natural resources.<sup>5</sup>

Previous reports and studies have demonstrated that water conservation can help lower the state's GHG emissions by reducing energy from water transport. Since groundwater is the source that uses the least energy, it's important to conserve and promote strategies that increase the absorption for groundwater filtration and capture. In addition, advocates working on water efficiency support the coordination of water and energy strategies. Funding that addresses these issues jointly is critical to reduce GHGs.

## RAINWATER CAPTURE BY CISTERNS, RAIN BARRELS AND BEST MANAGEMENT PRACTICES

### RAIN BARRELS AND CISTERNS

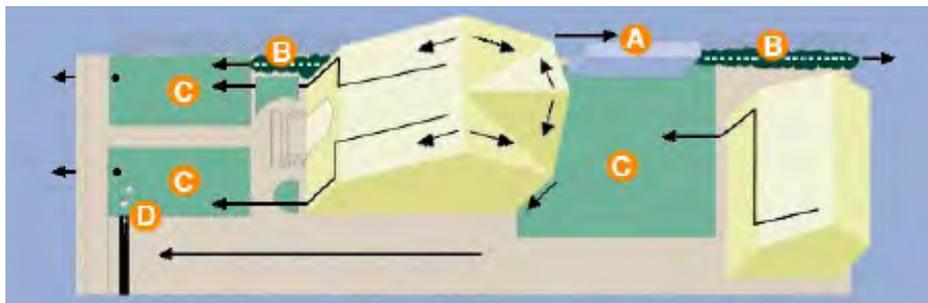
Rain barrels and cisterns can be used to collect and store rainwater from roofs for reuse. The sizes and cost of a rain barrel or cistern depends on how much water is needed for irrigation or other non-potable uses, which is not intended for human consumption.<sup>6</sup> Rain barrels are inexpensive, easy to install and maintain, and well suited to small-scale residential sites. They typically range from 50 to 100 gallons, and the water they collect is often used to water plants. The number of barrels recommended to capture runoff from a given roof (or other impervious area) is one to two rain barrels for up to 750 square feet to four to five barrels for 2,250 square feet of roof area.

Cisterns are larger than rain barrels, ranging from 100 gallons on a small residential site to millions of gallons beneath schools and parks. They can be installed above or below ground, or even on the roof, depending upon site conditions. Water from cisterns can be stored until needed and used for irrigation. Other cities like Portland, Oregon also use cisterns for other non-potable usage such as toilet flushing.

### CISTERN INSTALLATION WITH BMP

TreePeople, an environmental nonprofit that connects communities to nature-based solutions for sustainability, completed a wide-scale retrofit that incorporated the installation of a cistern and other best management practices. The house that was chosen, the Hall House, is located in a low-income area of South Los Angeles. The best management practices chosen for this site were a cistern system, vegetated and mulched swale, retention grading, drywell, and overflow pipe (Figure 3). The cistern was comprised of two connected 1,800-gallon tanks that retain stormwater for irrigation use, and a first-flush diversion unit. The two tanks are about 11 feet in height, and roughly six feet of the tank is above ground.

**FIGURE 3: HALL HOUSE CISTERN AND BMP DIAGRAM**



Source: TreePeople, 2007

## COSTS

The Illinois Metropolitan Planning Council states that the American Rainwater Catchment Systems Association cite that the cost of a basic residential harvesting system and installation is \$5,000 to \$12,000, while commercial systems cost \$40,000 to \$150,000.<sup>7</sup> The Hall House cistern was uniquely made for this particular project and cost was approximately \$25,000 for manufacturing and installation. TreePeople collected information from the project architect and contractor for how much retrofits similar to the Hall House might cost a homeowner. However, the cost of the cistern is omitted because of the wide range of prices between simple homemade systems or complex manufactured models for use above or underground (Figure 4). A homeowner could spend approximately \$2,820 to \$3,620 for materials and permits (without the cistern) for non-contracted labor. If a homeowner decides to have a project similar to the Hall House contracted out completely, the cost without a cistern is \$5,250 to \$6,130.

**FIGURE 4: ESTIMATED COSTS OF A RETROFIT SIMILAR TO THE HALL HOUSE**

Project Components	Do-it-yourself Costs (materials & permits)	Optional Costs (Contracted Labor)	Total
Retention Grading	\$800	\$800	\$1,600
Driveway Grading and Drywell	\$1,400	\$500	\$1,900
Vegetated or Mulched Swale	\$30 (for seed)	\$250	\$280 - \$1,000
Roof Downspout Extensions (4 total)	\$10 - \$30/each	\$45 - \$65/each	\$220 - \$380
Overflow Pipe Street	\$550	\$700	\$1,250
Estimated Total Costs	\$2,820 - \$3,620	\$2,430 - \$2,510	\$5,250 - \$6,130

## BENEFITS

A median square footage rooftop in Pacoima of 2,375 square feet can capture 20,824 gallons of water per year on average. With the current drought, the rainfall capture is still substantial at approximately half of the amount of the annual year, 10,412 gallons of water.

Rain harvesting can increase the demand in the plumbing and landscaping industry. The Illinois Metropolitan Planning Council states that seven jobs are required to complete a rain harvest project for a basic residential home: Five installation, two suppliers and two manufacturing. A recent German study showed that in 2005, when 35 percent of new buildings constructed in Germany were equipped with a rainwater collection system, 5,000 jobs were created.<sup>8</sup> Therefore, Los Angeles' LID ordinance will help create new jobs in Pacoima if a building within the LID guidelines is developed. Nonetheless, residents in older structures will still benefit in the outdoor improvements and creation of local jobs.

Implementing rain harvesting in Pacoima is a challenge since many residents pave over their lawns to reduce the hassle of irrigation and, in some cases, to provide additional parking in densely occupied units including parcels where garages and other spaces not originally intended for housing have been converted to such use.<sup>9</sup>

**A HOMEOWNER COULD SPEND APPROXIMATELY \$2,820 TO \$3,620 FOR MATERIALS AND PERMITS, WITHOUT THE CISTERN, FOR NON-CONTRACTED LABOR. IF A HOMEOWNER DECIDES TO HAVE A PROJECT SIMILAR TO THE HALL HOUSE CONTRACTED OUT COMPLETELY, THE COSTS WITHOUT A CISTERN IS \$5,250 TO \$6,130.**

**“SIGNIFICANT UNTAPPED POTENTIAL FOR ENERGY SAVINGS EXISTS IN PROGRAMS FOCUSED ON WATER USE EFFICIENCY” AND WATER EFFICIENCY PROGRAMS CAN ACHIEVE 95 PERCENT OF THE AGENCY’S SAVINGS AT 58 PERCENT OF THE COST.<sup>10</sup>**

**- THE CALIFORNIA ENERGY COMMISSION**

## WATER CONSERVATION SUBSIDIES

With existing water conservation programs, LADWP has installed 108,000 high efficiency clothes washers and over 1.5 million water efficient toilets, expected to save a total of 1.3 and 16.2 billion gallons per year, respectively.<sup>11</sup> Water bill discounts for low-income customers and seniors are already in place, however low-income residents should be able to implement water conservation technologies in their own home. There are many programs for residents in Pacoima to apply for, yet many residents in the area do not participate due to barriers. With these recommendations, possibly more Pacoima residents will participate in existing water conservation programs.

## RECOMMENDATIONS

### HIGHER LEVELS OF SUBSIDY PROGRAMS, TECHNICAL ASSISTANCE, AND LOW-TO-NO INTEREST FINANCING OPTIONS

For low-income households, the out of pocket expense may be a burden. Therefore, higher levels of subsidy should be provided, or funding from other sources must help pay for the residents' direct expense. "On-bill financing" programs which allow water utility customers to finance water efficiency measures through their water bills at low or no interest, with upfront money provided by the utilities should be implemented.<sup>12</sup> In this way, residents in Pacoima can choose to use something similar to a layaway plan to install rain harvesting methods for outdoor usage and possibly toilet flushing for water conservation, but also improve the physical appearance of their front yard or backyard.

### THE NEED FOR MORE APPROPRIATE AND AGGRESSIVE OUTREACH IN LOW-INCOME COMMUNITIES BY THE CITY AND LADWP

Water efficiency programs for Pacoima must be a partnership between community organizations and City agencies. Community organizations in Pacoima will likely help relationship building with residents and assistance in community outreach to support residents to take advantage of programs and help educate them about various alternatives. However, it is the City agencies that will need to create the programs that will support low-income households to conserve water. Departments like LADWP and Los Angeles County Flood Control District need to concentrate programs in communities like Pacoima, where flooding usually occurs when it rains and pollution runoff is high. City officials representative of Pacoima residents must also be advocates for these programs. Community stakeholders that advocate for both water and energy efficiency include Pacoima homeowners and renters and local organizations such as Pacoima Beautiful. Other organizations include RePower LA, a program with the Los Angeles Alliance for a New Economy, International Brotherhood of Electrical Workers Local 18, and Strategic Concepts in Organizing and Policy Education.

### FUNDING WATER EFFICIENCY PROGRAMS IN COORDINATION WITH ENERGY EFFICIENCY

The California Energy Commission stated that water conservation programs can lower energy usage by 95 percent at 58 percent of the cost. The main source of funding can be allocated from the Cap and Trade funds under SB 535 for energy efficiency, by weatherization. The recommendation is to incorporate water efficiency and energy efficiency for residents. When residents are interested in sustainable efficiency practices for their home, energy and water efficiency practices should be addressed in Pacoima and other Clean Up, Green Up communities.

### EXPLORE DUAL METERING

LADWP must support dual metering in order for it to take hold in the region. This is likely mean adopting a two-tiered allotment and pricing structure, with usage that strays into the second tier costing the homeowners more. In theory, this system could help address a disparity that is most evident in the usage rates of higher-income Los Angeles' residents, who on average use three times more water than residents of other areas.<sup>13</sup> Dual metering should aggressively be targeted to high-income residential areas, such as Brentwood or Beverly Hills, to help increase costs on outdoor usage, encourage conservation, and reduce rates for lower energy users or low-income residents. Lower income areas like Pacoima would eventually experience decreased pricing in their water bill, yet education on conservation should be coordinated with reduced water rates.

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# ENERGY EFFICIENCY

RANDY MAI

## RESIDENTIAL ENERGY EFFICIENCY: WEATHERIZATION AND ENERGY EFFICIENCY IN PACOIMA

Communities like Pacoima are facing environmental degradation, health hazards, and high unemployment. These problems are heightened by the lack of energy efficient structures. How does a community go about energy efficiency and job creation to meet both environmental and unemployment concerns? Two programs that are very applicable and beneficial to the Pacoima neighborhood of the City of Los Angeles are the Weatherization Assistance Program (WAP) and the Los Angeles Department of Water and Power's (LADWP) Utility Pre-Craft Trainee (UPCT) Program.

WAP assists low-income families with low to no-cost weatherization for their homes. Due to extreme heat temperatures and related health effects in Pacoima during the summer, residents are forced to use much more energy than other areas of the City. Addressing Pacoima's urban heat island effect is the first step to creating a safe environment for residents. The term "heat island" describes built up areas that are hotter than nearby rural areas.<sup>1</sup> This happens when there is a prevalence of concrete and a lack of shade, as in Pacoima. This heat island effect contributes to environmental degradation and health issues of residents. It also disproportionately affects Pacoima residents because they are forced to expend more energy during warmer months, as detailed in the following sections.

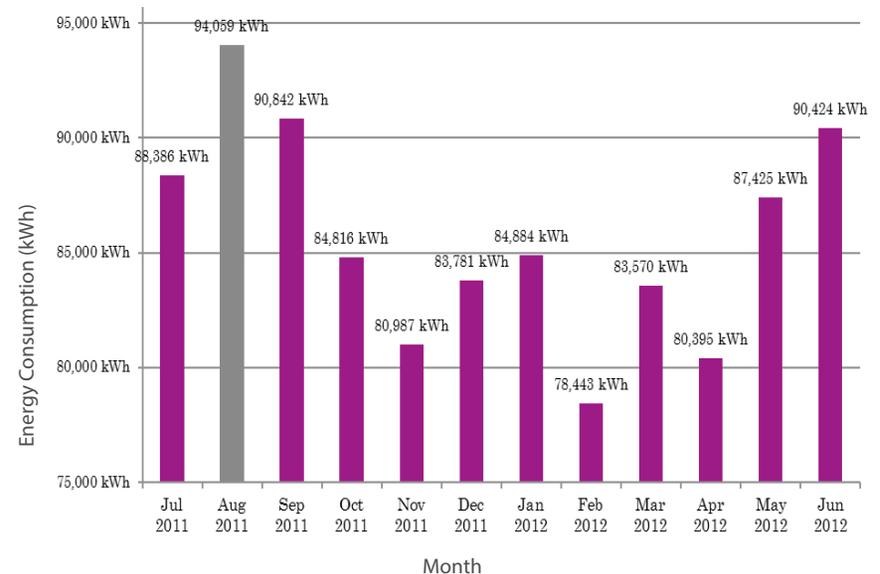
Due to Pacoima's age of buildings and increased energy usage during the summer (and to some degree winter) seasons, the City of Los Angeles and LADWP should consider multiple factors to increase energy efficiency programs in Pacoima. The following document details the issues and potential strategies to consider when promoting energy efficiency in Pacoima, specifically weatherization efforts. What can be done in Pacoima reflects the potential for replicating these efficiency efforts across the City of Los Angeles.

## ENERGY USAGE IN PACOIMA

Due to the urban heat island effect, residents in Pacoima are inclined to use more energy to stay cool during the hot summers, which extend into the beginning of fall

and end of spring due to an increasing number of hot days. As shown in Figure 1, energy demand peaks in the summer, decreases steadily through the fall, peaks slightly in winter as heating demand increases, declines again during the spring, and climbs as summer approaches. From July 2011 to June 2012, Pacoima expended almost 94,059 kWh in August 2011 (the highest) while over 78,443 kWh for the month of February 2012 (the lowest).<sup>2</sup> August 2011 was the highest energy usage point in the summer season and January 2012 was the highest usage month in the winter season, albeit still below any month between May and September.

FIGURE 1: AVERAGE ENERGY CONSUMPTION PER MONTH IN PACOIMA



The California Center for Sustainable Communities collected LADWP electricity usage data over the course of 18 months. Figure 1 above shows Pacoima usage data from July 2011 to June 2012. For Pacoima, there is higher energy usage during the summer due to increased air conditioning demand. In winter months, energy usage peaks slightly due to increased heating demand.

## PROGRAM AREAS AND OBJECTIVES

Low-income households are disproportionately affected by energy inefficiency. Low-income households could benefit the most because they are “typically less energy-efficient; low-income houses are on average more energy intensive than non-low-income houses.”<sup>5</sup> Lower-income households typically occupy older structures as a means to save housing costs. Due to the fact that low-income households occupy older structures, they must also expend more energy to stay cool during the summer and warm during the winter. In 1976, Congress created the WAP, a U.S. Department of Energy (DOE) program, under Title IV of the Energy Conservation and Production Act, to assist low-income families who want to retrofit their homes to become more energy efficient. Its mission is “[to reduce] energy costs for low-income families by increasing the energy efficiency of their homes, while ensuring their health and safety.”

Weatherization is the process that makes a home energy efficient, which directly reduces costs over time. “Some of the more common types of weatherization include: sealing the holes and cracks around windows, doors and pipes, ensuring proper levels of insulation, fixing or replacing windows, putting an insulated blanket around your water heater and making sure your heating and air conditioning systems are working properly.”<sup>3</sup> Under the American Recovery and Reinvestment Act of 2009 (ARRA), WAP received an additional \$5 billion to weatherize 600,000 homes. A series of amendments ensued to allow for more cost-effective techniques and measures.<sup>4</sup> The reason for the push for energy-efficient weatherization is due to the inefficient energy usage, specifically the fossil fuel usage and its adverse effects on health and environmental degradation in low-income communities.

Through a collaboration with the RePower LA Coalition, which consists of organizations such as the Los Angeles Alliance for a New Economy (LAANE), IBEW Local 18, and Strategic Concepts in Organizing and Policy Education (SCOPE), LADWP created a new program that complements the federal WAP.

With the ARRA leveraged funds, LADWP was able to initiate the first ever Utility Pre-Craft Trainee (UPCT) Program, a pre-apprenticeship training program for entry-level workers interested in long-term careers in the utility, specifically weatherization. The UPCT program was created in 2010 to provide green jobs for weatherization efforts and help customers save money by reducing energy usage. In 2011, the “Board of Water and Power Commissioners accepted nearly \$4 million from ARRA to expand energy efficiency weatherization initiative for low-income customers. The additional grant award increases the federal funds for this program to a total of \$8.5 million.”<sup>6</sup>

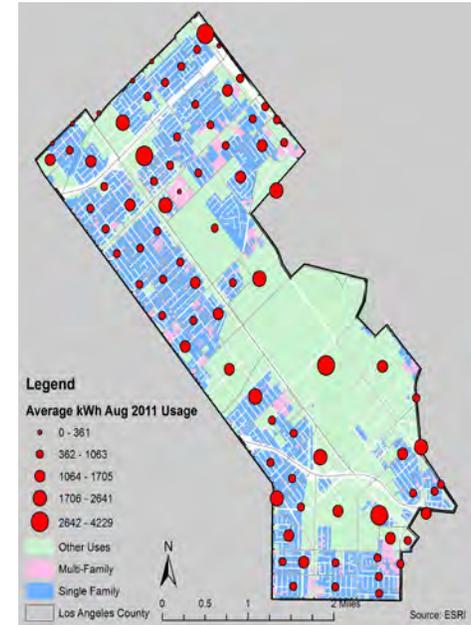
These weatherization programs assist both the local residents and job seekers, creating green sustainable jobs and promoting efficient energy consumption. These programs are built on the fact that low-income residents are not able to weatherize their own homes due to multiple factors, including income and cost of weatherization efforts.

## WAP AND UPCT PROGRAM BENEFITS AND SUCCESSES

### ECONOMIC BENEFITS

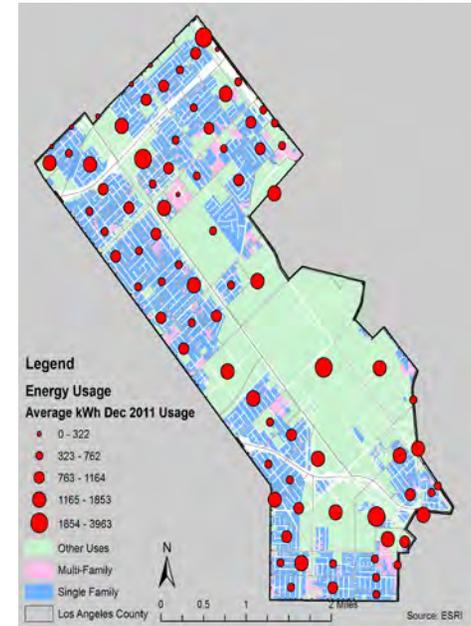
Economic benefits of WAP include two factors: (1) job creation and (2) energy savings over time. WAP has the potential to create green sustainable jobs, workforce development, and lower the unemployment rate. With the WAP allocation, local agencies are able to screen subcontractors for different positions (assessor, installer, etc.). According to Business Wire, “WAP created or retained more than 13,000 jobs in the fourth quarter of 2011, ranking second out of approximately 200 federal programs funded by the ARRA of 2009.”<sup>7</sup> The benefits of weatherization begin with reducing the energy bills of recipients for a long period of time. On average, these improvements can save a household close to \$400 a year in energy costs.<sup>8</sup> Some measures, such as insulating walls or roofs, for example, can provide savings for the lifetime of a house—30 years or more. Other measures, such as making heating or cooling equipment more efficient, will provide savings for 10-15 years. On average, the value of weatherization improvements is 2.2 times greater than the cost.

FIGURE 2: LAND USE AND ENERGY USAGE AUGUST 2011



Source: ESRI

FIGURE 3: LAND USE AND ENERGY USAGE DECEMBER 2011



Source: ESRI

## ENVIRONMENTAL BENEFITS

Reduced CO<sub>2</sub> emissions: The average home that the WAP successfully upgrades uses natural gas heat. After Weatherization, the homes decreased negative environmental impacts. A national study of the WAP stated that, “[b]ased on a Green House (sic) Gas (GHG) savings of 2.65 metric tons of carbon dioxide per home retrofit, the weatherization of over one million homes has contributed to over two and a half million metric tons of GHG emissions avoided through reduced energy consumption to date.”<sup>9</sup> These numbers are given on a national scale.

## SOCIAL/PUBLIC BENEFITS

Better homes: Low-income households experience a better quality of life, specifically less illness and greater comfort. Because of the weatherization measures, households also see an increase in home values.<sup>10</sup> The structural improvements that are provided typically increase the property value of the homes receiving them.<sup>11</sup>

## RECOMMENDATIONS

The WAP and UPCT Program are two programs that create opportunities for low-income households in Pacoima. The following recommendations can increase their access and implementation by the Pacoima community: (1) Increase funding for WAP and UPCT Programs; (2) Outreach during months of higher energy usage; (3) Increase community outreach and inclusion; (4) Start with residential energy efficiency and expand to commercial and industrial structures; and (5) Hire local.

### INCREASE FUNDING FOR WAP AND UPCT PROGRAMS

With the current discussion of SB 535, the cap and trade bill, the potential for weatherization programs and job creation programs will increase. LADWP and the City of Los Angeles should tap into the available funds. Accessing statewide funding will help LADWP increase program efforts. Although LADWP is committed to the \$128 million energy efficiency budget, the cap and trade funds will create a stronger green jobs pipeline in the City of Los Angeles. Not only will the cap and trade funds help LADWP reach its current 10 percent energy reduction savings goal, but also its 15 percent target by 2020.

### OUTREACH DURING MONTHS OF HIGHER ENERGY USAGE

Just like PACE, LADWP should invest in energy education, specifically outreach programs and workshops. LADWP should think creatively about the outreach process. From the usage data drawn, LADWP should focus outreach efforts during the months of high usage, more importantly during the summer and winter seasons, when residents are more inclined to use electricity inefficiently.

### INCREASE COMMUNITY OUTREACH AND INCLUSION

LADWP should promote community investment and involvement in the process of outreach and the UPCT Program. With the help of organizations in Pacoima, such as Pacoima Beautiful, LADWP will be more effective in outreach efforts. With the UPCT Program, LADWP can benefit from assessing community needs and specifically estimating what sorts of weatherization efforts can be done in each home in Pacoima. Pacoima has a high population of Latino residents, and while about half are renters, the other half are owners. With the growing Latino population, LADWP should conduct more culturally sensitive outreach to residents.

### START WITH RESIDENTIAL ENERGY EFFICIENCY AND EXPAND TO COMMERCIAL AND INDUSTRIAL STRUCTURES

While commercial and industrial buildings utilize more energy as individual customers, residential structures combined expend more energy. This is the reason why the target for weatherization efforts should be geared towards residential structures. Also, the availability of funds from the federal government and local agency committed budget implementations are sources of funding for residential weatherization.

## HIRE LOCAL

The UPCT Program proved successful. The UPCT Program should create sustainable jobs from local hiring, specifically hiring members of the communities LADWP wants to target. Through local hires, the UPCT Program will be able to access more residents who need weatherization for their homes. For low-income households in Pacoima, the UPCT Program can create a pipeline that translates to more cost savings and energy efficiency. Local hire can contribute indirectly to the energy efficiency goals of the City of Los Angeles. With the limited 100 slots for the UPCT Program, it will be difficult to meet this recommendation. However, accessing statewide funding such as SB 535, the cap and trade bill, can increase the number of slots.

## CONCLUSION

Pacoima residents must bear environmental degradation and health hazards. Pacoima should remain a top priority for energy efficiency programs for the City of Los Angeles and LADWP. The energy efficiency programs and strategies as described in the earlier sections are sustainable efforts to reduce these issues. Environmental justice efforts such as energy efficiency programs provide not only green retrofit potential to household residents, but also green jobs for neighbors as well.

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# COOL ROOFS

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## REDUCING THE HEAT ISLAND EFFECT IN PACOIMA THROUGH COOL ROOFS

Cool roofs create energy savings and reduce local ambient temperature by reflecting the sun's heat from building rooftops. In Pacoima, a neighborhood burdened by a lack of green open space, extreme heat conditions during the summer, and a number of surrounding toxic land uses, a cool roofs program has the potential to reduce utility bills, decrease the risk of heat stroke, increase public art through cool roof art pieces, and simultaneously support community engagement.

### WHY COOL ROOFS IN PACOIMA?

Cal-Adapt's local climate snapshot estimates Pacoima's temperatures will increase 3.5° to 6.0°F over the next sixty years (refer to Figure 1). To mitigate the negative impacts of increasing temperatures in the local community, cool roofs help reduce the heat island

effect by replacing "hot" rooftop surfaces, which absorb sunlight, retain heat, and increase the indoor temperature as well as the outdoor ambient temperature, with "cooler" roofs. Compared to traditional roofs, cool roofs consist of reflective material, usually painted white, that help deflect the sun's rays and circulate heat efficiently throughout a building. According to a 2012 report released by the Natural Resources Defense Council (NRDC), a cool roof's temperature measures between 50° to 60° F - 28° to 33° cooler than a regular roof. Since cool roofs help regulate the building's temperature and decrease cooling demand, they also reduce regional GHG emissions.

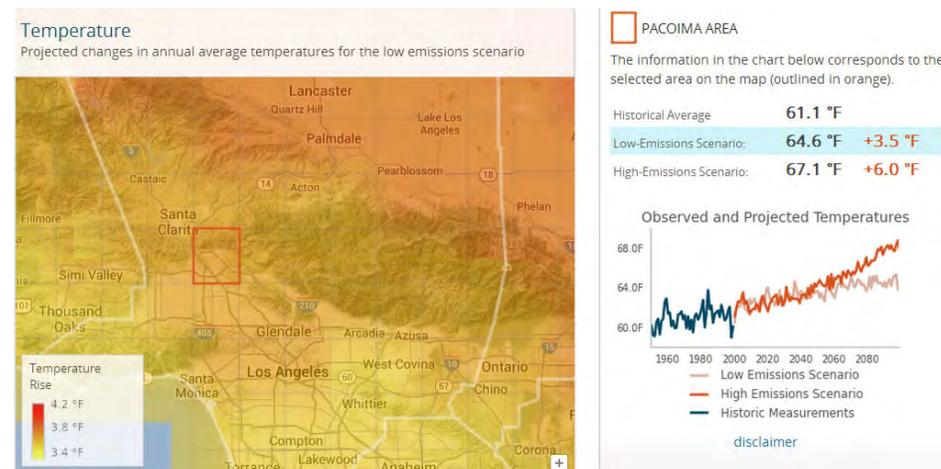
### HEALTH IMPACTS FROM RISING TEMPERATURES

Cal-Adapt's future worst case temperature projections present the health challenges that Pacoima will be faced with if temperatures continue to increase. Older adults over the age of 50, very young children and people without air conditioning are usually more susceptible to a heat related illness. In other words, some of the most vulnerable sectors of the population will be subject to declining health through environmental change. According to *The Climate Gap: Inequalities in How Climate Change Hurts Americans & How to Close the Gap*, "for every 10°F (5.6°C) increase in temperature, there is a 2.6 percent increase in cardiovascular deaths." Severe heat stroke is another one of the possible negative health impacts that can occur from increasing heat temperatures.

### FINANCIAL BENEFITS OF COOL ROOFS

Cool roofs can help alleviate some of the utility costs that burden residents in Pacoima, many of whom are of low-income. According to the U.S. Department of Energy, cool roofs can provide 10-15 percent in energy savings. Seniors could particularly benefit from the installation of cool roofs since they lack an increasing stream of income to support the rising costs of utility bills. Cool roofs can also have a huge impact on reducing low-income households' utility bills. Low-income households that are in the lowest income bracket tend to spend twice the fraction of their total household expenditures on electricity bills compared to households in the highest income bracket. If temperatures continue to increase in Pacoima, households in the lowest income bracket will not be able to afford to keep their air conditioning on and for those households that currently cannot afford to have air conditioning they will fare even worse.

FIGURE 1: CAL-ADAPT'S LOCAL CLIMATE SNAPSHOT OF PACOIMA

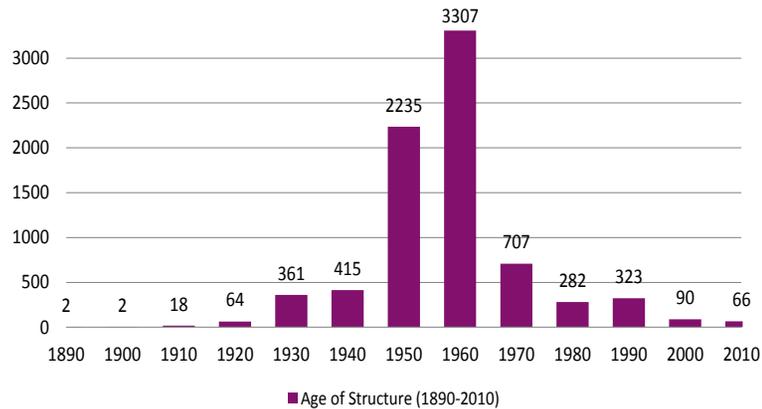


Source: <http://cal-adapt.org/tools/factsheet/#>

## AGE OF STRUCTURES

Ninety percent of the buildings in Pacoima were built before 1980 (refer to Figure 2). The age of buildings in Pacoima provides an ideal opportunity for green retrofits. Buildings built before 1978 yield the highest cost savings when retrofitted. Not only will a majority of property owners in Pacoima save money if they install a cool roof, many are likely in need of a new roof.

FIGURE 2: AGE OF PACOIMA STRUCTURES (1890 - 2010)



Source: 2009 Assessors / Solar Potential Data, UCLA modified from County of Los Angeles GIS specifically from Mark Greninger

## PROGRAM IMPLEMENTATION

The cost of cool roof coatings depends on the manufacturer as well as the type of materials, location, and rooftop structure (refer to Table 1). The additional cost to upgrade from a standard roof to a cool roof can vary from \$0.05-\$0.10 per square foot, or in some cases \$0.10-\$0.20 per square foot. The cool roof installations that have an added cost of \$0.10-\$0.20 per square foot are those utilizing a cool coating instead of a smooth asphalt or aluminum coating. These costs estimates provide a basis for the cost of converting a standard commercial roof in Pacoima into a cool roof. The average size of a commercial building in Pacoima is approximately 5,165 sq ft. Using this average and the cost of applying a single-ply cool roof membrane at \$1.50 per square foot, the cost of converting a typical commercial building rooftop from a standard roof to a cool roof in Pacoima is approximately \$7,747.50.

## COOL ROOF MAINTENANCE

The cost to convert to cool roofs may be expensive initially, but over time cool roofs require less maintenance. A cool roof tends to have a longer life-span compared to a traditional roof because it takes on less wear and tear from the sun which results in reduced repair costs over time. However, cool roofs just like traditional roofs tend to get dirty and they lose their reflective capacity by 30-50 percent over time. One way to address the decrease of the reflective power of cool roofs is to do regular maintenance. According to the New York Department of Design and Construction Cool Roof and Greening Manual, cool roofs can be maintained by washing them with mild soap and water. They also recommend a washing maintenance schedule so that the roofs are washed at least once a year.

TABLE 1: THE COST OF COOL ROOFING

**LOW-SLOPE ROOF**  
**\$0.75 - \$1.50** Per Sq. Ft.

**SINGLE-PLY COOL ROOF MEMBRANE**  
**\$1.50 - \$3.00** Per Sq. Ft.

Source: [www.epa.gov/heatisland/mitigation/coolroofs.htm#2](http://www.epa.gov/heatisland/mitigation/coolroofs.htm#2)

## FUNDING RESOURCES

There are a number of Property Assessed Clean Energy (PACE) subprograms that have been created throughout California. The City of Los Angeles is served by the Los Angeles County PACE program also known as LA PACE. The LA PACE program allows property owners to do on-site energy efficient retrofits on commercial, industrial and multifamily projects but it does not financially support retrofits to single family residential properties.

### LOS ANGELES DEPARTMENT OF WATER & POWER (LADWP) HOME EFFICIENCY AND WATER CONSERVATION REBATES

Cool roofs on residential properties including multi-family buildings are currently subsidized in the City of Los Angeles through the LADWP Consumer Rebate Program. In order for property owners to qualify for the Department of Water and Power Consumer Rebate Program the roofing material applied to the building must meet the requirements set forth by the 2014 Los Angeles Green Building Code. According to the LADWP website, the rebate amount received by the applicant is based on the slope of the roof as well as the Solar Reflectance Index (SRI). SRI is a temperature scale that measures the solar reflectiveness and thermal emittance. The lower the SRI the more heat a roof is absorbing. A low slope roof has been defined as "...having no more than 2 inches (5 cm) of vertical rise over 12 inches (30 cm) of horizontal run, or a 2:12 pitch." A low slope roof usually refers to commercial buildings.

### FUNDING FROM SB 535 CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006: GREENHOUSE GAS REDUCTION FUND

The AB 32 and SB 535 legislation that have led to the Greenhouse Gas Reduction Fund propose that funding should go towards "maximize[ing] economic, environmental, and public health benefits to the state." The economic benefits of cool roofs is the energy savings passed on to property owners. These savings can be maximized if the cool roofs are placed in older buildings in Pacoima. A cool roofs program can provide environmental benefits by helping keep temperatures in Pacoima stable or lowering them. Reducing the number of trips to the hospital or to the doctor from heat related illness can free up room for patients who are suffering extremely severe cases. In addition to these policy goals SB 535 also wishes to "foster job creation by promoting in-state GHG emissions reduction projects carried out by California workers and businesses." Pacoima can create jobs and help local roofing businesses expand their services. Businesses that have extra income coming in from a cool roof installation will be able to hire and train additional workers to complete the cool roof projects.

## CASE STUDY: COOL ROOFS WITH MURAL ART

Efforts to beautify Pacoima from organizations like Pacoima Beautiful, HOODsisters, and local mural artists have already begun to create an impact along the commercial corridor of Van Nuys Blvd. The momentum that has been created through the Van Nuys Blvd.'s Mural Mile can be driven further by extending the murals to commercial rooftops. The City of New York has already set precedence to create cool roof mural art. In November of 2010 Molly Dillworth, a mural artist partnered up with 350.org and the NYC Cool Roofs program to create a cool roof art piece as part of the 24 large scale global art pieces that were organized by 350.org. The cool roof mural was part of 350.org's efforts to call attention to the negative effects of global warming. The theme of the cool roof art piece was the rising sea level in New York caused by the effects of global warming.

### THE LA PACE PROGRAM PREFERS PROJECTS WITH THE FOLLOWING SPECIFICATIONS:

- Older buildings in need of major upgrades
- Properties with no mortgage or low loan-to-value
- Portfolios of properties with a single owner, such as big box or grocery stores
- Industrial/manufacturing facilities
- Properties with high utility bills
- Properties open 24 hours

*In order to apply to the LA PACE program, the property owner must be able to prove that they own the property, that it's located within Los Angeles County, that there is no outstanding default on the property, that they are current on their loan payments, that they have not filed for bankruptcy within the last ten years and that they have paid their property taxes within the last five years.*

**FIGURE 3: ACORN COMMUNITY HIGH SCHOOL, 561 GRAND AVENUE, BROOKLYN, NY**

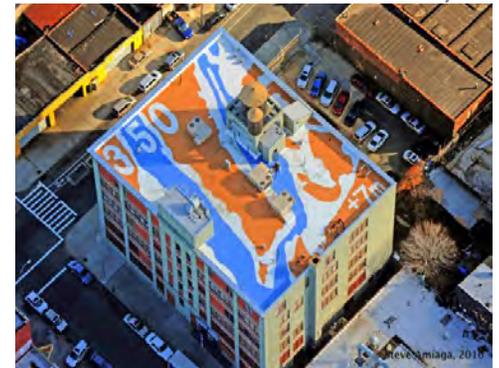


Photo Credit: Molly Dillworth. [www.molydillworth.com/](http://www.molydillworth.com/)

## RECOMMENDATIONS

### SB 535 FUNDING PRIORITY

SB 535 funds mandated for disadvantaged communities should be geared towards increasing the number of cool roofs on commercial and industrial properties. These properties usually have low-sloped roofs which tend to be less expensive to implement per sq. ft. In addition to being less expensive to implement these large buildings produce high energy use over the summer. The size of commercial/industrial buildings could help create a greater and faster impact on the heat island effect. Commercial buildings built before 1978 should be prioritized before other commercial buildings because of the large energy savings they produce for property owners.

### IMPROVING LA PACE PROGRAM

The County of Los Angeles should provide some additional incentive that will help ensure PACE investors will enter disadvantaged communities like Pacoima. If residential and commercial buildings are surrounded by unwanted land uses or have older infrastructure, PACE investors are not likely to want to invest in such a community. A couple of ways to increase the chances of PACE investors investing in disadvantaged communities could be creating a separate pool of funding for low-income households, changing the rules of the current LA PACE program so that only low-income households can apply or requiring each PACE investor to give a certain number of loans to low-income households. One way that the program could immediately improve is by translating the online LA PACE application into Spanish so that it is available to a wider audience in Pacoima. Making sure that applicants understand the terms of the LA PACE program will help customers feel comfortable with moving forward with a cool roof conversion. On the same note LA PACE program's online application should be made available in paper copy and placed throughout well-known community agencies in Pacoima.

### IMPROVING LADWP REBATE PROGRAMS

The Department of Water and Power should work with local community organizations within Pacoima to identify qualified applicants for their rebate programs. Households that are struggling just to pay their basic utility bills are probably the ones most likely to live in older buildings with older infrastructure which just only drives the cost of utility bills higher. The LADWP program should prioritize low-income families who are applying for the program since they are the most in need of additional expendable income. The role of community organizations participating in outreach should be to encourage property owners to make the conversion, educate them on the benefits of cool roofs and assist them in undertaking and following through on the application process. LADWP should allocate funding for outreach material and to pay for community organizations' staff time to outreach about the cool roofs program.

### INSTALLING COOL ROOFS IN PUBLIC FACILITIES

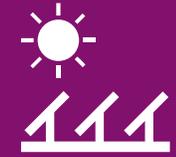
*Public entities can set the example for property owners by taking the first step towards converting to cool roofs. Cool roofs on government owned buildings can provide a cool area for residents who cannot afford to convert their own roof.*

### COOL ROOF ART IMPLEMENTATION

*Focus the creation of cool roof art along the commercial properties of Van Nuys Blvd so that the cool roofs can build off the already existing Van Nuys Blvd. Mural Mile. Partner with local artists or organizations in the area to create cool roofs that can serve as a community asset.*

### GAINING COMMUNITY SUPPORT

*The installation of a cool roof should be a community led event. Getting residents from Pacoima to volunteer to do cool roof projects can help foster a sense of community and also educate residents on the effects that global warming has on their community. Organizations that are based in Pacoima should be involved in the creation and implementation of a cool roofs program so that they can contribute their own knowledge of working with community residents.*



# SOLAR ENERGY

CHAD HORSFORD

## POWERING PACOIMA: SOLAR GENERATION POTENTIAL

Environmental Justice and economic growth are often pitted against one another in a zero sum game of community health vs. jobs. The Clean Up Green Up campaign, and this research effort as well, advances the view that these two goals can indeed be two sides of the same coin.<sup>1</sup> In order to establish a sustainable future, from both a time and environmental perspective, environmental and economic concerns have no choice but to work in concert. At the state level, AB32, the Global Warming Solutions Act, was passed in 2006 and created a 2020 Greenhouse Gas reduction goal. One of the requirements was the creation of a Cap and Trade program that would generate funds for the Greenhouse Gas Reduction Fund.<sup>2</sup> SB 535, passed in 2012, goes a step further and mandates that at least 25 percent of Cap and Trade proceeds benefit disadvantaged communities and at least 10 percent fund projects located in disadvantaged communities.<sup>3</sup> The Cap and Trade proceeds will create an opportunity for funding solutions at the nexus of environmental justice and economic development, and represent an opportunity for communities and strategies that are ready to Clean Up and Green Up towards a better future.

Residences and businesses in Pacoima can benefit from these gains in the solar field by utilizing state and local incentives to subsidize the upfront cost of installing solar.<sup>4</sup> Businesses and residences can then benefit from utilizing the Los Angeles Department of Water and Power's (LADWP) Net Metering program to reduce their energy bills, and in the case of larger commercial projects, there is also the potential that those projects could tap into LADWP's Feed In Tariff (FiT) program which allows rooftop owners to sell solar energy that they produce to the grid at a predetermined rate. This in turn generates an additional revenue stream for their business.<sup>5</sup> And as the cost of conventional energy increases in the following decades, each of these options will increase in appeal.

## GROWTH OF SOLAR

Solar Energy Generation has increasingly gained steam as the nation has grappled with the high direct and indirect cost of fossil fuel-based energy generation. During the most recent economic crisis the federal government took steps to support solar

energy generation through strategies such as providing federal credits for installing photovoltaic systems, the Department of Energy's Sunshot competition, and low-interest loans to renewable energy firms. These efforts along with ever increasing energy bills have helped to catalyze the solar market to extraordinary growth. From 1998 to 2012 solar panel installations increased from less than 1 cumulative MW of energy in 1998, to nearly 1,700 MW installed in 2012 alone.<sup>6</sup> Over the same time, solar installation costs have fallen, in part due to the public sector interventions previously highlighted, but also due to a maturation of the solar market. In some regions solar is actually reaching cost parity with the grid. The overall per watt installation price before subsidies has fallen from roughly \$12 per watt to \$5.30 per watt in 2012. In California the per watt cost for systems between 10-100 kW is \$4.80 per watt and just \$4.20 per watt for systems over 100 kW.<sup>7</sup> The unsubsidized per kilowatt-hour (kWh) cost of solar energy is estimated at \$0.19 in Los Angeles, the lowest among the nation's largest metros, whereas the unsubsidized electrical cost ranges from \$0.67 in Seattle to \$1.75 in New York City. If solar costs continue to fall at its 5 year historical rate, and conventional electric costs increase at its historic rate, then solar can attain grid parity in Southern California by 2015.<sup>8</sup>

California has long been at the forefront of energy efficiency and renewable energy efforts. The state benefits from an abundance of pristine natural resources that the public has endeavored to protect, as well as an abundance of sunshine that makes pursuing strategies like solar easier than somewhere beset by overcast skies. From adopting more stringent strategies than the Environmental Protection Agency, to an early adoption of Energy Efficient Building Standards, California has long been the national leader in environmental stewardship. The state's Greenhouse Gas (GHG) emission standards had committed it to generating 33 percent of its energy needs from renewable sources by 2020.<sup>9</sup> California currently generates roughly 1 percent of its electricity from solar, 8.3 percent from hydro, 7.5 percent from coal, and the bulk of its energy (43.4 percent) from natural gas.<sup>10</sup>

The Los Angeles region would seem to be ideally placed for any solar energy strategy as the region has an abundance of sunny days—Los Angeles averages over 260 days of sunshine a year. Yet the region has lagged behind other regions of California—and

one can argue, the nation—in cultivating a robust solar energy network capable of making a serious dent in GHG emissions. LADWP powers 1.4 million residents with over 24 million MW hours of energy per year. Of that energy, less than 0.1 percent comes from solar and a third is actually generated from coal powered plants. Twenty percent of power comes from renewable sources, with the bulk of that coming from wind (13 percent) and biogas (5 percent).<sup>11</sup> This energy mix stands in contrast to the State of California as a whole which has historically, and in many respects continues to be, at the forefront of environmental responsibility and sustainable growth. The City of Los Angeles and LADWP, working with civic, business, and social leaders has begun to take steps towards helping to realize its solar potential through the adoption of net metering, Feed-in-Tariff and other policies. As the City moves towards increasing support for solar energy generation, environmental justice communities, such as Pacoima, should position themselves to support the work of the City and coordinate to access as much public sector subsidies as possible, including the new resources being generated through the State’s Greenhouse Gas Reduction Fund.

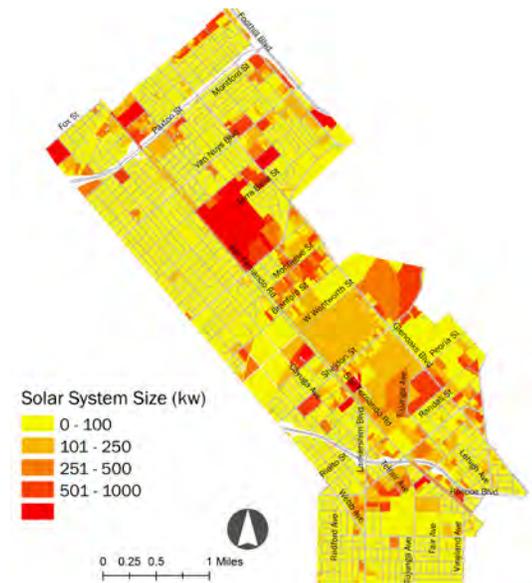
If business continues as usual, the average temperature in LA is estimated to rise between 3 and 5 degrees Fahrenheit by the middle of the century.<sup>12</sup> This will in effect triple the number of days with temperatures over 95 degrees. As the number of extreme heat days increases, area residents will increasingly be forced to turn to air conditioning. Air Conditioning units require a lot of energy. The energy generated to supply these units often comes from sources that further exacerbate global warming. Pursuing solar generation will help area residents stay cool without worsening the problem, while also providing financial stability in the form of reduced electrical bills—directly due to offsetting electricity demand, and indirectly as residents pay less for increasingly costly electric resources.

Solar energy generation also combats other negative externalities of power plant energy generation. Coal and natural gas plants produce smog as a byproduct, and investing in solar would help to reduce that.<sup>13</sup> In a region like LA where smog presents devastating health consequences, supporting solar energy generation can help to not only save lives but also help to decrease health care costs borne by the public as well as families. Due to Pacoima’s location in the San Fernando Valley, the effects of smog are exacerbated and as the number of intense heat days increases over the next few decades, the possible negative health effects only increases as well. The fact that the Valley is urbanized also means that due to the nature of concrete and lack of parks, heat is more likely to stick around longer due to the “urban heat island effect.”<sup>14</sup>

In contrast to other energy generation methods, such as natural gas or nuclear power, solar energy is capable of generating energy without the need for immense amounts of water (in both nuclear and combined-cycle natural gas plants, water is heated using the respective method in order to turn turbines which create energy).<sup>15</sup> This is important as the State is in the midst of a drought and there are immense trade-offs for water usage—whether it’s supporting agriculture in the Central Valley, or potable uses throughout the state. Groundwater accounts for between one-third to two-thirds of the water used by power plants, and as the strain on the State’s water supplies increases, investing in solar becomes a smart way to protect the State’s long-term water security.<sup>16</sup> Installing 1,200 MW of rooftop solar as opposed to the same energy generated from natural gas power plants, would result in a savings of 435 million gallons of water a year.<sup>17</sup>

Every megawatt of solar energy installed is estimated to prevent an estimated 610 pounds of smog-forming pollution per year.<sup>18</sup> If LA maximized its rooftop solar potential it would result in preventing over 730,000 pounds of smog pollutants annually.<sup>19</sup> Additionally, installing solar also helps to reduce the emission of pollutants that contribute to global warming, and in turn exacerbate the need for energy generation to meet air conditioning needs, etc. It’s estimated that close to 916 metric tons of global warming pollutants can be cut for every MW of solar energy installed in their place. Installing 1,200 MW of solar would prevent close to 1.1 million metric tons of global warming pollutants—a similar effect to removing 230,000 passenger vehicles off the region’s roads.<sup>20</sup>

**FIGURE 1: SOLAR POTENTIAL MAP<sup>24</sup>**



**MEDIAN ROOFTOP POTENTIAL: 7 kW**

**LARGEST POTENTIAL SYSTEM: 2,861 kW**

**AVERAGE ROOFTOP POTENTIAL: 19 kW**

## ANALYSIS

Clean Up Green Up starts with the premise that environmental justice and economic revitalization do not have to be oppositional, but rather these two goals can work in concert to achieve mutually beneficial goals. The solar prioritization model attempts to incorporate that same vision and views local industries as partners in achieving a more sustainable and robust Pacoima. Placing solar installations over the whole Clean Up Green Up area is daunting and this section attempts to highlight areas within the proposed Clean Up Green Up zone that should be prioritized for public investment—whether in the form of additional financial assistance or targeted outreach. The models are not perfect, as there are a host of other variables that could be added to account for other factors (some examples are locations of schools and daycare centers, economic output of non-residential sites, etc.), but it does establish a solid foundation to guide initial discussion.

The model balanced the economics of a proposed project (via the system size variable and building age),<sup>21,22</sup> with the potential to bring about environmental justice change (distance to hazards and industrial site).<sup>23</sup> The final equation is:

$$\text{Solar Priority} = (2 * \text{Building Age}) + \text{Commercial Distance} + (3 * \text{distance from hazards}) + \text{distance from industrial sites} + (3 * \text{potential solar system size})$$

This model multiplies the reclassified values of building size, distance from hazardous sites, and potential solar system size in order to give them greater priority. This is done in order to better balance economic feasibility needs with environmental justice criteria as well as account for factors that are less important and/or slightly duplicative. When indicators are combined, parcels could score up to 50 points, and actual results ranged between 10 and 43. A few areas stood out as being particularly well suited for solar investment:

1. The area bounded by Paxton Road to the south, Fox Street to the north, San Fernando Road to the west, and Bradley Avenue on east;
2. The area between Pierce Street on the north, Airpark Way on the south, De Foe Avenue to the west, and Glenoaks Boulevard to the east;
3. The area between Branford Street and Montague Street, from San Fernando Road to Glenoaks Boulevard.

## HIGH PRIORITY AREAS

- Pierce Street and De Foe Avenue
- Pierce Street and Pala Avenue
- Bradley Avenue and Vaughn Street
- Randall Street and Glenoaks Avenue
- Telfair Avenue and Tuxford Street

FIGURE 2: SOLAR PRIORITY MAP<sup>25</sup>



## POLICY RECOMMENDATIONS

Solar energy generation has the potential to bring significant energy and monetary savings to residential, commercial, and industrial building owners across Pacoima; however LADWP and the City Council can take proactive steps in order to ensure that the benefits of solar energy are attainable to all Angelenos, assist business owners to prepare for the future, and protect Los Angeles' water and energy security.

LADWP should expand programs specifically targeted toward disadvantaged populations. Through the California Solar Incentive, the state has taken great strides towards increasing the ability of disadvantaged populations to tap into the benefits of solar energy. The Multifamily Affordable Solar Housing (MASH) and Single-Family Affordable Solar Homes (SASH) programs in particular have been a resounding success in terms of directly connecting disadvantaged populations to solar energy benefits. LADWP customers are not able to take advantage of MASH and SASH, and though LADWP has some low-income solar incentives such as Affordable Housing Program Incentives, the scope and scale of incentives are less than many other utility customers have access to.

LADWP and the City Council should partner to provide more community relevant outreach and support to Pacoima residents. There are a number of solar incentives currently available, but barriers to fully utilizing such programs exist. First, better outreach needs to be done to inform Pacoima businesses and residents of the benefits of solar energy generation, from both an environmental and financial perspective. The indicator created here can serve as a guide for selecting areas for prioritized outreach. By prioritizing such areas for investment, City agencies can better utilize scarce resources and create early success stories that can be useful in gaining support and buy-in from the public at large as well as other building owners.

The City should prioritize creating “better neighbors.” It is easy to cast businesses with hazardous uses as enemies, solely focusing on changing them without any concerns about what happens to them. It's harder to focus on bringing those businesses into the work that is going on and making them allies, but doing so is the right choice for this strategy. The solar energy field has matured and has an established track record of proven results and payback; as such the financial foundation for business success is already there. Building on this foundation, it's possible for the City Council representatives and/or community groups to identify other financially feasible measures that bring about environmental good, and slowly work with business owners to become more profitable and environmentally sound.

## CONCLUSION

Every day, Pacoima residents are faced with the smokestacks of the LADWP Generation Station producing energy for LA City residents. What if instead of seeing those smokestacks spewing smoke, they instead saw rooftops glittering as the morning sun bounces off solar panels, workers arriving at a revitalized industrial base that has taken advantage of lower energy expenses, and their City officials leading the way by installing solar panels on public buildings. This strategy attempts to lay the foundation for achieving that vision. The strategy identifies priority areas to balance environmental justice and economic revitalization goals in pursuit of building a broader and more sustainable coalition, and identifies initiatives that can improve the efficiency of action.

FIGURE 3: BRADLEY AVENUE AND VAUGHN STREET



### OVERVIEW

- Industrial parcels
- Large mostly flat roofs
- Unobstructed sunlight
- Close to residential uses
- 2,738 kW of solar potential

### FINANCING OPTIONS

- Feed in Tariff / Net Metering combination
- PACE
- 3rd Party Ownership

## ENDNOTES

- 1 Learn more about the Clean Up Green Up campaign at <http://cleanupgreenup.wordpress.com/>
- 2 "Assembly Bill 32 - California Global Warming Solutions Act," accessed May 26, 2014, <http://www.arb.ca.gov/cc/ab32/ab32.htm>.
- 3 "Bill Text - SB-535 California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund.," accessed May 26, 2014, <http://leginfo.legislature.ca.gov/>.
- 4 Throughout this report, Pacoima refers to Pacoima Clean Up Green Up definitions as shown at [http://cleanupgreenup.files.wordpress.com/2010/12/libertyhillgreenzones\\_final\\_1-26-12-2.pdf](http://cleanupgreenup.files.wordpress.com/2010/12/libertyhillgreenzones_final_1-26-12-2.pdf)
- 5 For more information on net metering see <http://energy.gov/savings/ladwp-net-metering-california> or <https://www.ladwp.com/fit> for information on the Feed in Tariff
- 6 Barbose et al., Tracking the Sun VI: A Historic Summary of the Installed Price of Photovoltaics in the United States from 1998 to 2012.
- 7 Ibid.
- 8 See <http://cleantechnica.com/2013/07/09/solar-costs-and-grid-prices-on-a-collision-course/> for more information
- 9 "SBX1 2 Senate Bill, 1st Ext. Session - CHAPTERED," accessed May 26, 2014, [http://www.leginfo.ca.gov/pub/11-12/bill/sen/sb\\_0001-0050/sbx1\\_2\\_bill\\_20110412\\_chaptered.html](http://www.leginfo.ca.gov/pub/11-12/bill/sen/sb_0001-0050/sbx1_2_bill_20110412_chaptered.html).
- 10 "Total Electricity System Power," accessed June 1, 2014, [http://energyalmanac.ca.gov/electricity/total\\_system\\_power.html](http://energyalmanac.ca.gov/electricity/total_system_power.html).
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- 12 J.R. DeShazo, Colleen Callahan, and Norman Wong, Profile of Clean Energy Investment Potential: San Fernando Valley (UCLA Luskin Center for Innovation), accessed May 26, 2014, <http://www.edf.org/sites/default/files/SanFernandoBook.pdf>.
- 13 Michelle Kinman, Solar in the Southland: The Benefits of Achieving 20 Percent Local Solar Power in Los Angeles by 2020 (Environmental California Research and Policy Center, n.d.).
- 14 Edmund G Brown Jr, Matthew Rodriguez, and Ron Chapman, Preparing California for Extreme Heat: Guidance and Recommendations, October 2013
- 15 "Combined Cycle Plant for Power Generation: Introduction," accessed June 1, 2014, <http://www.wartsila.com/en/power-plants/learning-center/overview/combined-cycle-plant-for-power-generation>.
- 16 Michelle Kinman, Solar in the Southland: The Benefits of Achieving 20 Percent Local Solar Power in Los Angeles by 2020 (Environmental California Research and Policy Center, n.d.).
- 17 Ibid.
- 18 Ibid.
- 19 Ibid.
- 20 Ibid.
- 21 The LA County Solar Map is an innovated tool developed by the LA County Chief Information Office to determine the rooftop solar potential of individual sites across LA County. The data used was compiled and edited by the UCLA Luskin Center for Innovation: UCLA Luskin Center for Innovation (Solar Potential), 2011, City of Los Angeles (Parcel Shapefile);
- 22 System size potential data is modified based on UCLA Luskin Center for Innovations "Bringing Solar Energy to Los Angeles" (2010); See Bringing Solar Energy to Los Angeles, Appendix 3.3 for further details and reasoning
- 23 Hazardous sites data collected and compiled by Jim Sadd, Professor of Environmental Science, Occidental College
- 24 Source: 2009 Assessors/Solar Potential Data: UCLA modified from County of Los Angeles eGIS specifically from Mark Greninger
- 25 Ibid.

Maps produced by Chad Horsford.



# COMPLETE STREETS

ALYCIA CHENG WITH KRISTY SANDOVAL

## COMPLETE STREETS: ADDRESSING NEED AND BUILDING ON OPPORTUNITY FOR VAN NUYS BOULEVARD

The Van Nuys Corridor has long been favored by the community for improvement, and it has recently been included among the priority corridors of Mayor Garcetti's "Great Streets Initiative." Pacoima is plagued by pollution from the traffic that runs around and through it. Its residents suffer from historically bad land use planning. Its streets are worn from the associated truck traffic. For long stretches, sidewalks can be seen that are broken, lacking maintenance, or missing altogether. Many of Pacoima's bus stops are in need of shelters, lighting, or furniture. In addition to these concerns, in terms of health, the Pacoima/Arleta Community Plan Area reflects a childhood obesity rate of 29.5 percent, the fourth highest in the City of Los Angeles.<sup>1</sup> For Pacoima, a Complete Streets strategy can produce numerous benefits given the intersection of need and also opportunity.

Complete Streets for Pacoima has long been in the community's consciousness. Pacoima Beautiful has launched several events over the years highlighting the idea of upgrading the streetscape and reclaiming the right of way from automobiles. Local residents and artists are also having a hand in putting Van Nuys Boulevard in Pacoima on the map. The Mural Mile is the center of a community art scene dedicated to beautifying the landscape and making their neighborhood home to the greatest concentration of mural art in the world.<sup>2</sup>

Pacoima is ripe for a Complete Streets program. Pacoima streets are in need of upgrade; such improvements can make a significant difference in the lives and daily experience of Pacoima residents; furthermore, there is a community here ready to ensure its success.

### WHY COMPLETE STREETS?

Complete Streets is a strategy with the potential for numerous co-benefits. Many of these coincide with the goals of Clean Up Green Up—to "transform Los Angeles

communities most impacted by industrial pollution into vibrant and healthy places for families to live."<sup>3</sup> Furthermore, Complete Streets are well-suited to fit the criteria for AB32/SB535 funds and state transportation funds. The growing enthusiasm for Complete Streets in planning comes from the potential such projects can have for promoting health through more active transport, encouraging economic development, and sustainability in communities.

Many Pacoima residents cite safety fears relating to vehicle speeds and sidewalk conditions as primary concerns and reasons to avoid walking and bicycling in the Van Nuys Corridor.<sup>4</sup> The Van Nuys Corridor is also a commercial corridor with businesses in need of an economic boost. A successful and meaningful Complete Streets program for Pacoima should at minimum address these concerns; a great program should build upon the unique opportunities present in the form of a growing art scene and a very engaged and dedicated community.

### THE WORLD'S GREATEST CONCENTRATION OF MURAL ART

In 2012, Van Nuys Boulevard quickly began earning the reputation of Mural Mile. With a mission "to beautify the streets he grew up on," local muralist Levi Ponce set out to paint twelve murals in 2012.<sup>5</sup> Since then, the number of murals in Pacoima has been steadily growing, currently totaling twenty-one with several more planned.

The Museum of the San Fernando Valley hosts popular walking tours of the murals. Visitors, led by local artists and/or other special guest speakers, view and learn about the murals along Van Nuys Boulevard. In addition to being the sites of many of these murals, local businesses are also involved in supporting the tour program; a local favorite, Myke's Café offers special deals for attendees and the nearby Tres Sierras Supermarket opens its lot for tour parking. This cooperation and collaboration between parties is a defining characteristic of Pacoima's Mural Mile. The themes depicted in the murals as well as the process of their creation are directed toward empowering the community. The resulting murals are each a product of collaboration; between artists, businesses that host the murals, and community members who help put the paint on the walls. It is imperative that this passion and dedication be engaged and expressed in any Pacoima project.

Another point of opportunity lies in the newly formed Business Watch program for local businesses. Complete Streets involve infrastructure, however, they also require maintenance and constant care to remain lively. There have been a few unsuccessful attempts at establishing a business improvement district (BID) along Van Nuys Boulevard, since many business owners/operators cannot afford to pay into a BID. Business Watch is not a BID; however, it has the potential to, at least, bring businesses together to discuss and coordinate efforts to maintain the corridor.

#### BRINGING COMPLETE STREETS TO PACOIMA NOW

Currently, Metro is considering a few options for expanding service in the East San Fernando Valley Corridor. At the moment, the agency is examining possibilities for light rail transit or bus rapid transit. Given the still undetermined infrastructural adjustment needs, it may be advisable that a Complete Streets project occurs in phases for Pacoima. However, it is important to address needs in the immediate-term since residents are using the streets and corridors daily. To address current needs, design interventions should be flexible and require lower-intensity construction, so that they are able to adapt to the uncertain future infrastructural circumstances.

The Los Angeles Department of Transportation (LADOT) has an existing Complete Streets program in place in the form of its “People St” Program. The program works to bring parklets, bike corrals, and painted plazas to communities. These projects each can be implemented relatively quickly and inexpensively.

The inclusion of parklets and bike corrals can contribute to traffic calming by reclaiming parts of the street, while bike corrals also serve the benefit of encouraging greater bicycle travel by providing a place to store bicycles. The most exciting potential for Complete Streets comes from the possibility of working closely with local muralists and artists.

#### IDENTIFYING SOURCES OF FUNDING

The Active Transportation Program collects the Transportation Alternatives Program (TAP), the Bicycle Transportation Account (BTA), and Safe Routes to School (SR2S) into a single funding program.<sup>6</sup> A Van Nuys Boulevard Complete Streets program could potentially draw from any of these sections of ATP. The purpose of ATP is to “encourage increased use of active modes of transportation by achieving the following goals:”

- Increase the proportion of trips accomplished by biking and walking,
- Increase safety and mobility for non-motorized users,
- Advance the active transportation efforts of regional agencies to achieve greenhouse gas (GHG) reduction goals,
- Enhance public health,
- Ensure that disadvantaged communities fully share in the benefits of the program, and,
- Provide a broad spectrum of projects to benefit many types of active transportation users

A Complete Streets program for Pacoima addresses all these concerns, making such projects prime candidates for these funds.

**FIGURE 1: VAN NUYS MURALS**



Photo Credit: tapatiophotos (FLICKR)

**LOCAL ARTISTS DESIGN THE MURALS AND LOCAL BUSINESSES HOST THE MURALS. WHEN IT IS TIME TO PUT THEM UP, THE COMMUNITY IS INVITED TO HELP PAINT.**

## CONCLUSIONS

Van Nuys Boulevard has all the makings of becoming a Great Street. It is a growing street already, with a few new eateries having come in within the last few years. It is also becoming a focal point through the work of the local artists and community. However, there is still work to do to make it a safer street and a friendlier street for bicyclists and pedestrians. A Complete Streets program would help to accomplish this through streetscape improvements that ensure safety, promote a healthier environment, and encourage greater use of greener modes of transportation.

## RECOMMENDATIONS

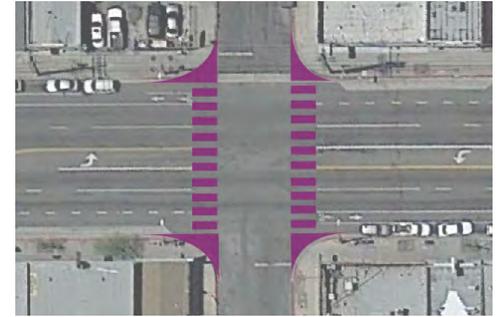
The City of Los Angeles/LADOT/People St can offer technical assistance in creating a People St-style, Van Nuys Boulevard-specific program to bring Complete Streets to Pacoima in the near future. The State's Active Transportation Program should be targeted as a primary source of funding.

- The City of Los Angeles/LADOT/People St work with local community organizations to host workshops/charrettes for businesses along Van Nuys, artists and community members
- Collect data to pinpoint eligible parklet, plaza, and bike corral sites; collaborate with agencies to consolidate all relevant street info (the location of hydrants, utility lines, etc.)
- Current People St application process involves submitting information regarding location and proximity to street elements that are not always familiar to the layperson; remove the burden to applicants by consolidating data that is likely already recorded by City agencies
- Allocate adequate resources to maintenance; prioritize roadways segments that include major parts of bikeway network
- Work with Councilmember Fuentes (District 7) on the possibilities for the creation of a business improvement district along the Van Nuys Corridor
- Currently, many businesses are participating in "Business Watch;" this may be a good point at which to start discussions about how to maintain improvements in the corridor.

## ENDNOTES

- 1 "Caminos del Pueblo/Complete Streets: Pacoima," Pacoima Beautiful and RENEW, accessed March 2014, <http://www.pacoimabeautiful.org/wp-content/uploads/2010/11/Caminos-del-Pueblo-research-findings.pdf>.
- 2 "Urban Regeneration and Young Warriors NE Valle Map," El Hormiguero, last modified May 9, 2014, <http://www.hormigueropacoima.org/urban-regeneration-and-young-warriors-ne-valle-map>.
- 3 "Learn More," Clean Up Green Up, accessed April 2014, <http://cleanupgreenup.wordpress.com/about>.
- 4 Madeline Brozen, "The Built Environment and Travel Behavior: Incorporating Residents' Perceptions into Policy Recommendations" (MA client project, UCLA, 2011).
- 5 April Aguirre, "The Mural Mile of Northeast San Fernando Valley," KCET, July 6, 2012, accessed May 2014, <http://www.kcet.org/socal/departures/columns/writing-on-the-wall/the-muralist-mile-of-northeast-san-fernando-valley.html>.
- 6 "Active Transportation Program Overview," CalTrans, accessed March 2014, <http://www.dot.ca.gov/hq/LocalPrograms/atp>.

FIGURE 2: INTERSECTION OF RALSTON AND VAN NUYS



**PAINTED CURB TREATMENTS CAN BE LOWER COST, QUICKLY-IMPLEMENTABLE SOLUTIONS FOR TRAFFIC CALMING, SLOWING CARS DOWN AT TURNS, AND DECREASING CROSSING DISTANCES. PEDESTRIAN SAFETY AT THIS INTERSECTION COULD ALSO BE GREATLY IMPROVED WITH THE ADDITION OF A SIGNAL.**



# ALLEYWAY GREENING

TULSI PATEL

## PACOIMA'S IGNORED ASSET: AN ALLEYWAY GREENING STRATEGY

Alley greening as a key strategy in Pacoima's Clean Up Green Up efforts could address environmental concerns that are both existing and imminent, while also creating co-benefits that improve residential quality of life. Inadequate stormwater management and the worsening urban heat island effect call for Los Angeles to leverage its existing infrastructure and procure greater benefits from it. Alleyways are prime targets for increased municipal attention as they are often neglected to the extent of creating blight.

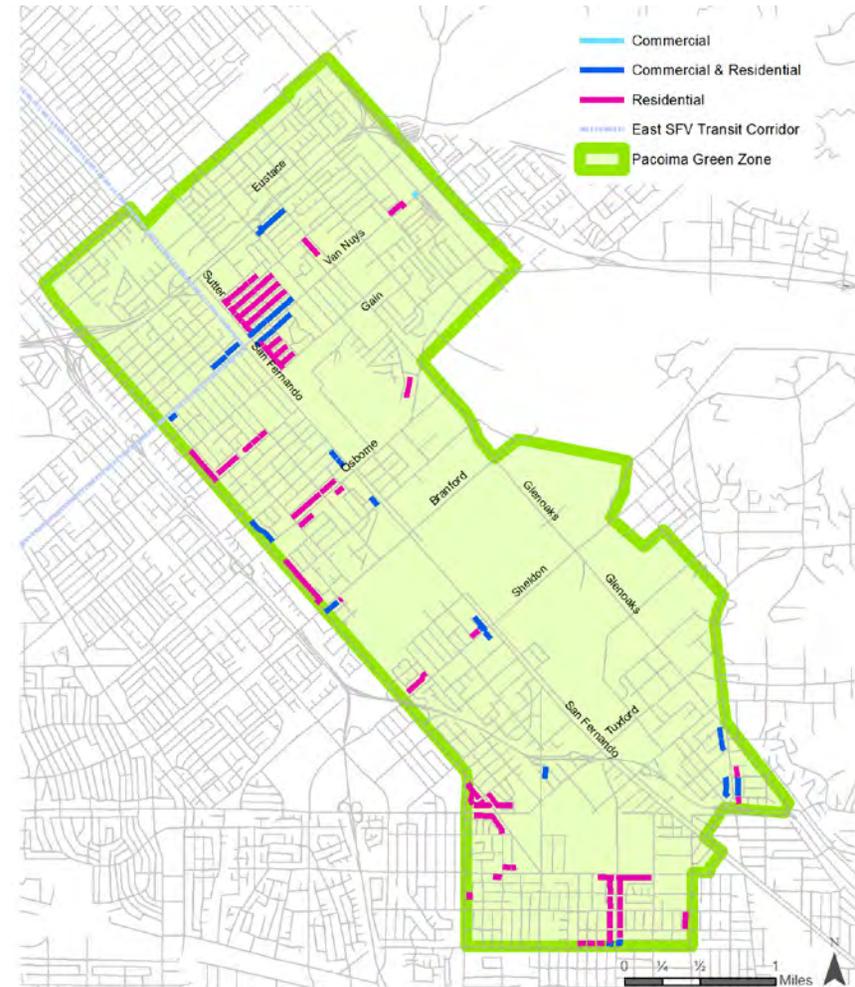
Rather than continue under-utilizing the public alleyways in the Pacoima Green Zone, the City should retrofit them with green infrastructure and public space features. Careful design of the green infrastructure additions can help maximize the numerous co-benefits that alley greening can produce. Five key benefits that green alleys can provide are (1) urban heat island mitigation; (2) water quality management and capture; (3) improved active transportation network; (4) increased economic activity; and (5) improved public health outcomes.

There are 104 publicly owned alleys within the proposed Pacoima Green Zone boundary ("Pacoima"). Pacoima's public alleys primarily range from 15 ft.-22 ft. in width and 300 ft.-380 ft. in length. Together they stretch over approximately 10 linear miles, and cover an estimated 900,000 square feet, indicating high opportunity for stormwater capture, increased urban forestry, and the creation of safe open spaces.

## VAN NUYS CORRIDOR

Within Pacoima, pilot alleyway greening projects should target the Van Nuys corridor between Glen Oaks Blvd. and Telfair Ave. to the east and west; and Pierce and Louvre to the north and south of Van Nuys Blvd. The City of Los Angeles and the Pacoima community alike, recognize this corridor as a high potential area. Specifically, the City has identified this as a future transit corridor and part of Mayor Garcetti's Great Streets initiative.

FIGURE 1: PUBLIC ALLEYWAYS IN THE PACOIMA GREEN ZONE (104 TOTAL)



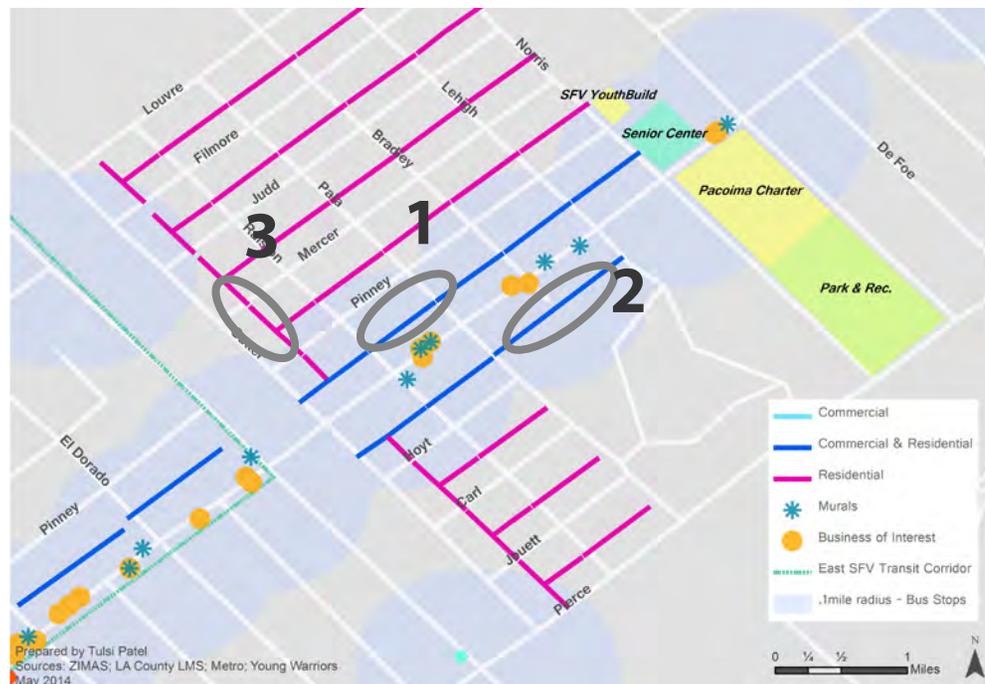
Map Produced by T. Patel. Sources: ZIMAS, LA County LMS, Young Warriors, Metro

Within the Van Nuys corridor focus area there are 12 mixed-use alleys and 34 residential alleys. A mixed-use alley is an alley that is between commercial land uses on one side and residential on the other. A residential alley is one that has residential land uses on both sides. A third type, not present in the focus area, is the commercial alley, which has commercial uses on either side of it (there is only one publicly-owned commercial alleyway in Pacoima). The type of alley is important to distinguish so that its design can be best suited for the alleyways' current and future users. In addition to the surrounding uses, there are the actual uses of the alley street surface. Existing uses of alleyways include trash collection, parking lot access, and commercial delivery. These can and should be adjusted when appropriate to create a safe space that still meets the needs of surrounding users. The following are three scenarios of public alleyways in the Van Nuys Corridor that have been identified as high-potential and already commonly used alleyways. They each vary in typology and recommended level of access.

## RECOMMENDATIONS

- To ensure that an alley greening project is successful, the City must first clean up and improve the perception of safety in the alleys. This effort should begin as soon as possible, and would only be accelerated with the implementation of green infrastructures.
- Initial greening efforts should be targeted to the alleys surrounding the Van Nuys Corridor, as it is identified as a high-potential area by the City and Pacoima community alike.
- Engaging residents and businesses adjacent to alleys will be essential during implementation and maintenance.
- To increase investment in alley infrastructure, an overlay zone should be applied to the Van Nuys Corridor, so that future developments help to foster a safe, clean, and comfortable alleyway network.

**FIGURE 2: PUBLIC ALLEYWAYS ALONG THE VAN NUYS CORRIDOR. DESIGN SCENARIOS ARE PROVIDED FOR THE THREE HIGHLIGHTED ALLEYWAYS.**



## FUNDING SOURCES

*GREEN TREES FOR THE GOLDEN STATE (URBAN FORESTRY GRANT PROGRAM)*

- Agency: CAL FIRE
- Grant Amount: \$30,000-\$75,000

*EDUCATION GRANT (URBAN FORESTRY GRANT PROGRAM)*

- Agency: CAL FIRE
- Grant Amount: \$30,000-\$75,000

*LEAFING OUT (URBAN FORESTRY GRANT PROGRAM)*

- Agency: CAL FIRE
- Grant Amount: \$2,500 - \$30,000

*LEADING EDGE PROJECTS (URBAN FORESTRY GRANT PROGRAM)*

- Agency: CAL FIRE
- Grant Amount: \$30,000 - \$150,000

*ENVIRONMENTAL ENHANCEMENT AND MITIGATION PROGRAM*

- Agency: California Natural Resources Agency
- Grant Amount: up to \$500,000;

*ACTIVE TRANSPORTATION PROGRAM*

- Agency: California Transportation Commission

## SCENARIO 1 – SINGLE-FAMILY MIXED USE ALLEY

EAST - WEST ALLEY BOUNDED BY PINNEY ST. (N), PALA AVE. (E), VAN NUYS BLVD. (S), RALSTON AVE. (W)

Located behind the popular Myke's Café in the vicinity of multiple murals, this alley can leverage the existing public attention given to the adjacent community and commercial assets. Patrons of the local businesses may extend the amount of time spent in the area if the alley is available to offer a comfortable setting of urban relief. Additionally, there is a vacant parcel along this alley that should be considered for conversion into a larger public space. The improved alley and a new pocket park would complement each other in providing safe connectivity and recreation areas.

Recommended Level of Access: Light Auto

Treatments:

- Interlocking permeable pavers as the primary surface material;
- Permeable concrete aprons at the driveways and alley edges;
- Tree plantings to buffer parking areas;
- Dispersed bioswales along fences and between some trees;
- Murals on blank commercial walks (costs not included in estimate);
- Bike repair station;
- Picnic tables and landscaping at the bulb out next to the empty lot;
- Dark-sky light fixtures.

Estimated Total Cost: \$178,696 (\$30.29 per SF)<sup>1</sup>

## SCENARIO 2 – MULTI-FAMILY MIXED USE ALLEY

EAST - WEST ALLEY BOUNDED BY VAN NUYS BLVD. (N), BRADLEY AVE. (E), CARL ST. (S), PALA AVE. (W).

This alleyway sits between low-income, multi-family housing (San Fernando Gardens Housing), a popular grocery store (Tresierras Supermarket), Pacoima Charter School, and a local Laundromat. The high-activity uses in close proximity make it a worthy candidate for a pilot green alley project. Residents from the housing complex and surrounding area already use the alley as a key circulation route to school and several commercial destinations. The use of the alley is evidenced by the addition of a short, narrow sidewalk along the multifamily development. The sidewalk may also be a response to the conflicting alley uses due to unregulated vehicle access for the parking lots and delivery. Unfortunately, the pedestrian infrastructure is rendered useless, as trees have been planted in the center of the sidewalk, making continuous use of the pathway impossible. This situation could be avoided in the future with proper design considerations. On a positive note, there is also evidence of an early-stage effort to address the need for increased tree canopy.

Another reason this is a high-potential green alley is because the portion of Bradley Ave. intersecting with this alley is a proposed plaza site. Alley greening and plaza conversion in tandem would be mutually beneficial projects that would dramatically improve the experience of residents frequenting the area amenities and is likely to help attract more visitors to the commercial area.

Recommended Level of Access: Pedestrian, with regulated Delivery Trucks

## SCENARIO 1

FIGURE 3: MIXED USE ALLEYWAY



This mixed use alleyway lies behind Myke's Cafe and is adjacent to multiple murals. Photo Credit: Kristy Sandoval

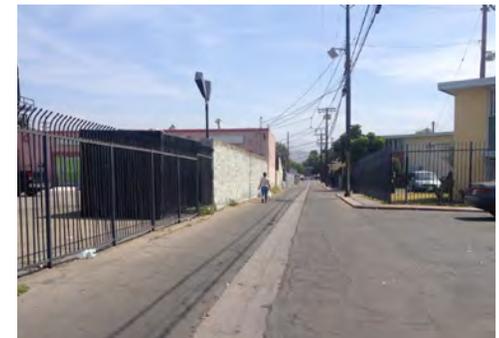
FIGURE 4: POTENTIAL POCKET PARK



The empty parcel neighboring Myke's Cafe can be converted into a pocket park that compliments alleyway. Photo Credit: Kristy Sandoval

## SCENARIO 2

FIGURE 5: CURRENT ALLEYWAY BETWEEN SAN FERNANDO GARDENS HOUSING



A woman is shown walking through the alley with grocery bags from the supermarket across the street. Photo Credit: Kristy Sandoval

#### Treatments:

- Interlocking permeable pavers as primary surface material;
- Two driving strips (each 1.5' wide) of permeable concrete offset from the alley center to keep cars along the commercial edge;
- Permeable concrete aprons at driveways and alley edges;
- Drywell at each end of the alley segment;
- Infiltration trenches between existing young trees;
- Additional tree plantings along the alley, particularly near Bradley Ave. intersection as an investment in the possibility of a plaza conversion;
- Murals on blank walls;
- Street furniture and temporary shade structures to create picnic area near housing complex access points (particularly, near Pala Ave. in close proximity to supermarket) and an outdoor living room near the Bradley intersection;
- Bike repair station;
- Solar powered dark-sky light fixtures.

Estimated Total Cost: \$231,194 (\$28.90 per SF)

### SCENARIO 3 – SINGLE-FAMILY RESIDENTIAL ALLEY

NORTH-SOUTH ALLEY BOUNDED BY MERCER ST. (N), RALSTON AVE. (E), PINNEY ST. (S), SUTTER AVE. (W).

In close proximity to the Van Nuys commercial corridor, this alley has densely built single-family homes on either side. There are relatively few driveways along this alley segment, and the homes that do have rear access, also have access from the main street at the parcel front. Therefore, it is not imperative to maintain vehicle access from the alley and creates opportunity for an alley dedicated to pedestrian and bicycle connectivity. This also allows for a more extensive installation of vegetative green infrastructure that will also contribute to the aesthetics. Increasing urban forestry supports beautification, can build community pride, and improve overall quality of life for neighboring residents. The alley can become an open space for neighbors to enjoy together as an extension of their yard space for block parties and picnics, and may foster a stronger sense of community. Additionally, this residential alley segment intersects with another alley, reinforcing the possibility of creating a network of green alleys that improve circulation for Pacoima's residents.

Level of Access: Pedestrian only, with emergency vehicle access

#### Treatments:

- Reinforced grass grid along residential property lines;
- Pervious pavers in the center to create comfortable bicycle-pedestrian pathway;
- Permeable concrete aprons at alley edges;
- Infiltration trench near the Pinney St. alley entrance as a central feature for the alley. Besides stormwater management, it would double as an educational feature for community members;
- Bioswales and landscaping along the alley alternating with the reinforced grass grid to add landscaping elements;

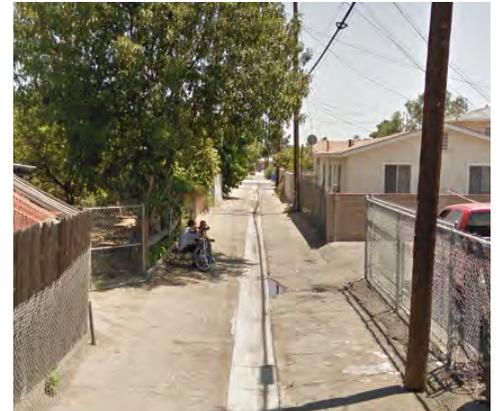
FIGURE 6 : EXAMPLE OF GREEN ALLEY



Example of green alley with driving strips that provide functionality, while still allowing for vegetation to be integrated into alley design. Photo Credit: Ben Nelms, National Post

### SCENARIO 3

FIGURE 7 : CURRENT ALLEYWAY



Two men are shown repairing a bicycle in the scarce shade that is available. An existing runoff strip has already been installed, indicating the need and potential for stormwater management. Photo Credit: Google Earth

- Shading trees;
- Picnic benches to encourage neighbor ties;
- Bike repair station;
- Solar powered dark-sky light fixtures.

Estimated Total Cost: \$154,389 (\$32.16 per SF)

## STAKEHOLDERS & PARTNERS

- City Council District 6
- City of Los Angeles Bureau of Sanitation
- City of Los Angeles Department of Public Works
- City of Los Angeles Department of Transportation
- City of Los Angeles Department of Water and Power
- Council of Watershed Health
- LA Conservations Corps
- Local muralists
- Los Angeles Neighborhood Land Trust
- Mayor’s Office of Sustainability
- Pacoima Beautiful
- Pacoima Charter School
- San Fernando Gardens Housing
- TreePeople
- Van Nuys Blvd Businesses & Residents

## ENDNOTES

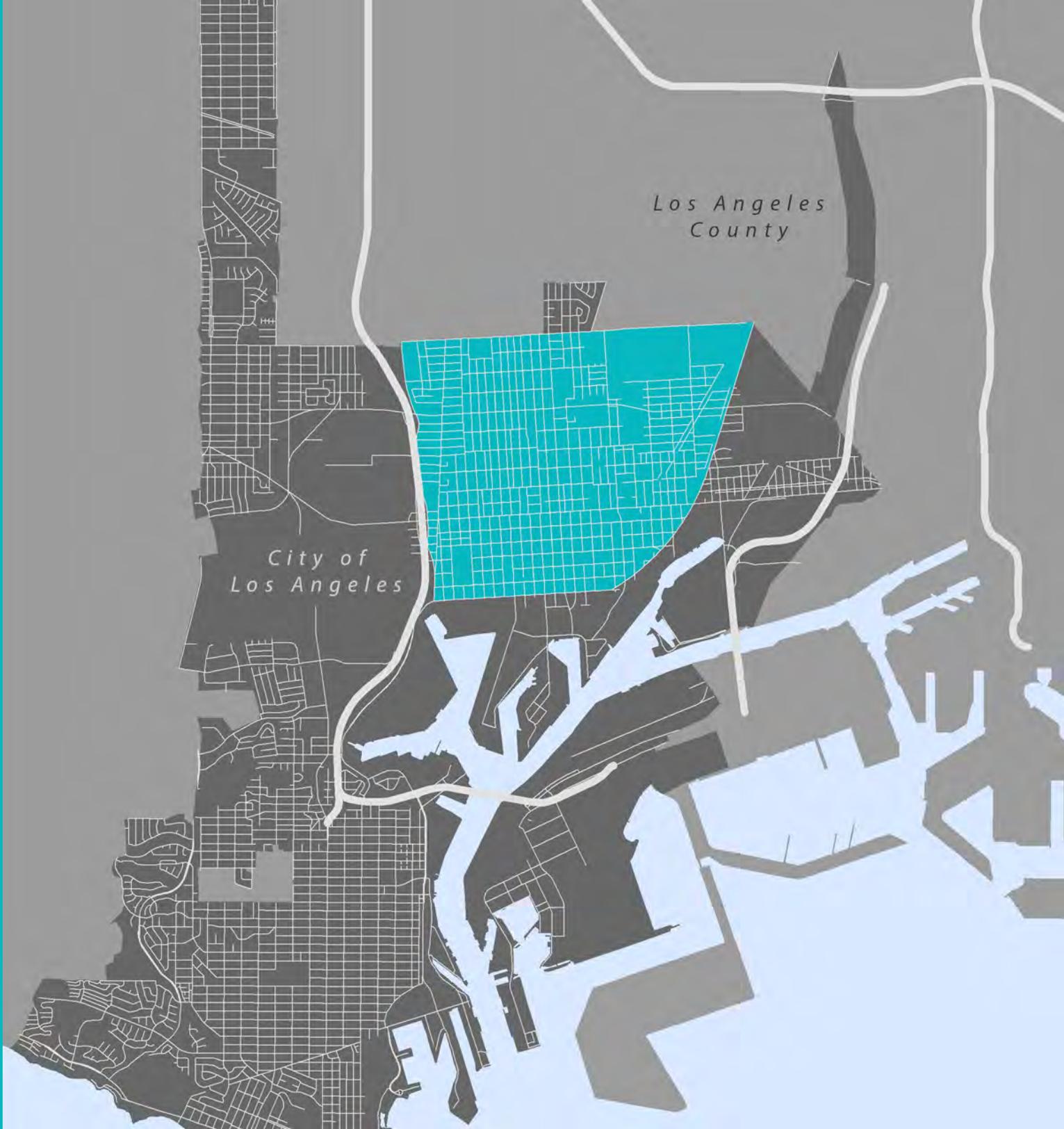
- 1 “Green Streets & Green Alleys Design Guidelines Standards.” 2009. City of Los Angeles. Costs estimates do not account for design, engineering, or construction, nor mural or other art installations. Scenario design may be found infeasible when in-depth study is done of hydrology, soil type, and other factors.

**FIGURE 8 : ASPIRATIONAL EXAMPLE**



An aspirational example from Portland, Oregon of what a pedestrian-only residential alley could be transformed into. Photo Credit: Derek Dauphin, Portland State University

# WILMINGTON

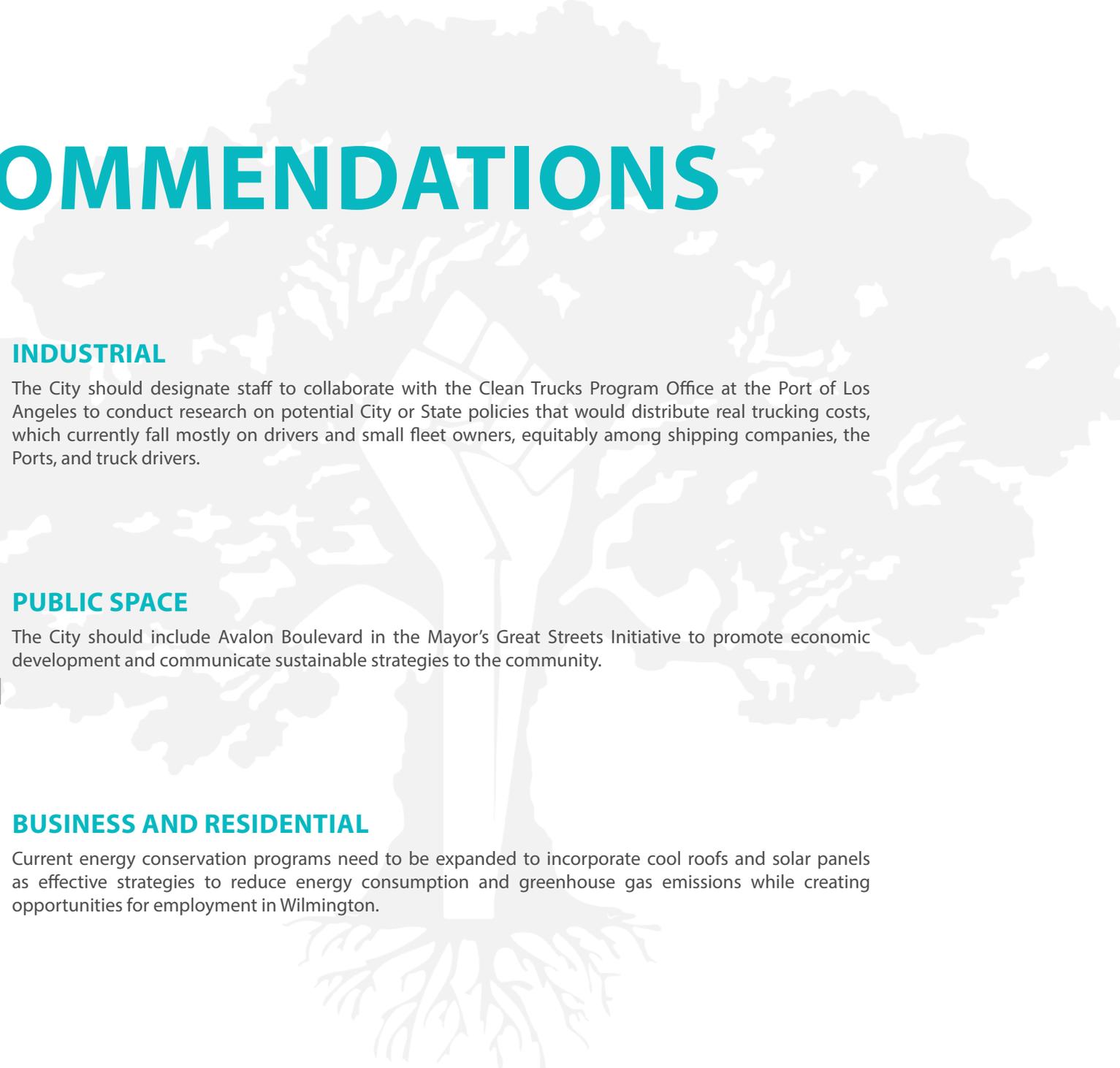


## VISION STATEMENT

WE ENVISION A VIBRANT  
WILMINGTON THAT FOSTERS  
SOCIAL, ENVIRONMENTAL  
AND ECONOMIC JUSTICE  
WHILE MAINTAINING  
THE INTEGRITY OF THE  
COMMUNITY.



# RECOMMENDATIONS



1

## INDUSTRIAL

The City should designate staff to collaborate with the Clean Trucks Program Office at the Port of Los Angeles to conduct research on potential City or State policies that would distribute real trucking costs, which currently fall mostly on drivers and small fleet owners, equitably among shipping companies, the Ports, and truck drivers.

2

## PUBLIC SPACE

The City should include Avalon Boulevard in the Mayor's Great Streets Initiative to promote economic development and communicate sustainable strategies to the community.

3

## BUSINESS AND RESIDENTIAL

Current energy conservation programs need to be expanded to incorporate cool roofs and solar panels as effective strategies to reduce energy consumption and greenhouse gas emissions while creating opportunities for employment in Wilmington.

# WILMINGTON

## CREATING A HEALTHY HARBOR COMMUNITY

The community of Wilmington, a site of commerce and industry, reflects the nature of its founder and early resident, Phineas Banning. Remembered as the “Father of the Los Angeles Harbor,” Phineas Banning was a family man, an entrepreneur, a Brigadier General and a State Senator. He founded the town of New San Pedro on September 25, 1858 and in 1863, changed its name to Wilmington, after his hometown in Delaware. Wilmington’s early development and growth was due to a combination of factors. It was geographically advantageous, sited six miles closer to Los Angeles than old San Pedro, and possessed a protected inner channel and lagoon. Due to Phineas Banning’s Unionist leanings it became a base for Union Army activities during the Civil War. Camp Drum was established in 1861, and Drum Barracks was built in 1862-63.

After the Civil War, Phineas Banning and his town played major roles in the development of the harbor and establishment of transportation in the region. In 1869, Wilmington became the terminus of the first railroad in Southern California, the Los Angeles & San Pedro Railroad. In 1872, Wilmington was incorporated as a city, and in 1871 and 1873, Phineas Banning received money from the federal government to build a breakwater and improve the harbor. Phineas Banning lobbied to have Wilmington declared a port of entry in 1874.

In 1876, commerce began to grow in Los Angeles with the arrival of the Southern Pacific Railroad. This railroad connected Los Angeles to the transcontinental railroad, and Wilmington provided the railroad with access to the harbor. <sup>1</sup> In the 1890s, Wilmington and San Pedro were involved in the Free Harbor Fight led against Collis Huntington, owner of the Southern Pacific Railroad, who was lobbying to build a new Southern California port in Santa Monica. The campaign for a “Free Harbor for a Free People” culminated in 1896, when the California Senate commissioned an independent corps of engineers to choose between the two potential sites. In the summer of 1896, Los Angeles’ San Pedro Bay was found to be superior. As a result, Wilmington and San Pedro were annexed by the City of Los Angeles to provide the growing metropolis with the necessary link to the harbor. By 1910, port development at San Pedro and Terminal Island was well underway.

In addition to economic activities related to the operation of the Los Angeles Port, oil extraction is a major industry in the area. The Wilmington Oil Field was first discovered in 1932 and is the third largest oil field in the U.S. in terms of cumulative oil production. The proliferation of small oil wells in the area led to peak production in the early 1940s.<sup>2</sup> To this day, a strong sense of community remains and is centered on the harbor communities, which are distinct neighborhoods with their own unique traditions and assets.

**FIGURE 1: LOS ANGELES HARBOR WATERFRONT IN 1903**



Photo Credit: Title Insurance and Trust / C.C. Pierce Photography Collection, USC Libraries

## GEOGRAPHIC DESCRIPTION

The neighborhood of Wilmington is approximately 9.14 square miles. The area is bound by the I-110 Freeway in the West, runs along East Lomita Boulevard/East Deloras Drive and up to the Union Pacific Intermodal Container Transfer Facility (UP ICTF) in the Northeast. The Eastern boundary of Wilmington runs alongside the CA-103 Freeway and follows the waterline of the Port of Los Angeles in the South.

## CURRENT DEMOGRAPHICS

### POPULATION

Wilmington has experienced steady population growth over the past few decades. The 2010 U.S. Census reports the neighborhood population at 52,286, which was 1.38 percent of the total City of Los Angeles population of 3,792,627.<sup>3</sup> An estimated 5,600 residents inhabit each square mile of the historic neighborhood and an average of 3.8 persons is reported per household. Although this density is average for the United States as a whole, it is one of the less dense areas of the City of Los Angeles, which averages 4.1 persons per household.

### RACE & ETHNICITY

In alignment with the several large waves of immigration from Mexico, which began in the 1940s, a large majority, 90 percent (47,296) of the population, identifies as Hispanic or Latino. Other races and ethnicities in the neighborhood include: 4 percent (2,124) Non-Hispanic white, 3 percent (1,402) Black/African American, and 2 percent (1,007) Asian.

### NATIVITY & CITIZENSHIP

Similar to the City of Los Angeles, Wilmington's population of native-born residents is 60 percent (33,396) while foreign-born residents make up 40 percent (22,598). Of Wilmington's foreign-born population, a significant percent (71 percent) are not naturalized citizens. This is higher than the City of Los Angeles, where just 59 percent are not naturalized citizens.<sup>4</sup>

### EDUCATIONAL ATTAINMENT

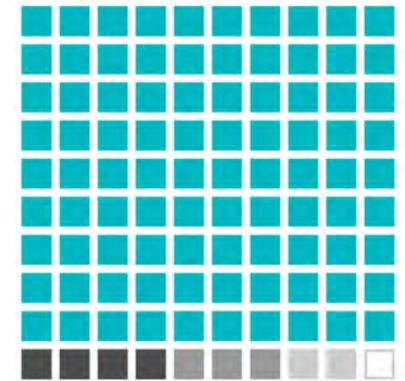
As a community, Wilmington suffers from a very low level of formal educational attainment. Only 7 percent of residents twenty-five years old and older have four-year university degrees and 44 percent of the population has less than a high-school education. This is surprising considering that the median age in Wilmington is twenty-four years old, which is considered very young in comparison to the City of Los Angeles.

### INCOME & EMPLOYMENT

The median income of Wilmington is \$42,583, which is less than the median for Los Angeles. Residents of Wilmington also experience higher rates of poverty at 26 percent compared to 21 percent for the City of Los Angeles. Of the available workforce in Wilmington, 85 percent of people are employed.<sup>5</sup>

### HOUSING

The U.S. Census reports approximately 13,793 total housing units within the Wilmington neighborhood. Of those housing units, over 61 percent are single-family homes and 38 percent are in multi-unit buildings. Similar to the City of Los Angeles, Wilmington has a sizable number of renters. Renters throughout Los Angeles have high cost burdens—meaning that they spend more than 30 percent of their household income on rent and utilities. Twenty-nine percent of Wilmington residents report a moderate burden (spending 30-49 percent of income) and 33 percent report a severe burden (spend 50 percent or more of income).



## HEALTH ISSUES

Residents of Wilmington suffer many adverse health effects as a result of being in close proximity to freeway traffic, Port activities, oil extraction operations and oil refineries. Studies show that children living near freeway traffic have diminished lung function over time, higher rates of asthma and more school absences from acute respiratory problems. Additionally, pregnant women living near traffic have increased risk for low birth weight and premature birth. The U.S. Environmental Protection Agency's National Air Toxics Assessment further reports that low-income people of color bear a disproportionate risk of contracting cancer or suffering from respiratory disease from ambient concentrations of air pollutants.<sup>7</sup> As a result of air toxics exposure, risk of cancer has consistently been found to be 50 percent higher for people of color when compared to Anglos of every income level.<sup>8</sup>

In the City of Los Angeles, compared to the State of California, there are several areas considered "hot spots" of cumulative sources of high pollution. Residents of the Los Angeles region are at risk for an additional 1,000 cancer cases per one million people from air toxics. In the case of Wilmington, residents are at an even greater risk due to higher concentrations of diesel exhaust. The California Air Resources Board (ARB) reports that diesel emissions are responsible for almost 70 percent of statewide excess cancer risk.<sup>9</sup>

CalEnviroScreen 2.0, a new tool developed by the State of California to assess overall vulnerability to environmental health risks, shows three of the Wilmington Clean Up Green Up area's 14 census tracts experiencing high cumulative impacts above the 90th percentile compared to the rest of the state of California. A significant portion of the rest of Wilmington is above the 80th percentile.<sup>10</sup> The most prominent impacts in Wilmington's most affected census tract (6037294620) include exposure to diesel emissions (94th percentile), toxic releases (97th percentile), groundwater threats (91st percentile), impaired water bodies (97th percentile), hazardous waste (100th percentile), and solid waste (87th percentile). This census tract is also home to many vulnerable communities experiencing compounded health and socioeconomic effects in higher percentiles compared to the rest of California: asthma (57th percentile), low birth weight (89th percentile), low educational attainment (93rd percentile), linguistic isolation (89th percentile), poverty (81st percentile), and unemployment (70th percentile).<sup>11</sup>

**FIGURE 2: WILMINGTON WATERFRONT PARK**



Photo Credit: World Architecture

### POLLUTION SOURCES

- OIL REFINERIES
- 110 FREEWAY
- 710 FREEWAY
- PORT OF LOS ANGELES
- PORT OF LONG BEACH
- DAILY DIESEL TRUCK TRIPS
- ALAMEDA CORRIDOR
- SEWAGE TREATMENT PLANT
- RECYCLING FACILITIES
- AUTO BODY SHOPS

## ASSETS & CHALLENGES

Wilmington has been an industrial town since its founding in 1858. Its rich history is connected to the development and growth of San Pedro Bay, now home to the nation's largest global seaport complex. From the 1869 opening of the first Southern California railroad stretching from Banning's Landing to Los Angeles, the Wilmington waterfront and its businesses have served the local and trans-Pacific import and export trade. As a result, Wilmington has a unique range of assets that benefit the region and state, but the community's residents face challenges in multiple facets of everyday life.

Proximity to universities such as Cal State Dominguez Hills, UC Los Angeles, Cal State Long Beach, Loyola Marymount University, and Los Angeles Harbor College are a geographic asset of Wilmington. These top educational centers can be partners with the surrounding communities and afford Wilmington residents the opportunity to pursue higher education and find desirable employment.

An economic asset of Wilmington is its close proximity to the ocean, Ports, and several airports (including LAX, Santa Monica, Hawthorne and Long Beach), making Wilmington a nexus for passenger travel and goods transportation. In fact, nearly 40 percent of the entire country's imports move through the two Ports. Two major freeways, the Harbor I-110 and San Diego I-405, cross Wilmington, improving access to employment centers like the Port facilities, San Pedro, Long Beach, Dominguez Hills, and downtown Los Angeles. Transit service in the area is sub-par, although there are limited bus services to San Pedro and Long Beach, which connect to downtown Los Angeles and other job concentrations such as the Los Angeles International Airport.

## PORTS

Over the past 150 years, Wilmington businesses have employed hundreds of thousands of local residents in port and infrastructure development, commercial fishing and canneries, boat and shipbuilding, oil recovery and refining, commercial services, manufacturing and cargo movement. Today much of Wilmington's waterfront is dedicated to the export of goods processed in Wilmington—refined petroleum products, borates used in plastics, rubber, glass and detergents from Rio Tinto Minerals, seafood from State Fish, dry cement from California Portland Cement, sporting goods manufactured by American Soccer Company, scrap paper, plastic, glass and aluminum from Potential Industries, and scrap vehicles from the Wilmington Auto Rebuilders, Ecology Auto, Wilmington Recyclers and Pick Your Part Auto Recycling, shredded and exported by SA Recycling, some of which comes back as new household appliances, electronics, auto parts and the containers that carry them.

In the East Basin, Catalina Freight transports household and consumer goods to Catalina Island, Vopak imports and exports liquid and dry bulk commodities and Pasha Stevedoring & Terminals imports heavy construction materials and equipment, rolled newsprint and oversized cargo. Wallenius Wilhelmsen Logistics, the largest shipper of autos in the world, employs nearly 200 full-time local union workers who install accessories and customize autos to meet Southern California dealers' requirements. The West Basin terminals, TraPac, Yang Ming and China Shipping import and export containerized consumer and commercial goods from a multitude of foreign and American-owned industries worldwide.

Historically a union town, Wilmington is home to many union locals—International Longshore and Warehouse Union (ILWU), merchant marines, electricians, iron-workers, machinists, pile drivers and carpenters—and host to the biggest Labor Day parade on the West Coast. Wilmington's waterfront businesses provide local good paying jobs to thousands of union workers. The transportation corridor to the Ports of Los Angeles and Long Beach, two major freeways, and the Alameda Corridor railway, which links the ports to the transcontinental rail yards near downtown Los Angeles, all border Wilmington. With 50 percent of the goods that pass through these seaports destined for east of the Rockies, the two-mile-long cargo trains assembled by Pacific Harbor Line and hauled on the corridor by Burlington Northern Santa Fe and Union Pacific Railroad account for about 30 percent of goods traffic.

FIGURE 3: CARGO SHIP AT PORT OF LA



Photo Credit: Hina Sheikh

FIGURE 4: DRAYAGE TRUCKS ENTERING PORT OF LONG BEACH

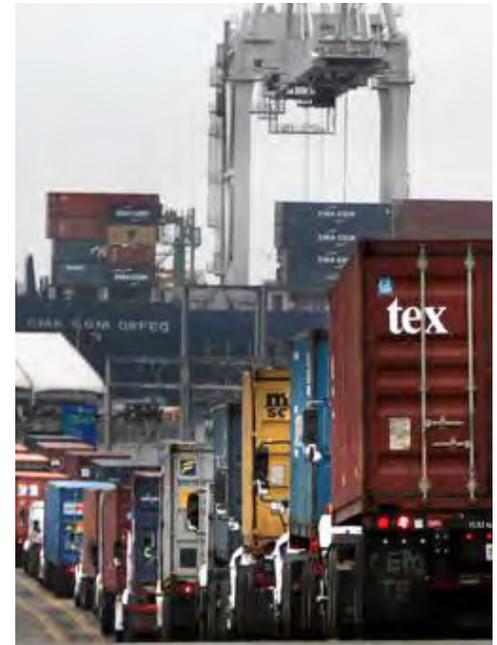


Photo Credit: Bob Chamberlin, Los Angeles Times

More than 12,000 local truck owner-operators service the Ports. Most Wilmington trucking companies contract these truckers to haul cargo from Port terminals to regional distribution centers and rail yards. Some offer additional services, such as Fast Lane Transportation, that sells and stores cargo containers and California Cartage that provides customs-bonded warehousing and distribution. A multitude of Wilmington businesses, such as Central Truck & Oil and Wilmington Truck Stop, provide fuel, weigh scales, maintenance services, and parking facilities.

## OIL REFINERIES

Wilmington is situated in the midst of the nation's third largest oil reserve and bordered by three major refineries, ConocoPhillips, Tesoro and Valero, that primarily serve the Southern California region. Sulfur byproducts are further processed for agricultural and feedstock uses by California Sulphur and H.J. Baker & Bros. Through the consolidation of oil extraction operations, oil wells and storage tanks that once covered much of the 232-acre Wilmington Industrial Park have been removed. In 1974, the Los Angeles Community Redevelopment Agency invested \$10 million in infrastructure improvements transforming the Industrial Park into industrial headquarters of more than 75 businesses that includes a diverse mix of manufacturing and Port-related industrial uses.

## OTHER ECONOMIC ACTIVITIES

Juanita's Foods manufactures and distributes Mexican foods throughout the U.S., Canada and Mexico. Komax Systems designs and manufactures industrial mixing equipment and systems engineering for water treatment and power generation installations worldwide. Time-Warner (Comcast) maintains a television-broadcasting studio. San Pedro Electric Sign designs, fabricates and installs neon, plastic and LED signage for commercial establishments and retail chains worldwide. R.T. Wolfenden Company specializes in industrial and commercial development and property management and has constructed a number of buildings in the afore-mentioned Industrial Park. California Glass Bending fabricates and laminates glass for a multitude of applications from high-rises to bullet resistant and custom forms.

Eleven marinas occupy Wilmington's eastern waterfront providing moorings for 1,700 boats, two boat yards including Colonial Yacht Anchorage, boat brokers, San Pedro Yacht Club, California Café and the Chowder Barge, the harbor's only floating restaurant. More than a thousand Wilmington retail and commercial establishments serve its residents. The Wilmington Business Improvement District comprises over 160 of these businesses in the heart of the retail district, which is concentrated along Avalon Boulevard. In an effort to improve walkability for business interests, this self-taxing organization replaces sidewalks and curbs, trims and replaces trees, provides ongoing frequent street cleaning, and adorns the shopping district with festive holiday decorations. There are still many incomplete streets in Wilmington that have not been addressed.

The community offers a wide range of innovative businesses and services, a large number of which are small businesses. Many are located along the Avalon Corridor, a major commercial street. Additionally there is a vibrant non-profit sector of family and youth agencies, community health clinics, an active Chamber of Commerce and environmental organizations to improve the quality of life for residents of Wilmington.

### ECONOMIC TRENDS

Often affectionately referred to as the "heart of the harbor," Wilmington has an economic sector that largely reflects the activities and trends of the Ports of Los Angeles and Long Beach. Many of the industries established in the area rely heavily on the close proximity of the Port. According to many local accounts, exports for such industries seem to be increasing. The prevalence of hay companies within Wilmington provides a primary example of the increase that the community has seen in its exports. Wilmington currently hosts three major companies that export hay, alfalfa, and grains to other countries. The majority of these originate in Oregon and Washington before they are transported to Wilmington. These companies include PSW Hay

**FIGURE 5: CONOCOPHILLIPS REFINERY FLAIR IN WILMINGTON**

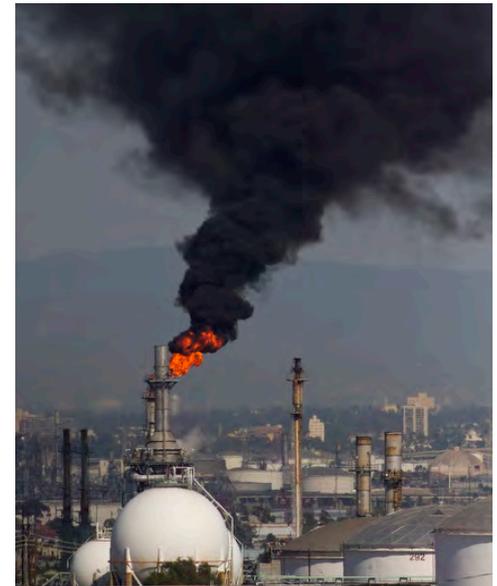


Photo Credit: Jonathan Alcorn

**FIGURE 6: AVALON CORRIDOR**



Photo Credit: Office of Historic Resources, LADCP

LLC, Anderson Hay & Gray Company, and Hay Group. These businesses presently thrive within Wilmington; however, it was only three years ago that they did not exist at all. Further, Wilmington also has a flourishing recycling and sulfur export industry. Such industries have operated within Wilmington for years, and current reports reveal that their shipping activities have increased. Recent jumps in California exports have enabled Port commerce to reach pre-recession levels resulting in major industries based within Wilmington experiencing a notable boom.<sup>12</sup> However, the plans to expand the Panama Canal may impact this trend. This expansion has major implications for the competition faced by the Ports of Los Angeles and Long Beach, since many shippers may use the vastly widened canal to transport goods to the East Coast, bypassing the West Coast and the need to ship goods by rail and truck to Midwest and East Coast locations. In addition, ports located throughout Mexico and Canada may threaten to take customers away from the Los Angeles and Long Beach Ports due to recent expansions and modernizations. If this occurs, it will take business away from Wilmington and affect many areas of the local economy.

While freeways, refineries and ports bring positive economic benefits they also create challenges to the health and environment of the community due to exposure to particulate matter. There is inadequate recreation space considering that existing park and open space is in close proximity to heavy pollution sources. In Wilmington, there is less than three acres of parkland per 1,000 people.<sup>13</sup> While the area is not as park-poor as other neighborhoods in Los Angeles, proximity to polluting sources and heavy background air pollution make the parks less beneficial to local residents. A prime example is the Wilmington Waterfront Park, which was the result of a significant negotiation with the Los Angeles Port terminals that produced a major community benefit. While this area may account for why the per capita park space is higher-than-average, its location may not be ideal for recreational purposes due to its proximity to the Port and dual use as a landscape buffer. Incompatible land uses that situate commercial and industrial areas near residential areas are problematic. There are also hazardous waste sites from abandoned oil wells, illegal dumping of trash, and shipping and storage containers that occupy vacant lots.

**FIGURE 7: RESIDENTIAL HOUSING NEXT TO OIL REFINERY IN WILMINGTON**



Photo Credit: Universal Images Group via Getty Images

## TRENDS AND IMPLICATIONS

Although the Port of Los Angeles brings vibrant business opportunities to Wilmington, it also brings with it a complex chain of goods movement and residual industrial pollution. The impending expansion of the Panama Canal in 2015 adds further complications and has put significant pressure on Los Angeles to competitively modernize our port systems. At this time, Wilmington has a strategic opportunity to engage a variety of stakeholders and to ensure that the Port of Los Angeles establishes environmentally sustainable economic initiatives that stimulate green technology, businesses, and jobs that could benefit the local community for years to come.

As climate change occurs, the most vulnerable communities will face greater challenges. Wilmington is a chronically underserved, low-income community comprising a majority of people of color already facing a toxic environment. As extreme and drastic temperatures become more common and frequent, low-income communities will be at greater risk due to a lack of or inadequate air conditioning and heating appliances in their homes. Another longer-term impact of climate change is sea-level rise. Wilmington and the Port are extremely vulnerable due to being at sea-level. Thus, policy needs to address how to improve the community's environmental sustainability and mitigate environmental impacts, such as reducing greenhouse gas emissions, while reaping immediate benefits for low-income households and the rest of the community.

Automation of the Ports of Los Angeles and Long Beach may also impact economic activity in Wilmington, especially longshoremen and longshorewomen, possibly compromising the jobs of over 600 who live in Wilmington, and another 1,600 who live in San Pedro. The loss of such jobs will depress consumption trends within both the community and City. For example, a plethora of chiropractic businesses exist within Wilmington, specifically catering to longshoremen because of occupational injuries as well as the chiropractic coverage offered by the ILWU health benefits package. The disappearance of longshoremen jobs would have a trickle-down effect on these and many similar businesses. However, automation may also provide many new jobs for electricians, people trained in computer software and technology, and mechanics. Additionally, if the Port can become a leader in “green tech”—with electric trucks, ship retrofits, solar installations, etc.—it could provide an economic boost for the local area, if green technology were to be engineered and manufactured in the Wilmington/Harbor area. The technological transformation of the Ports to automation has far-reaching implications for many local residents and businesses, the impact of which has yet to be fully understood.

Finally, outside of the Port, trends in the oil industry have integral implications for Wilmington, as it is home to three major oil refineries. Fuel consumption has decreased. The causes for such decrease include a lack of driver's license attainment by the most recent generation of young adults, the average miles one drives per year per driver continues to decrease, and the shift to more vehicles with better fuel economy. A decrease in fuel consumption inextricably impacts the activities of oil refineries such as those located in Wilmington. Many residents of the area are employed in various departments of these refineries. Similar to the trend of automation occurring at the Ports, the decrease in oil refinery activity may cause a displacement of jobs into a new field, but could also potentially lead to a decrease in pollutants released into the environment.

**FIGURE 8: AERIAL VIEW OF SAN PEDRO WATERFRONT**



Photo Credit: Michael Justice

## POLICY RECOMMENDATIONS

### DIESEL POLLUTION REDUCTION

There is substantial scientific evidence that Port operations drastically contribute to air pollution, causing both environmental harm and serious health hazards. Diesel trucks that transport goods to and from the Port of Los Angeles generate a substantial portion of Port-related pollution. As a result, nearby communities are disproportionately impacted by the high volume of emissions, leading to long-term health problems and premature death. With the enactment of the Clean Trucks Program in 2008, emission levels have been drastically reduced by 80 percent. However, without employee protections for truck drivers and adequate funding for vehicle upgrades, the environmental gains that have been made will not be sustainable. In an effort to meet and maintain the existing clean air standards, Wilmington should be prioritized for funding that is accessible to truck drivers and equitably advances the development and implementation of new technology.

### SOLAR RETROFITTING

Solar retrofitting, combined with a solar retrofit training program, puts in place a three-pronged sustainability strategy for Wilmington with environmental, economic, and educational benefits. First, solar retrofit programs benefit Wilmington by systematically offsetting energy, costs and over longer periods of time, offset greenhouse gas emissions that would otherwise be produced in order to produce the equivalent amount of non-solar energy. Increasing the use of solar panels to produce electricity is one of the most promising ways to dramatically reduce greenhouse gas emissions. By reducing fossil fuel use, we can help impact climate change in a community that disproportionately experiences its impacts. Second, solar retrofit training programs provide economic benefits by creating jobs in a community that has a need for such employment opportunities. A training program will need to be implemented that connects low-income and underemployed residents to new, skilled jobs in green construction and maintenance occupations. Finally, this strategy yields educational benefits. Both youth and adults could access education opportunities, which would build awareness of climate change adaptation strategies, and effective programs that teach valuable, specific job skills would support livable wages and sustainable career paths.

### COOL ROOFS

Conventional roofs are typically dark and retain sunlight as heat. When the temperature rises, roofs absorb heat. This absorption of heat increases temperatures, building cooling costs, and local temperatures in urban settings because of the urban heat island effect. Cool roofs reduce these effects. A cool roof uses material that naturally reflects sunlight as opposed to absorbing the sun's radiant energy. Cool roofs can save energy, money, and CO<sub>2</sub> when applied to air-conditioned buildings, and improve comfort when applied to non-air-conditioned buildings. Cool roofs will provide Wilmington with more sustainable and efficient buildings, which will cut energy costs, reduce greenhouse gas emissions (through reduced energy consumption), and improve health and comfort for local residents.

### LIVING STREETS

Living Streets are designed and engineered to be safe and convenient for everyone—not just drivers, but bicyclists, transit riders, wheelchair users and pedestrians of all ages and abilities. Living Streets initiatives focus on activating the street, attempting to increase public engagement and multi-modal transit, such as pedestrian and bicycle access. This promotes greater economic activity in commercial areas and provides safe modes of transit in residential areas. In addition, Living Streets foster healthy communities by promoting active lifestyles and providing environmental benefits such as reduced air pollution and water contamination. Living Streets have the potential to provide both economic and environmental benefits to the community of Wilmington, especially along the Avalon downtown business corridor.

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# DIESEL POLLUTION

CAROLYN ABRAMS AND ISELLA RAMIREZ WITH VANESSA CARDONA | GORDON SNEAD | SARAH VALDEZ

## THE CHALLENGES OF DRAYAGE TRUCKING

Goods movement remains essential for Wilmington, the Los Angeles region, and the State of California. Nearly eighty percent of international containers that come through the Port of Los Angeles (POLA) and the Port of Long Beach (POLB) are loaded onto diesel-powered drayage trucks, which then transport cargo to the rail yards and warehouses throughout the region. Goods movement heavily depends on drayage trucks, which subsequently poses major health risks due to the high emission of diesel particulate matter and air toxins such as benzene, lead, and hydrogen cyanide.

The community of Wilmington lies just north of the 7,500 acres that comprise the POLA<sup>1</sup> and remains home to three of the five oil refineries in Southern California.<sup>2</sup> Due to this industrial presence in Wilmington, residents are burdened with poor air quality and placed at high risk for chronic health problems, cancer, and premature death (see Figure 2). According to the California Air Resources Board (ARB), there is an estimated 3,700 statewide premature deaths each year due to ports and goods movement activities.<sup>3</sup> Additionally, ARB estimates that approximately 120 deaths per year are associated with diesel particulate matter emitted by the Ports.<sup>4</sup> Given the community's continued exposure to diesel pollution, it is critical that Greenhouse Gas Reduction funds are leveraged to improve drayage trucking and address the challenges of goods movement in Wilmington.

FIGURE 1: DRAYAGE TRUCKS ENTERING THE PORT OF LOS ANGELES



Photo Credit: Port of Los Angeles

## ADDRESSING DIESEL POLLUTION

In the last ten years, both the State of California and the Ports have adopted important policies and regulations that allowed for great environmental gains and air quality improvements (see Table 1). One such measure was the implementation of the Clean Truck Program (CTP) in 2008. With the adoption of the CTP, the labor community aimed to address the drastic economic inequality faced by drayage truck drivers, while public health and environmental justice advocates focused on the desperate need to significantly reduce the health impacts of port activities on nearby communities.

TABLE 1: RELEVANT AIR QUALITY POLICIES

State and Regional Policies	Policy Overview
<b>AB 32: Global Warming Solutions Act</b>	Statewide policy to reduce greenhouse gas emissions to 1990 levels by 2020. Introduced the cap-and-trade system.
<b>SB 535: Communities Revitalization Act</b>	Statewide policy to ensure cap-and-trade funds go to most disadvantaged communities in the state.
<b>Clean Trucks Program</b>	An integral part of the Clean Air Action Plan* which aims to enforce the use of cleaner drayage trucks at the Ports.

\* Local policy established by POLA and POLB to reduce port-related pollution emissions

## THE CLEAN TRUCK PROGRAM

Today, there are approximately 17,000 drayage trucks that operate under the CTP at the POLA and the POLB.<sup>5</sup> Since its implementation on October 1, 2008, it is estimated that emission rates of trucks have decreased 90 percent based on the 2007 average air emissions data.<sup>6</sup> As part of the CTP, a phased-in truck ban prohibited outdated, high emitting diesel trucks from serving the Ports.<sup>7</sup> This ban took full effect on January 1, 2012, and to date, the Ports have reported that 100 percent of cargo gate moves are being completed by vehicles in compliance with the 2007 heavy-duty truck emissions standards of the U.S. Environmental Protection Agency (U.S. EPA).<sup>8,9</sup>

These operations have allowed for a significant reduction in drayage truck pollution, including particulate matter and ozone-causing nitrogen oxides.<sup>10</sup> Not only has the program made substantial environmental gains for the region, but it has set a national precedent for port operations.

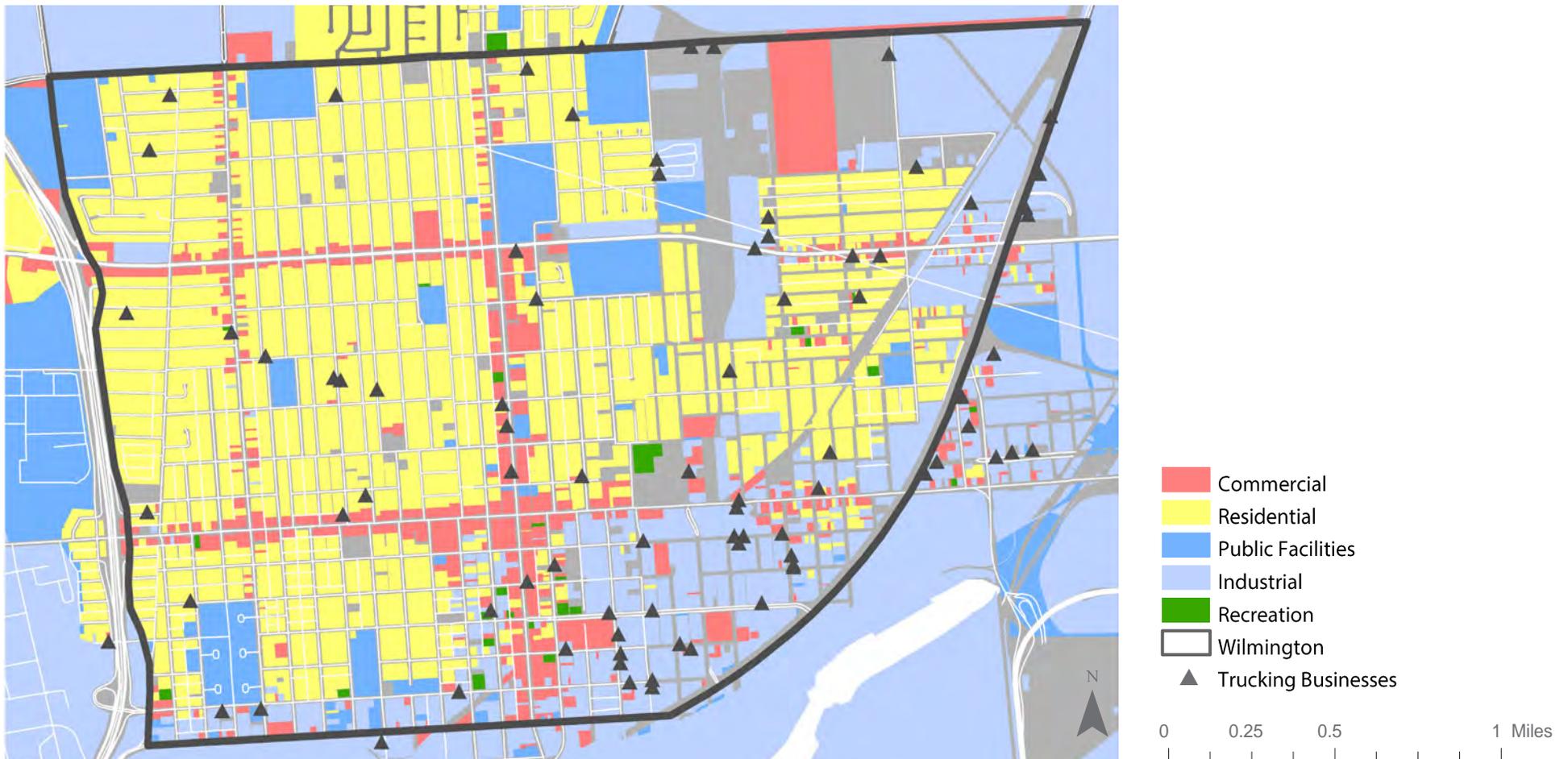
However, while the CTP has been fundamental in achieving these significant environmental gains, it failed to provide a comprehensive and sustainable approach to achieving economic justice and holding the shipping companies accountable for the costs of implementing the CTP. In July 2008, the American Trucking Association (ATA) filed a lawsuit against the POLA and POLB.<sup>11</sup> Following years of courtroom battles and multiple hearings by the Ninth Circuit Court of Appeals and ultimately the Supreme Court, the employee provision of the CTP was struck down.<sup>12</sup> This provision would have required shipping companies to hire truck drivers as employees, therefore preventing worker misclassification and exploitation. With the employee provision removed, the full gains of the CTP failed to materialize, and the burden of meeting environmental standards was entirely placed on the truck drivers.

**STUDIES\* SHOW THE FOLLOWING DECREASE IN PRIMARY POLLUTANTS ASSOCIATED WITH SMOG AND UNHEALTHY AIR:**

- 92% REDUCTION OF SULFUR OXIDES
- 89% REDUCTION OF DIESEL PARTICULATE MATTER
- 77% REDUCTION OF NITROGEN OXIDES

\*A comparison of 2005 and 2010 emissions data  
Source: Port of Los Angeles

**FIGURE 2: TRUCKING BUSINESS LOCATIONS AND LAND USE IN WILMINGTON**



Source: 2011 Dun & Bradstreet Business Data (provided by UCLA Center for the Study of Inequality); Clean Up Green Up; and LA Department of City Planning  
Created by: Carolyn Abrams

It is important to understand that the majority of truck drivers are misclassified as independent contractors, rather than employees.<sup>13</sup> This misclassification is deceiving and prohibits truck drivers from accessing social security, workers compensation, unemployment insurance, disability, occupational safety and health protection, hourly wage or annual salary, and the ability to form a union. The continuous exploitation of these workers is not only detrimental to their economic wellbeing, but also has serious implications for the continued success of the CTP and the prospect of sustainable goods movement in the region. This unregulated system essentially allows trucking businesses to set their own terms of business. In a market that is highly competitive, pay rates are bid down to very low levels, resulting in drayage truck driver incomes that are drastically low.<sup>14</sup> Truck drivers are also required to pay for truck maintenance, fuel, and numerous state and regional fees.<sup>15</sup> As a result, chronic systemic wage theft continues to take place within this industry as workers are burdened with the entire cost of operating and maintaining these trucks.

## RECOMMENDATIONS

### SHORT TERM

- The City of Los Angeles should establish a support office for independent drayage truck drivers and small fleet owners (3 trucks or less) operating in or around the Port of Los Angeles through the Clean Truck Program. This office should conduct targeted outreach and provide one-on-one guidance for funding application processes (including AB 118 and GHG Reduction Funds). In order to effectively reach the trucking population, this office should ensure that all information (online, printed, and verbal) be available in languages other than English. In addition, public workshops and presentations that target Wilmington drayage truck drivers should be conducted in Spanish to increase their effectiveness and accessibility.
- The City should use the upcoming renewal to the CTP and Port concession agreement to strengthen the maintenance and enforcement requirements in such a way that is sustainable and does not place business costs on independent truck drivers.

### LONG TERM

- The City of Los Angeles should designate City staff to collaborate with the Clean Truck Program Office at the Port of Los Angeles to conduct research on potential City or State policies that equitably distribute all real trucking costs among shipping companies, the Ports, and truck drivers.
- Policies and funding procedures should ensure that truck subsidies are not abused, nor withheld from small fleets and independent drivers. The City should also push for state policies to increase fines for willful misclassification and wage theft.
- The Port of Los Angeles should strengthen their efforts to transition to low-carbon freight port operations by encouraging terminal operators to jointly invest in cleaner utility tractor rigs, tugboats, and other equipment.
- The City of Los Angeles should work to ensure that the move toward low-carbon port operations and zero-emission trucks are paired with comprehensive localized workforce training to ensure that Wilmington grows a skilled labor force.

FIGURE 3: DRAYAGE TRUCKS, POLA

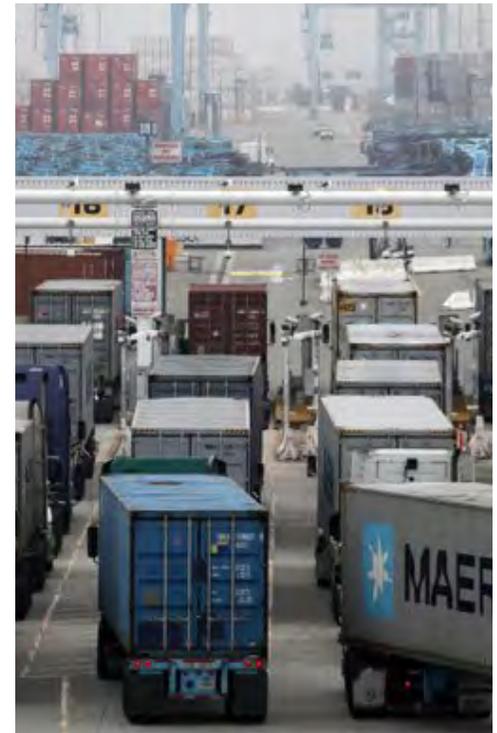


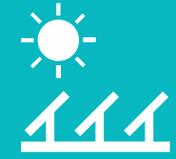
Photo Credit: Charlie Morasch, Land Line

**“WE’VE DONE A GREAT JOB AT GETTING OLD TRUCKS OFF THE ROAD AND NEW TRUCKS IN SERVICE, BUT WE HAVEN’T YET SOLVED THE PROBLEM OF SUSTAINABILITY.”**

**- JON ZEROLNICK  
RESEARCH DIRECTOR, LAANE**

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# SOLAR POTENTIAL

ANTHONY DELGADO

## REALIZING SOLAR RETROFIT POTENTIAL

Solar retrofit and workforce development can achieve workforce, educational, and environmental benefits for the residents of communities such as Wilmington. It can develop job skills for a population that is in need of economic development, and also provide educational services. In addition, the use of solar retrofit can reduce energy consumption and environmental harm via decreased emission of greenhouse gases.

## SOLAR POTENTIAL AND ENERGY USE IN WILMINGTON

### BUILDING POTENTIAL

Residential units make up about 87 percent of building parcels in Wilmington. Sixty seven percent of the building parcels are single-family homes, while multi-family parcels make up 20 percent. More specifically, there are 13,793 housing units in Wilmington. There are 8,494 single-family homes while there are also 5,299 multi-family housing units in the community.<sup>1</sup> Overall, the average age of the building structures in Wilmington is 1959. Furthermore, there are 1,099 commercial and industrial parcels.<sup>2</sup> These numbers provide an estimate of how many units can be targeted for solar retrofit. However units built before 1978 also net the most energy savings. Eighty-one percent of the housing structures were built in 1980 or prior. Therefore, looking only at buildings built before 1980 translates to 11,172 residential units that would be targeted.<sup>3</sup> About 77 percent of the commercial and industrial parcels were built in 1980 or prior, so about 711 of these parcels would be targeted for solar retrofit as well. Age data for 179 commercial and industrial parcels was not available.<sup>4</sup>

The *Profile of Clean Energy Investment Potential* report states that Wilmington contains two of the top ten most vulnerable census tracts to climate change. This is measured by air conditioning ownership, access to transportation, flood risk, wildfire risk, and the danger of sea level rise. Wilmington is also identified as a disadvantaged community by CalEPA according to its environmental risk, air quality, toxic waste, traffic density, and socioeconomic indicators such as educational attainment and poverty.<sup>5</sup>

Overall, the City of Los Angeles has a solar rooftop potential of 5,676 megawatts, with over 475,514 potential rooftop sites.<sup>6</sup> The maps produced by the *Sharing Solar's Promise*:

*Harnessing LA's FIT to Create Jobs and Build Social Equity* report also shows areas within Wilmington that have potential for single-family residential, multi-unit residential, and commercial and industrial buildings.<sup>7</sup> This report suggests that Wilmington has incredible energy efficiency potential as a result of the high need and potential for solar retrofit. The researchers for the report measured the rooftop potential by the number of kilowatts that could be produced.

### ENERGY USE

We acquired energy consumption data from the California Center for Sustainable Communities at UCLA. Research by Stephanie Pincetl and Jackie Murdock, two research members from the organization, has been performed to find energy usage throughout Los Angeles.<sup>8</sup> The information is available for each census block group within the City of Los Angeles, and displays the number of kilowatts consumed for each census block by month.

Data is available from the months of January 2011 to June 2012. Energy usage data from certain census blocks was not available. However we found an average of 25,751 (kWh) per month that has been consumed by Wilmington from January 2011 to June 2012. Overall, over 721,051 (kWh) were consumed in Wilmington during this period. In addition, we were also able to determine the amount of energy consumed by land use type. Residential energy usage amounted to 64 percent, while industrial energy usage was 15 percent, and commercial energy usage turned out to be 11 percent. More specifically, residential consumed 461,472 (kWh), while industrial consumed 108,157 (kWh). Lastly, commercial consumed 79,315 (kWh).<sup>9</sup> These figures show that the residential sector consumes the most energy. However, the census blocks that consumed the most (kWh) had considerable amounts of commercial and industrial buildings. Therefore it would be ideal to utilize all land use types for solar retrofit.

This data also helps target residential structures with solar retrofit potential. One specific census block group contains buildings with an average year built of 1953. Plus, its electricity usage is mainly residential since single and multi-family building types make up 82 percent of the land use.<sup>10</sup> Thus it appears promising to implement solar retrofit in neighborhoods that have similar characteristics to this census block group.

## POTENTIAL SAVINGS BY IMPLEMENTING SOLAR

Below is a summary of case studies of industrial and commercial buildings in Wilmington that could benefit by implementing solar technology. Los Angeles County, through their *Solar Map and Green Planning Tool*, provides the information below.<sup>11</sup> This website allows a user to examine potential savings and costs for a building that installs solar technology in Los Angeles. The buildings were chosen since the website showed they had high solar potential. More detailed information regarding the buildings can be found in the full version of this report.

**TABLE 1: POTENTIAL SAVINGS BY INSTALLING SOLAR FOR SIX CASE STUDIES (PER YEAR)**

Address	Energy Savings	Carbon Savings
900 M St.	\$310,611	140,552 lbs.
909 Colon St.	\$320,000	144,845 lbs.
920 Pacific Coast Highway	\$372,047	168,351 lbs.
1020 McFarland Ave.	\$216,610	98,016 lbs.
201 E. Pacific Highway	\$33,066	14,962 lbs.
311 Pacific Coast Highway	\$99,270	44,920 lbs.
<b>Total</b>	<b>\$1,351,604</b>	<b>611,646 lbs.</b>

Source: Los Angeles County Solar Map and Green Planning Tool<sup>12</sup>

**RETROFITTING SIX HIGH SOLAR  
POTENTIAL BUILDINGS IN  
WILMINGTON HAS THE ABILITY TO  
REDUCE ENERGY COSTS BY \$1,351,604  
PER YEAR.<sup>13</sup>**

## FUNDING

### GREENHOUSE GAS REDUCTION FUND

Cap and Trade is a market-based solution to reduce greenhouse gas emissions. In addition, “Cap and Trade sets a firm limit or cap on GHGs and minimizes the compliance costs of achieving AB 32 goals. The cap will decline approximately 3 percent each year beginning in 2013.”<sup>14</sup> The funds obtained through the Cap and Trade program are given to the Greenhouse Gas Reduction Fund. SB 535 also requires that 25 percent of the funds must be distributed to projects that help marginalized communities, including areas like Wilmington. In the Governor’s FY2014-15 budget, \$872 million from the Greenhouse Gas Reduction Fund has been included for expenditure through various programs.<sup>15</sup>

### LADWP: SOLAR INCENTIVE PROGRAM (SIP)

SIP provides a payment for LADWP customers that purchase or lease a solar photovoltaic (PV) system, which can be used for commercial and industrial buildings. A customer’s compensation is based on the amount of energy they generate and consume. Thus, a PV system that nets more energy savings will generate more compensation.<sup>16</sup>

### LOS ANGELES COUNTY: PROPERTY ASSESSED CLEAN ENERGY (PACE)

The PACE financing program is open to property owners who own multi-family, commercial, and industrial units. Indeed, this loan is not the same as a typical loan since the financing is repaid two times a year. This is done through a property tax assessment.<sup>17</sup>

## RECOMMENDATIONS

- Increase access and awareness of solar retrofit funding options for low-income community members.
- The loan options for homeowners should be supplemented with additional solar retrofit financing and funding streams for apartment property owners, since the majority of residents in Wilmington are renters.

## ENDNOTES

- 1 US Census 2008-2012. Accessed May 5, 2014. <http://factfinder2.census.gov/>.
- 2 UCLA Luskin Center for Innovation. *Parcels*. 2009. Tabulated by Chhandara Pech.
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- 11 "Solar Map and Green Planning Tool." Los Angeles County. Accessed May 5, 2014. <http://solarmap.lacounty.gov/>.
- 12 Ibid.
- 13 Greenhouse Gas Equivalencies Calculator. US Environmental Protection Agency. 2014.
- 14 Legislative Analyst's Office. *The 2014-2015 Budget. Cap and Trade Auction Revenue Expenditure Plan*. Accessed on May 25, 2014. <http://www.lao.ca.gov/reports/2014/budget/cap-and-trade/auction-revenue-expenditure-022414.pdf>.
- 15 Ibid.
- 16 "Solar Incentive Program." Los Angeles Department of Water and Power (LADWP). Accessed on May 29, 2014. [https://www.ladwp.com/ladwp/faces/ladwp/residential/r-gogreen/r-gg-installsolar?adf.ctrl-state=1d32jbswzb\\_4&\\_afLoop=982006370044895](https://www.ladwp.com/ladwp/faces/ladwp/residential/r-gogreen/r-gg-installsolar?adf.ctrl-state=1d32jbswzb_4&_afLoop=982006370044895).
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# SOLAR RETROFITS

JULIA LIPPE-KLEIN

## SOLAR RETROFITS: CATALYZING DEMAND TO FACILITATE WORKFORCE DEVELOPMENT

Considering Wilmington's unique characteristics and needs, catalyzing demand for solar power within Wilmington will ignite the local economy through the creation of jobs by capitalizing on the existing network of comprehensive and successful workforce development solar training programs within the region, as well as the local labor market. Implementing this strategy in Wilmington effectively achieves three-pronged benefits within the environmental, economic, and educational sectors.

First, increasing demand for solar implementation has an environmental benefit in Wilmington by systematically offsetting energy costs and subsequently reducing greenhouse gas emissions. Increasing energy efficiency in buildings is an affordable approach to incrementally mitigate climate change in a community that disproportionately experiences its impacts.

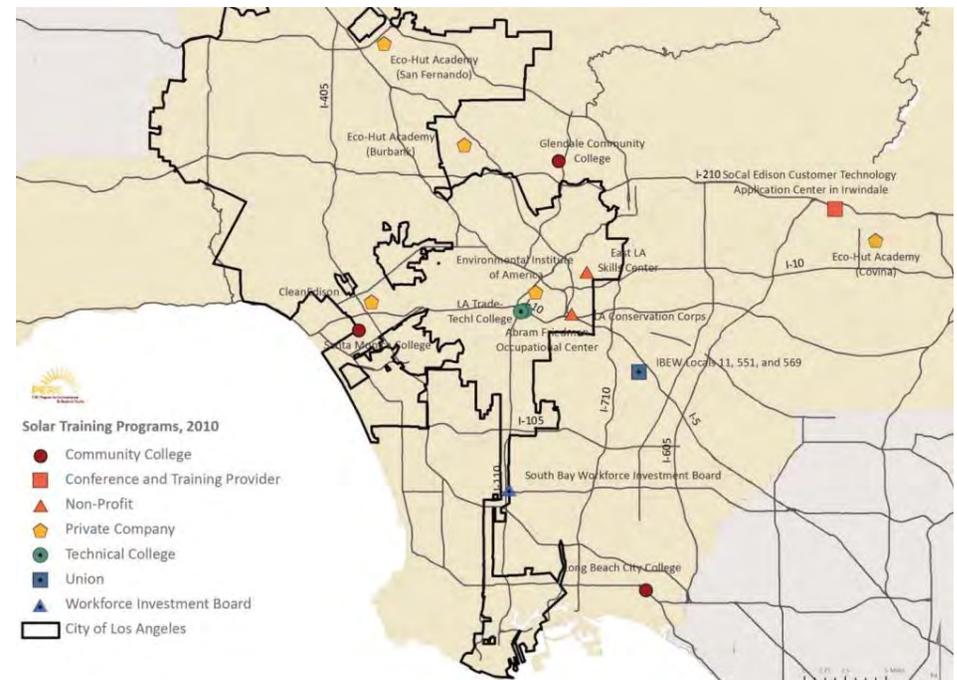
Second, this strategy achieves economic benefits by creating jobs in a community that has historically lacked significant investment. In Wilmington, recent data indicate unemployment levels at 17 percent, a disproportionately higher rate compared to the City of Los Angeles. Moreover, 33 percent of residents in Wilmington are not in the labor force.<sup>1</sup> Implementing strategies to increase demand for solar would subsequently create jobs by increasing retrofit implementation and maintenance. Furthermore, solar workforce development programs effectively connect low-income and underemployed residents to skilled jobs in green construction and maintenance occupations.

Third, this strategy yields educational benefits by providing opportunities for both youth and adults to develop an understanding of climate change adaptation practices, business models, and hard skills. In Wilmington, 46 percent of residents lack a high school education, 29 percent have a high school diploma, and only 19 percent have attended some college.<sup>2</sup> As such, extending educational opportunities through community and technical colleges, non-profits, and other agencies creates the educational foundation needed for successful career paths in the solar industry.

## WORKFORCE DEVELOPMENT PROGRAMS

Demand for solar does not mirror its potential. Although economic models show tremendous job potential within the solar industry, the potential is not realized within the community. Workforce development programs and solar training programs serve as direct paths into the labor market for many. However, only when demand for solar itself increases, will the market's potential be fully realized.

FIGURE 1: SOLAR TRAINING PROGRAMS IN LOS ANGELES



Source: LABC Institute, *Empowering LA's Solar Workforce: New Policies that Deliver Investments and Jobs*, 2011

The map on the previous page conservatively illustrates the solar training programs within and around the City of Los Angeles. The map accounts for solar training programs at community colleges, conference and training providers, non-profits, private companies, technical colleges, unions, and Workforce Investment Boards. However, there is currently an oversupply of training programs given market demand.<sup>3</sup> Local programs report difficulties in finding sufficient work for their trainees. For example, the LA IBEW 11/NECA face up to 30 and 40 percent un- and underemployment for electricians trained in solar installation. Moreover, there is “not a shortage of area firms with which to connect workers, once local demand is in place.”<sup>4</sup> By responding to and utilizing appropriate policy and aligned funding sources, we can utilize solar retrofits as an effective sustainability strategy to ignite demand for solar retrofits and facilitate job creation for Wilmington residents.

## POTENTIAL FOR SOLAR RETROFIT, BASED ON BUILDING AGE AND LAND USE

In order to assess the number of buildings suitable for retrofit, building age serves as a proxy for feasibility since cost savings ultimately inform suitability. Specifically, “buildings constructed before 1978 in general produce greater cost savings when retrofitted than buildings built after 1978.”<sup>5</sup>

Within Wilmington, 81 percent of housing structures are built in 1979 or prior (note: 1979, not 1978, is selected as the proxy year, per available ACS data categories).<sup>6</sup> We can assume that approximately 81 percent of housing structures are potential candidates for solar retrofit, or about 11,172 structures (inclusive of both single-family homes and multi-unit residences). With regard to commercial and industrial feasibility in Wilmington, 711 parcels were built prior to 1978 (77 percent of all parcels with building dates accounted for).<sup>7</sup> These data largely show that a majority of the market within Wilmington was built in 1979 or prior, including residential, commercial and industrial buildings. Note: Both 1979 and 1978 are utilized in the previous calculations, based on available data stratification per structure use per source.<sup>8</sup>

## POTENTIAL FUNDING SOURCES

Proposition 39, the California Clean Energy Jobs Act, passed November of 2012, “requires businesses operating in multiple states to calculate their California income tax liability based on the percentage of their sales in California.”<sup>9</sup> Within five years, half of the revenue (potentially \$1.1 billion annually) from Prop 39—up to a maximum of \$550 million—will be transferred annually to the Clean Energy Job Creation Fund, which will be used to fund projects that create jobs in California by improving energy efficiency and expanding renewable energy generation.<sup>10</sup> The funds will be allocated between (1) schools and public facilities, (2) job training and workforce development, and (3) public-private partnerships.<sup>11</sup> This source provides a diversified funding stream for a variety of uses and sectors. As identified by the Los Angeles Business Council (LABC) report, *Achieving Proposition 39’s Clean Energy Promise*, the following financial incentives help stimulate demand for energy efficiency:<sup>12</sup>

- Lowering the cost of financing
- Encouraging the use of existing/future rebates and incentives
- Subsidizing the cost of energy audits
- Subsidizing the cost of energy savings guarantees
- Implementing training, standards, and competition among energy service companies and contractors.<sup>13</sup>

By incorporating these strategies into an overall proposal, Prop 39 funds can more effectively be utilized.

**FIGURE 1: IBEW LOCAL 11 PRESIDENT EMERITUS DEAN TODD STANDS IN FRONT OF NEWLY INSTALLED SOLAR PANELS AT HIS HOME IN SANTA CLARITA, CA.**



Photo Credit: IBEW Local 11

## RECOMMENDATIONS FOR STRATEGY IMPLEMENTATION

Since there is no shortage of existing training programs within Los Angeles, the key element to supporting the growth of the solar industry remains in building the demand for solar. Factors that suppress demand include “a lack of information about the payoffs from particular energy retrofit investments, associated transaction costs, and limited access to capital for investment” in projects.<sup>14</sup> We recommend the following proposals to address increasing demand, facilitating job development and ensuring those jobs remain local and accessible to Wilmington residents:

### BUILD DEMAND FOR SOLAR RETROFITS

- Conduct a community-specific awareness campaign of available funding for residents, business owners, educational institutions, and facilities located within Wilmington and around the Port of Los Angeles to identify eligibility.
- Identify available rebates, discounts and general cost effectiveness within an awareness campaign.
- Implement a tool that links Wilmington residents and property owners with accessible programs. A seemingly helpful tool includes the *Energy Upgrade California* website. Residents can insert their zip code to view accessible matching rebates. However, upon closer inspection, the website generates rebates incompatible with the local utility. This resource is effective only when accurate and up to date.

### SUCCESSFULLY FACILITATE JOB TRAINING AND EMPLOYMENT OPPORTUNITIES WITHIN THE SOLAR INDUSTRY

- Increase visibility of existing training programs through outreach and recruitment in Wilmington.
- Connect interested participants to existing training programs to avoid duplicating efforts and over-saturating the market.
- Assess existing and available trained labor and scale efforts to an appropriate level of demand.
- Identify barriers to participation in existing training programs for residents.
- Increase access to existing training programs by identifying transportation needs, implementing satellite programs, and awarding scholarships.
- Link graduates to jobs by outreaching to contractors for placement and implementing an incentive program for contractors based on hiring practices.
- Link graduates to Small Business Development Centers to facilitate the transition of those interested in starting a business.
- Incorporate maintenance training into programs for sustainable employment into the foreseeable future.

### ENSURE TRAINING EFFORTS YIELD AND MAINTAIN A LOCAL LABOR FORCE

- Implement target hire strategies through Project Labor Agreements.
- Adopt local hire strategies (similar to Community Benefits Agreements).
- Examine and renegotiate the contracting process between contractors and the utility.
- Implement First Source Requirement to prioritize qualified workers targeted for employment.
- Incorporate Prevailing Wage Standards to ensure that workers are paid adequately.

Overall, current research points to the robust potential for solar retrofit implementation. The City can catalyze demand for solar retrofits in Wilmington by promoting and expanding available incentive programs, creating a strong connection to nearby training programs, and implementing hiring parameters to ensure and maintain access for local residents to secure employment. In doing so, this strategy can successfully yield environmental, economic and educational opportunities within Wilmington.

**FIGURE 2: IBEW LOCAL 11 MEMBERS INSTALLED A ROOFTOP SOLAR ARRAY AT A STEINY AND COMPANY INC. WAREHOUSE.**



Photo Credit: IBEW Local 11

## ENDNOTES

- 1 2009 Rooftop Data Provided by UCLA Luskin Center for Innovation, Tabulation by C. Pech (2014).
- 2 Ibid.
- 3 Empowering LA's Solar Workforce: New Policies that Deliver Investments and Jobs (LABC Institute, 2011). Accessed May 30, 2014.
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- 5 Profile of Clean Energy Investment Potential, City of Los Angeles (Luskin School of Public Affairs, 2013).
- 6 2009 Rooftop Data Provided by UCLA Luskin Center for Innovation, Tabulation by C. Pech (2014).
- 7 Ibid.
- 8 Ibid.
- 9 J.R. DeShazo, Colleen Callahan & Elizabeth Beryt, Achieving Proposition 39's Clean Energy Promise (LA Business Council, 2013). Accessed June 2, 2014.
- 10 "Initiatives," LA Business Council. Accessed June 2, 2014. <http://labusinesscouncil.org/Energy--Environment>.
- 11 Ibid.
- 12 J.R. DeShazo, Colleen Callahan & Elizabeth Beryt, Achieving Proposition 39's Clean Energy Promise (LA Business Council, 2013). Accessed June 2, 2014.
- 13 Ibid.
- 14 J.R. DeShazo, Colleen Callahan & Elizabeth Beryt, Achieving Proposition 39's Clean Energy Promise (LA Business Council, 2013). Accessed June 2, 2014.



# COOL ROOFS

CHHANDARA PECH WITH DAN HOFFMAN | ZYSHIA WILLIAMS

## COOL ROOFS FOR A COOLER WILMINGTON

Cities all over the world are becoming warmer each year. Los Angeles is a striking example of how a city has transformed into an urban heat island—a process of increased warming, caused in part by the combined heat of numerous hot roofs. Los Angeles has warmed at the rate of almost 1°F every decade as the city has grown more urban.<sup>1</sup> The latest research projects the Los Angeles region to be 3° to 4°F warmer by mid-century.<sup>2</sup>

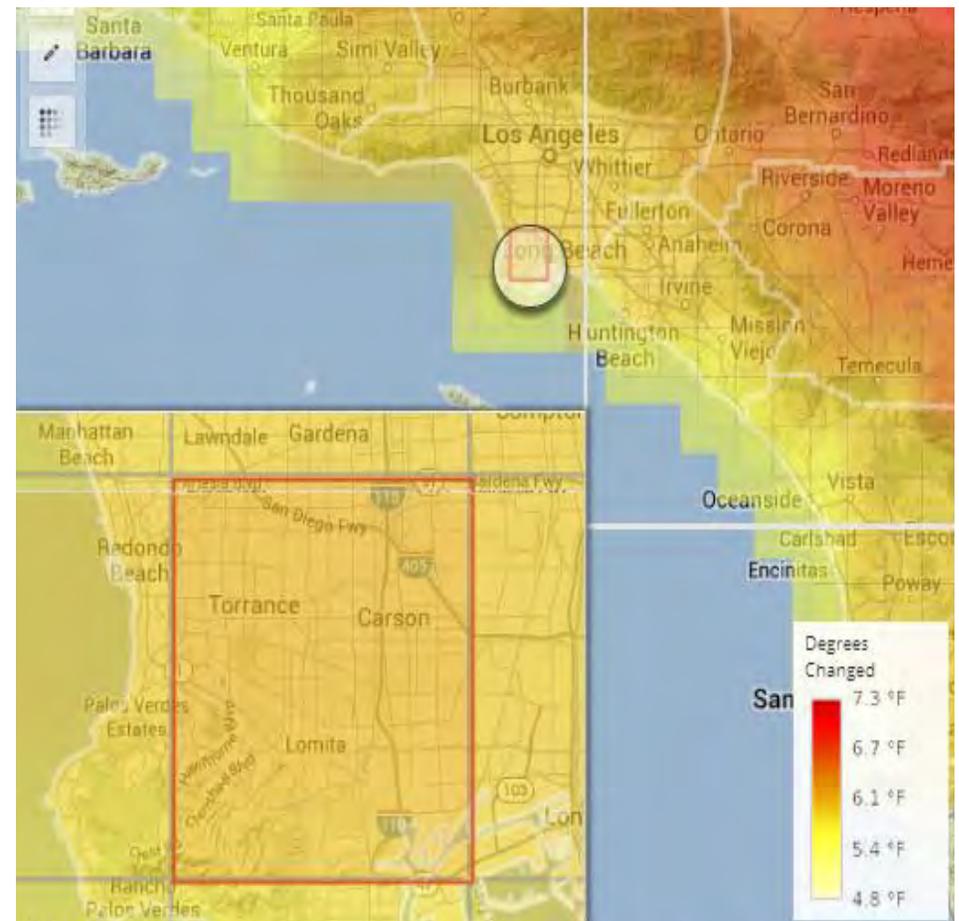
Wilmington, a neighborhood located near the Ports of Los Angeles and Long Beach, may see up to 4° to 5°F rise in temperature.<sup>3</sup> Wilmington’s residents will also experience more extreme heat days (temperatures of 87°F or higher).<sup>4</sup> Rising temperatures are a major concern for Wilmington’s residents for a number of reasons. Relative to the City as a whole, Wilmington has a higher proportion of children, the elderly and lower-income residents—populations deemed to be more vulnerable to heat waves and extreme weather.

The increasing need for air conditioning to keep cool and reduce the threat of heat-related ailments can be a problem for many low-income households. Even if low-income residents do have air-conditioning, they may be reluctant to use it to avoid the extra costs. In Wilmington, only 11 percent of households have air conditioning, significantly low compared to over half of households for Los Angeles.<sup>6</sup>

Rising temperatures pose another major problem for Wilmington. The increase in temperatures can make smog worse and increase the number of “bad air days” when it is hard to breathe. Pollution problems are nothing new to the Wilmington community. Wilmington is home to multiple oil refineries where over 250,000 barrels of crude are refined every day.<sup>7</sup> It is also situated near the Ports of Los Angeles and Long Beach, which are sources of diesel and fugitive emissions from bulk transport activities.

Converting traditional conventional roofs to cool roofs is a sensible step that can be taken in Wilmington to decrease urban air temperatures, reduce energy use, and also provide comfort for local residents on hot days. Installing cool roofs in Wilmington is a compelling win-win activity that can be undertaken immediately.

FIGURE 1: CAL-ADAPT’S LOCAL CLIMATE SNAPSHOT OF WILMINGTON



Source: Cal-Adapt Climate Tool

## WHAT IS A COOL ROOF?

Generally speaking, cool roofs are highly reflective and emissive. In other words, they reflect sunlight and reradiate absorbed heat back to the atmosphere, rather than transferring absorbed heat to the building below.<sup>8</sup> White or special “cool color” roofs employ roofing surfaces that reflect more of the sun’s light and heat than the average rooftop. A cool roof can be 50° to 60°F cooler than a dark conventional roof on a hot summer day.<sup>9</sup> Cool roofs can be installed on all types of roofs including flat or sloped roofs, residential, commercial, industrial, and new or old structures. Materials can range from paints, tiles, to coatings, and to shingles. And not all cool roofs are white. Cool roofs range in colors and look similar to traditional roofing materials.

## BENEFITS OF COOL ROOFS

By reflecting rather than absorbing the sun’s energy, cool roofs help keep buildings and neighborhoods cool, lower costs and reduce air pollution. Cool roofs can save energy, money, and carbon dioxide (CO<sub>2</sub>) when applied to air-conditioned buildings; improve comfort when applied to non-air-conditioned buildings; and offset CO<sub>2</sub> via global cooling whether or not the building is air-conditioned.

Table 1 provides different cool roof rooftop conversion scenarios, with estimated electricity and cost savings, for air-conditioned buildings in Wilmington. The analysis shows that if cool roofs were installed on 50 percent of the existing roof surfaces (on buildings with air conditioning) in Wilmington, the resulting direct energy savings from reduced building energy use could be up to 1.2 million kilowatt-hours per year, saving residents up to \$173,000 in electricity.

Recent studies have shown that cool roofs can lower the daily maximum ceiling surface temperature in non-air-conditioned buildings by about 4.7°F, and the daily maximum air room temperature by about 2.4°F.<sup>10</sup> This reduction is significant in understanding the potential benefits of cool roofs in homes occupied by the elderly and low-income residents in Wilmington who are vulnerable to heat, but cannot afford air conditioning.

By lowering energy use, cool roofs can also help reduce greenhouse gas emissions and air pollution. A 2011 UCLA study found that an albedo (or solar reflectance) improvement of 0.25 on existing roofs can reduce 61 kilogram (kg) of emitted CO<sub>2</sub>.<sup>11</sup> Using this albedo improvement, a conversion of 50 percent of existing rooftop in Wilmington would result in the removal of 78,000 metric tons of CO<sub>2</sub> which is equivalent to removing over 16,000 cars from the road.

**TABLE 1: ANNUAL ELECTRICITY SAVINGS FROM COOL ROOFS FOR AIR-CONDITIONED BUILDINGS, WILMINGTON**

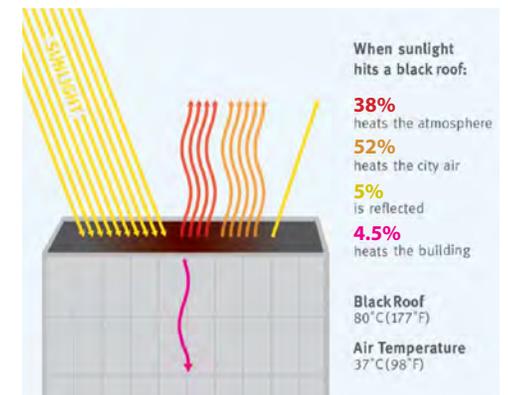
Scenario	Roof Area Converted (m <sup>2</sup> )	kWh Electricity	Savings (Conservative Estimate)
Low (50% of roofs)	385,260	1,156,000	\$173,000
Med (70% of roofs)	539,364	1,618,000	\$242,000
High (90% of roofs)	693,468	2,080,000	\$311,000

Source: 2009 Rooftop Data Provided by UCLA Center for Innovation, Tabulations by C.Pech, 2014, Assumptions based on: Study by Cara Horowitz (2011)

## 18% OF HOUSEHOLDS BELOW THE POVERTY LINE DO NOT HAVE ANY AIR CONDITIONING EQUIPMENT

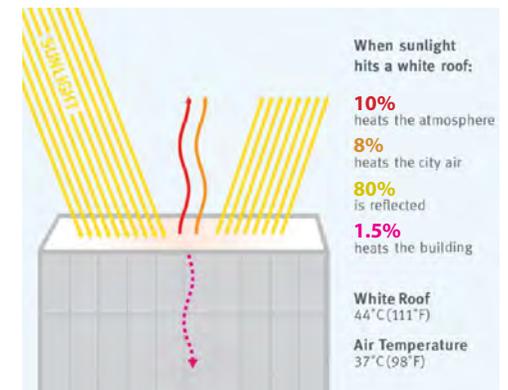
Source: Energy Information Administration (EIA)

**FIGURE 2: BLACK ROOF HEAT EMISSION**



Source: Historic Albany Foundation

**FIGURE 3: WHITE ROOF HEAT EMISSION**



Source: Historic Albany Foundation

## RECOMMENDATIONS

Los Angeles City has taken a major step to mitigate climate change and the urban heat island effect by becoming the first city to adopt a cool roof ordinance (Los Angeles, California Municipal Code § 99.04.106.5.), requiring all new and renovated residential structures—from small, single-family units to multi-story apartment towers—to install cool roofs. However, much more can be done to expedite the process for low-income residents in disadvantaged communities such as Wilmington.

**LAUNCH A COMMUNITY-WIDE COOL ROOFS CONVERSION PROGRAM THAT FOCUSES ON OLDER RESIDENTIAL STRUCTURES**  
Focusing on older buildings should be a priority for a cool roofs project in Wilmington as they can save the most money and energy due to their generally less efficient (or lack of) air conditioning systems, and less effective insulation.<sup>12</sup> Eighty-eight percent of the existing buildings in Wilmington were constructed before 1978—the first year California’s Building Energy Efficiency Standards went into effect.

### WAIVE BUILDING PERMIT FEES FOR COOL ROOFS

A permit fee is required by the L.A. Department of Building and Safety for the conversion of traditional roofs to cool roofs (with the exception of roofs requiring only “cool” liquid coating). Permitting fees can cost up to 5 percent of the total project costs in Los Angeles.<sup>13</sup> To reduce barriers to cool roof conversions, the City should waive the permitting fees for all residential cool roof conversion in Wilmington.

### EXPAND CURRENT ENERGY EFFICIENCY PROGRAMS EXPECTED TO RECEIVE CAP AND TRADE FUNDING TO INCLUDE COOL ROOFS

Energy efficiency programs, such as the State’s Weatherization Program (WAP), that are directed to low-income households do not include a “green” roofing conversion option. These programs are expected to get a significant amount of funding from the State’s Cap and Trade funding. Current energy conservation programs need to expand to consider cool roofs as a very effective strategy for reducing energy consumption, greenhouse gas emissions, and improving comfort for low-income residents.

### ENSURE FINANCIAL/CREDIT SUPPORT TO HOMEOWNERS IN DISADVANTAGED COMMUNITIES

Any modifications to a home that is rented must first obtain the approval of the property owner. In Wilmington, more than half of the residents are renters. Financial and credit support should be provided to owners to encourage them to consider the cooling properties of roofing materials when installing a new roof. Financing options with low-interest rates should be offered to low-income homeowners and the owners of multi-family buildings where low-income residents rent to lessen their financial burden. Increasing the Los Angeles Department of Water & Power (LADWP) rebate amount for cool roof conversion in disadvantaged communities is another option.

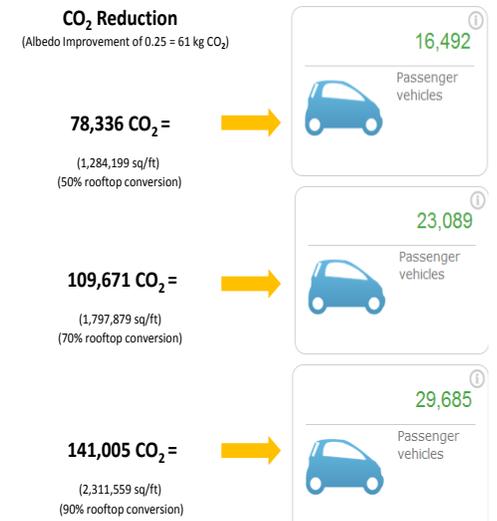
### EXTEND COMMUNITY OUTREACH AND EDUCATION PROGRAM ON THE BENEFITS OF COOL ROOFS

An aggressive outreach program is needed to inform local residents about the benefits of cool roofs, and LADWP’s cool roof rebate program which has been underutilized.<sup>14</sup> LADWP should collaborate with local non-profit organizations in the community to initiate a cool roofs outreach program. The outreach should include a combination of workshops, television ads, direct mailing (bill inserts) and email, radio, and door to door knocking. These various outreach strategies must be provided in both English and Spanish which represent the languages spoken by the majority of Wilmington residents.

### ASSESS THE POTENTIAL OF INCORPORATING COOL ROOFS INTO EXISTING SOLAR TECHNOLOGY TRAINING PROGRAMS

Elected officials representing Wilmington, in collaboration with LADWP, and local non-profits should assess whether cool roofs can be incorporated into existing solar rooftop installation training programs to expand employment and economic opportunities for Wilmington residents.

FIGURE 4: EQUIVALENT CO<sub>2</sub> REDUCTION



Source: 2009 Rooftop Data Provided by UCLA Center for Innovation; EPA Greenhouse Gas Equivalencies Calculator Infographic; Tabulations by C. Pech, 2014; Assumptions based on: Study by Cara Horowitz (2011)

## ENDNOTES

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# LIVING STREETS

SANDRA CASAS AND MELINDA PARSHALL

## LIVING STREETS: ENVIRONMENTAL BUFFERS AND ECONOMIC VITALITY IN WILMINGTON

Wilmington is particularly vulnerable to adverse effects from street activity. “Hidden Hazards” from streets include vehicle pollution, an increasing number of hot days due to greenhouse gas emissions and heat island effects, community severance due to isolation by major streets, a lack of mobility options, and water quality degradation from street runoff.<sup>1</sup> Strategies to decrease the negative impact of streets, such as increasing green infrastructure and multi-modal transit, have been implemented by the City of Los Angeles through various initiatives, including Green Streets, Complete Streets, People Streets, and Great Streets.<sup>2</sup> The purpose of this study is to comprehensively assess Wilmington’s streets for potential implementation of the City’s initiatives. Funding for these strategies may be possible through the Greenhouse Gas Reduction Fund, which allocates money to programs such as CAL FIRE’s Urban Forestry and Urban Greening Grant Program. The goal is to identify recommendations that are comprehensive in nature, rather than being one-dimensional, and offer the greatest impact to the community.<sup>3</sup> Thus “Living Streets” address not only environmental injustices afflicting the community, but have the potential to spark investment and enhance community vitality.

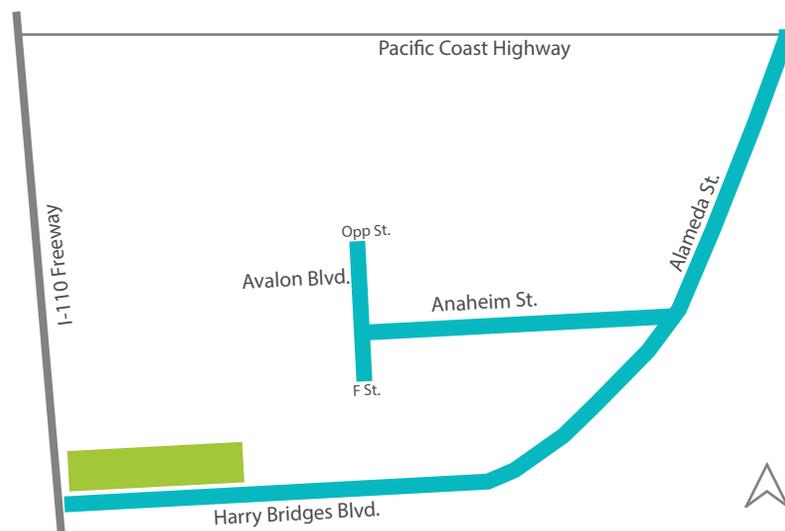
In order to understand if Living Streets initiatives offer potential to promote economic revitalization, reduce existing impacts, and prevent additional negative burdens in Wilmington, this study conducts site assessments of four streets within the Wilmington Clean Up Green Up campaign boundary: Alameda Street, Harry Bridges Boulevard, Anaheim Street, and Avalon Boulevard. These streets were selected based on the following criteria:

- All are major arterial streets and de facto truck routes, representing a significant source of pollution and health hazards for the community,
- The streets include various typologies such as high-pedestrian commercial, low-pedestrian commercial, and major goods movement,

- They all are adjacent to pollution sources and sensitive populations,
- They exhibit traffic volume and conflicting uses in the public right of way (such as de facto truck routes along high-pedestrian streets and public parks),
- They are proximate to residents with limited access to private vehicles,
- They have proposed mobility improvements in the Mobility Plan 2035,
- Existing street conditions warrant attention,
- And they have the potential to provide economic, social, and environmental co-benefits.

After identifying subject streets, site visits were conducted to document the physical conditions of the street, including general maintenance condition, street tree and vegetation inventory, tree canopy analysis, furniture type and locations, sidewalk widths, street materials, transit modes, lighting, and storm drain locations.

FIGURE 1: WILMINGTON STREETS STUDIED



## STREET SOLUTIONS

Although streets as they have typically been designed and built enable various types of environmental hazards, research also shows that providing a variety of transit options and increasing urban vegetation reduces GHG emissions, mitigates air and water pollution, cools the built environment, and provides benefits to communities such as active, healthy living.<sup>4</sup> In addition to these environmental benefits, engaging streets can increase economic activity in communities.

### TREES & URBAN VEGETATION

A study conducted by Gregory McPherson showed that Council District 15, where Wilmington is located, had the second lowest tree canopy coverage in the city.<sup>5</sup> Urban forests provide multiple environmental benefits, including energy conservation, production of oxygen and cleaning of air, carbon sequestration, reduction in noise pollution, reduction of storm-water runoff and improvement of surface water quality, buffers between different land uses, shading and cooling of ambient temperatures, increased pavement longevity, wildlife habitat, improved human health, increase in property values, and economic development.<sup>6</sup> Identifying viable streets in Wilmington to increase urban vegetation offers the potential to provide significant impact at lower costs. Consideration must be made when selecting the species of tree planted, as not all trees offer the same environmental services.<sup>7</sup> For example, some tree species sequester more carbon than others. Incidental property damage occurs if the selected species has invasive roots or intrudes upon overhead utility lines. In addition to the environmental benefits, tree presence dramatically alters the shopping behavior and preferences of individuals. A study from the University of Washington found that individuals are, on average, willing to pay 11 percent more on goods and services in tree lined retail districts than in those that are non-landscaped. Participants of this study perceived retail districts with urban forestry as having better customer service and overall associated tree-lined retail districts with a higher level of quality.<sup>8</sup> Thus, urban forestry can potentially spur further investment and increase business revenues.

### WATER

Infiltration techniques to manage stormwater runoff are largely discouraged in Wilmington because the area falls in a liquefaction zone, has several underground storage tanks on the east side of town, and is less than 10 feet from the aquifer recharge zone.<sup>9</sup> Biotreatment curb inlets (pictured in Figure 3) offer a plausible solution to manage urban stormwater runoff in the Wilmington community. The inlets “are installed upstream of an existing [stormwater drain] . . . and treat runoff via filtration through engineered soil media before discharging to the downstream [stormwater drain].”<sup>10</sup> Biotreatment curbs are highly effective at removing pollutants from stormwater runoff, require little space (unlike the surface area required for permeable surfaces), and add small trees to the streetscape, thus creating additional services such as shade and aesthetic enhancement to the street. They are also recommended for industrial areas where ground contamination prohibits infiltration techniques. However, because biotreatment curb inlets require modifications to the stormwater drainage system, they are more costly than other runoff management techniques.

### ACTIVE TRANSPORTATION

Active transportation refers to that of non-motorized modes of transportation such as walking and biking and connect individuals to various destinations such as home, work, school, and retail outlets.<sup>11</sup> Enhancements in active transportation networks include the addition of protected bike lanes, sidewalk furniture, shading structures, and transit access. Pedestrian and bike-friendly environments reduce vehicle miles traveled (VMT) and GHG emissions while also increasing an individual’s purchasing power by enabling them to spend money reserved for transportation on other sectors of the economy.<sup>12</sup> These improvements contribute to a reduction in costs associated with health due to increased activity and reduced air contaminants, traffic congestion, and environmental mitigation. By redesigning streetscapes into green spaces that support and encourage active transportation, commercial corridors can experience a direct increase in business sales and property values.

**FIGURE 2: STREET TREES CREATE DESTINATION STREETS**



Photo Credit: <http://www.destinationmainstreets.com/florida/sarasota.php>

**FIGURE 3: BIOTREATMENT CURB INLET INSTALLED ON VENICE BLVD.**

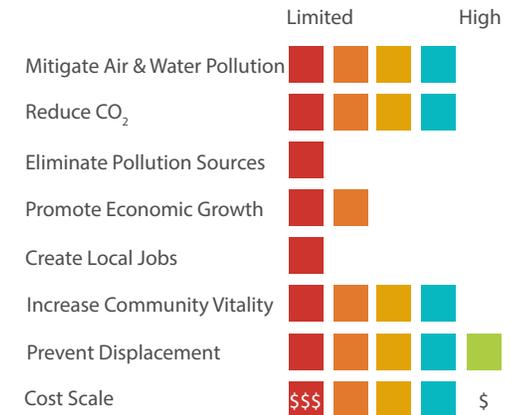


Photo Credit: Green Streets & Green Alleys Design Guidelines Standards, First Edition, City of Los Angeles Sanitation

## ALAMEDA STREET - MAJOR GOODS MOVEMENT

Alameda St. is a Class II major highway and major goods movement corridor. The Alameda Corridor, a major rail cargo expressway, runs at-grade along the west side of Alameda St. The design, usage, and general conditions of Alameda St. do not lend the street to significant multi-modal uses as an “active” or “great” street. Although the proposed Mobility Plan recommends adding a bike lane on Alameda St. to improve regional transit options, the lane will not significantly reduce vehicle traffic on the de facto truck route or reduce the local pollution burden that impacts Wilmington. This is because the primary user on Alameda St. - truck drivers - will not move major goods on bikes. In addition, Living Streets improvements along Alameda St. will not directly increase commercial activity or directly address the sources of pollution. However, unlike streets with limited sidewalk space, the undeveloped embankment along the Alameda Corridor railway and empty median space between left turn lanes on Alameda St. provides significant opportunities to increase environmental buffers and provide necessary room for large canopy tree growth. Potential conflicts with buildings, power lines, and sidewalks are limited at these sites, although study of underground infrastructure is needed. Larger trees sequester greater amounts of air pollution, create a more effective barrier from polluting sources, and potentially offer a higher return on investment for the environmental services gained compared to planting smaller trees. Since railroads are also identified by the community as a major source of air and noise pollution, Green Streets enhancements along Alameda offer co-benefits of mitigating noise, improving air quality, and reducing stormwater runoff pollution from the roadway. Green Streets enhancements also improve the stressful environment for cyclists utilizing the future bike path, increasing shade and creating calming visuals along the street. In addition, the high volume of traffic ensures improvements are visible to the community members and promotes the cleanup effort. Since the green improvements are not installed on private property, there is limited risk of placing a disproportionate burden on the community and contributing to community displacement, although the costs of improvements will need to be covered by the City or local partnerships. Finally, due to the existing condition of the street, there are opportunities to coordinate street greening with street maintenance activities or planned projects such as the bike lane addition.

### IMPACT SCALE - ALAMEDA STREET

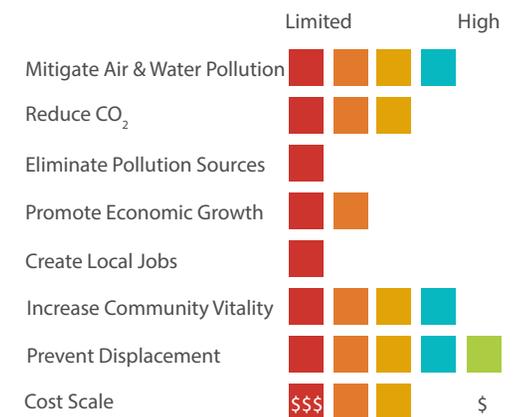


ESTIMATED COST RANGE:<sup>16</sup>  
\$100,000 - \$400,000

## HARRY BRIDGES BOULEVARD - MAJOR GOODS MOVEMENT

Harry Bridges Blvd. is a Class II major highway, de facto truck route, and major goods movement corridor that connects Alameda St. to the I-110 Freeway. The high traffic volume and industrial land use along Harry Bridges Blvd. do not lend the street to significant multi-modal uses as an “active” or “great” pedestrian street. Although a Priority Backbone bike lane is identified in the proposed Mobility Plan, it will not significantly reduce truck traffic and pollution on Harry Bridges. However, a bike lane on Harry Bridges Blvd. provides local residents in east Wilmington additional transit routes to the Wilmington Waterfront Park. Thus, the bike lane may encourage more local residents to decrease vehicle trips, thereby reducing emissions and air pollution. Harry Bridges Blvd. has moderate tree cover between Lagoon Ave. and the I-110 freeway, largely due to planting done in 2011 with the Wilmington Waterfront Park. Blocks east of Lagoon Ave. to Alameda St. vary in low vegetative cover, largely dependent on the landscaping efforts of private properties, and have few canopy trees. Several industrial properties have sidewalks that are unpaved and have un-landscaped vegetative growth. Sidewalk widths vary along the street, limiting the amount of space for tree and vegetative planting. Increasing the tree canopy from Lagoon Ave. to Alameda St. will improve the stressful environment for cyclists utilizing the future bike path, increasing shade, and creating calming visuals along the street. The industrial uses along Harry Bridges Blvd. are also potential sources of contaminated water runoff. Several storm drains (primarily towards the east end of the street) are located within the Wilmington Industrial Park. These drains are exposed active sources of pollution, making the storm drains a good candidate for biotreatment curb inlets. Improvements along Harry Bridges Blvd. can increase land values and tax revenue for the City while limiting community displacement since the adjacent land is industrial. While Green Streets improvements along Harry Bridges Blvd. will not directly eliminate polluting sources, they can offer improved local air quality and decreased contaminants in urban runoff.

### IMPACT SCALE - HARRY BRIDGES BLVD.



ESTIMATED COST RANGE:  
\$200,000 - \$400,000

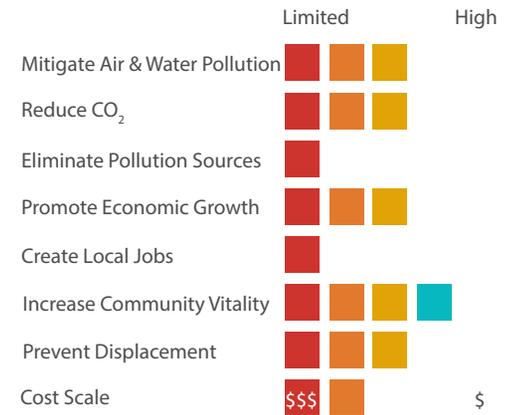
## ANAHEIM STREET - LOW PEDESTRIAN COMMERCIAL

Anaheim St. between Avalon Blvd. and Alameda St. is a secondary highway and de facto truck route that runs through the middle of Wilmington. Although a majority of the land use immediately adjacent to the street is industrial and commercial, the street is within 500 feet of residential uses. Anaheim St. does not completely discourage multi-modal transit. Metro bus service, routes 202 and 232, with headways of fifteen minutes or less are provided along the street. Despite this, Anaheim St. is a stressful environment for pedestrians and cyclists. The addition of multi-modal transit options and streetscape improvements on Anaheim St. would ensure the street is safe and accessible to all users. Since a majority of households on the east side of Wilmington have access to zero or one cars, implementing Complete Streets strategies on Anaheim St. provides residents access to key circulation routes in the City. Coupled with the existing bus service, adding Anaheim St. to the Bicycle Enhanced Network (BEN) as noted in the proposed Mobility Plan has the potential to reduce regional vehicle traffic and localized air pollution by providing residents additional mobility choices. Increasing bike and pedestrian traffic on Anaheim St. can escalate business activity and visibility for commercial stores located along the street. It is important to note, however, that since most of the commercial storefronts along Anaheim are set back from the sidewalk behind parking lots, the potential to engage pedestrians and cyclists is limited compared to those shops and storefronts that are adjacent to the property line. Utilizing curb extensions, increasing visibility of crosswalks, and widening sidewalks that physically limit pedestrian access increase pedestrian safety. These improvements further “Complete the Street,” creating a comfortable experience for pedestrians. While Green Streets improvements along Anaheim St. will not directly eliminate polluting sources, the improvements can offer co-benefits of improving local air quality and decreasing contaminants in urban runoff. Consideration must be made for the power lines that run along the north side and sidewalk widths vary along the street. Anaheim St. is not large enough to accommodate a planted center median. Green Streets improvements complement Complete Street modifications and are especially important near bus stops, which currently lack shade and furniture, to increase the comfort of transit users.

## AVALON BOULEVARD - HIGH PEDESTRIAN COMMERCIAL

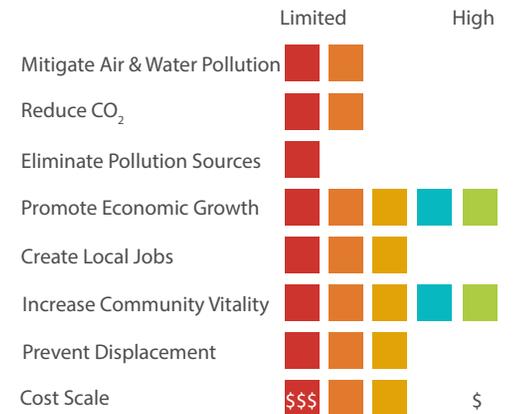
Avalon is largely a “Complete Street,” friendly to multi-modal transit and commercial activity. Avalon Blvd. largely encourages multi-modal transit. LA DOT Dash Bus service is available with fifteen minute headways. Metro provides local bus service, Route 246, along Avalon Blvd., connecting to San Pedro in the south and the StubHub Center and Habor Gateway Transit Center in the north. Avalon is also a convenient street for bicycle and pedestrian transit. The addition of a bicycle lane, completed in 2013, adds visibility for cyclists. Several cyclists were observed using the bicycle lane during site assessments; however, multiple instances of cyclists riding on the sidewalk were also noted. A walkability assessment of the street highlights the wide sidewalks (which range from 15 feet to 10 feet, excluding parkway space), limited parking lots, and engaging historical building facades with retail adjacent to the street. Although the existing structure of the street is largely accessible, small modifications are needed to increase the safety and comfort of the street users. Avalon Blvd. is an excellent candidate for the mayor’s Great Streets and People Streets initiatives which focus on increasing civic space and commercial activity. Most sidewalks along Avalon Blvd. are large enough to accommodate Green Streets improvements, such as parkway vegetation; however, innovative ideas are needed to increase shade and carbon sequestration while limiting disturbances to the Historically Landmarked Palm Trees. This is especially important near bus stops, some of which lack shade and furniture, to increase the comfort of transit users. Unfortunately, curb extensions are not possible since Avalon Blvd. has dedicated right turn lanes; however, increasing the visibility of crosswalks, either by raising the crosswalk or adding timed crossing signals or lighting, can increase pedestrian safety. Since street parking is available, adding parklets to Avalon Blvd. can increase seating and civic space. Parklets also provide an opportunity to add street vegetation and shade. While Green Streets and People Street improvements along Avalon Blvd. will not directly eliminate polluting sources, the improvements can offer co-benefits of improving local air quality and decreasing contaminants in urban runoff. The initiatives also have the greatest potential to increase commercial activity along the street and can serve as a platform to educate Wilmington residents about the Clean Up Green Up activities in the area.

### IMPACT SCALE - ANAHEIM STREET



**ESTIMATED COST RANGE:**  
\$400,000 - \$600,000

### IMPACT SCALE - AVALON BOULEVARD



**ESTIMATED COST RANGE:**  
\$100,000 - \$600,000

## AVALON BOULEVARD CASE STUDY

An in depth economic and environmental analysis was conducted on the commercial district along Avalon Blvd. This corridor serves as an ideal location for the implementation of the Living Streets pilot program. The parameter of this analysis is centered along Avalon Boulevard, bounded by Opp Street to the north and F Street to the south. Boundaries were selected based on the corridors designation as Wilmington's core downtown area and its existing transportation network. Likewise, the current economic situation of the Avalon commercial corridor was of particular interest. In recent years, Avalon's commercial district has experienced a decrease in economic activity. The commercial district's under-performance debilitates the corridor's ability to capture patronage from local residents, which in turn creates a cycle of disinvestment.

The Avalon commercial corridor can benefit considerably from the Living Streets strategy. Living Streets facilitate and encourage active transportation (e.g., walking, biking) along the corridor, reducing CO<sub>2</sub> emissions. Through a Living Streets strategy, Wilmington can reduce costs associated with traffic congestion, environmental mitigation and more importantly, those related to health. Active transportation has a positive effect on business sales and property values. Studies have shown that shoppers traveling by bike or on foot make more frequent trips to retail districts.

Furthermore, Living Streets initiatives master the art of place making by transcending from physical streetscape and transportation improvements to creating streetscapes that personify the cultural identity of the local community and turn them into spaces where the community is welcomed and attracted to. Placemaking, then becomes the key to both an economically and environmentally healthy environment as individuals feel a personal connection to the corridor.<sup>13</sup>

### LAND VALUES

There are 54 parcels of land within the Avalon commercial study area. Based on land and improvement values assessed by the Los Angeles County Assessor's Office, the commercial corridor appears to have a relatively stable economic environment; however, there are portions of the commercial district that are in decline and therefore could benefit from streetscape improvements. Parcels with land values exceeding that of improvement values, indicate underutilization. Underutilization was determined based on having a land value that is 10 percent greater than their respective improvement values. These parcels are located along the tail ends of the study area. Conversely, parcels with improvement values exceeding land values signify economic stability. In the case where land and improvement values differ slightly, these parcels suggest marginal use and could benefit from improvements. There are 19 parcels of land that can be classified as "underutilized;" thus, it is proposed that the Living Street design efforts be focused primarily in these areas.

### BUSINESS COMPOSITION

There are approximately 91 businesses operating within the study area. The majority of these businesses are small retail shops providing goods and services to the local community. Businesses comprise of clothing stores, jewelry shops, insurance companies, pawn shops, party supplies, a billiards pool hall and small sit down restaurants. None of the restaurants provided outdoor seating to patrons. Medical services are also present along the study area, comprising medical offices, chiropractor, dental offices and approximately three marijuana dispensaries.

### BUSINESS SALES

In 2011, there were 130 businesses within the study area with sales totaling up to \$300,000. It is important to note however, that this dataset is a limited representation of the corridor's 2011 economic performance as not all sales data was made available for each individual business. Interestingly, missing sales data coincided with having a small businesses status. In 2014, the number of operating businesses decreased to approximately 91. Current sales data was found for only 53 of the 91 businesses. Although using a limited dataset, businesses within the study area have, on average, business sales amounting to \$200,000. Sales information was obtained using the real estate site LoopNet and Hoovers.

FIGURE 4: LAND VALUES FOR PARCELS WITHIN THE STUDY AREA



## VACANCY RATES

Vacant storefronts are a common sight along the corridor. An excess of vacant storefronts can have serious social and economic implications. Vacant storefronts create a perception of instability and reduce the amount of “eyes on the street.” This study proposes that property owners enter into short-term leasing agreements with local organizations or entrepreneurs. Short-term agreements provide economic benefits for both parties. During this interim period, property owners can generate income as they find higher paying tenants. Entrepreneurs can benefit by having the opportunity to test the market and determine whether their products or services meet the needs of the Wilmington community.

## BUSINESS IMPROVEMENT DISTRICT (BID)

The Wilmington BID is a merchant-based district with approximately 144 members (2013 Annual Report). Merchants are assessed a fee based on their number of full time employees. The BID is primarily concentrated along Avalon Blvd., bounded by Opp St. on the North, F St. on the South as well as Anaheim St. bounded by Lakme Ave. on the East and Island Ave. on the West. Eighty-five out of 144 BID members are sole proprietors with no employees. Forty-two BID members have only one to three employees. The Wilmington BID has an annual operating budget of a little over \$42,000. About 44 percent of the BID’s budget is spent on providing maintenance services to assessed businesses along the corridor.<sup>14</sup>

## AVALON PILOT MOBILE PARKLET PROGRAM

Mobile parklets (shown in Figure 7) have the potential to improve the economic vitality of the Avalon corridor as well as provide residents with green space. Parklet design and installation can be very costly. According to the approved People Street Parklet kit-of-parts, the cost of a parklet ranges from \$40,000 to \$80,000.<sup>15</sup> Due to the fact that most businesses within the study area are small businesses, obtaining a financial commitment from them will be a great challenge. Local businesses alone cannot invest in a parklet and therefore must enter into a public and private partnership with community organizations and/or foundations that can help offset these costs. Wilmington has several eligible organizations that can serve as parklet stewards, two of them being the Wilmington Business Improvement District (BID) and the Wilmington Chamber of Commerce. The above mentioned organizations also have budgetary limitations and must solicit funding from outside organizations.

Mobile parklets, which are not permanently installed in one location, serve as an economically feasible solution. Mobile parklets can provide the same amount of environmental and social benefits to an even greater group of individuals as it is showcased at various locations throughout the corridor. Through the implementation of a mobile parklet program, the cost of the parklet is shared by several interested parties. Resting options and shade are sparse throughout the corridor, thus, through the implementation of a mobile parklet program, Wilmington residents can rest, socialize and simply enjoy their surroundings.

The commercial shopping center located on the intersection of Avalon Blvd. and Anaheim St. is a node of significant importance and serves as an ideal location for the placement of a parklet. This site experiences a high level of economic activity. The draw to this shopping center is partially attributed to the various neighborhood-serving type businesses located on site. The most visited businesses are: Chase Bank, Rite Aid and the Latino supermarket, El Super. Other neighborhood friendly businesses include a dental and medical offices, and smaller sit-down restaurants such as Subway, Yoshinoya and China Wok. Locating a mobile parklet in close proximity to this shopping center can potentially improve the economic vitality of the area.

## FUNDING SOURCES

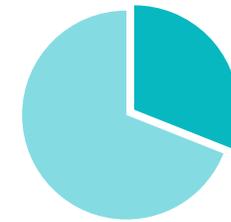
Wilmington is eligible to receive funding from the following State and local sources:

### STATE FUNDING SOURCES

- California Department of Forestry and Fire Protection (CAL FIRE) – Urban Forestry and Urban Greening Grant Programs.

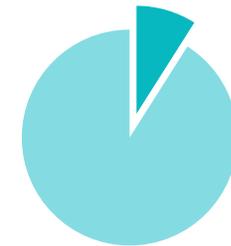
**FIGURE 5: NUMBER OF VACANT STOREFRONTS WITHIN EACH BLOCK**

F STREET TO G STREET



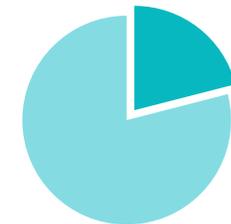
**31%  
VACANT**

G STREET TO ANAHEIM STREET



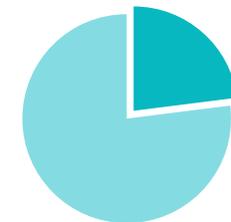
**9%  
VACANT**

ANAHEIM STREET TO I STREET



**21%  
VACANT**

I STREET TO OPP STREET



**23%  
VACANT**

Source: Vacancy Counts Compiled by S. Casas

In the 2014-2015 fiscal year, CAL FIRE will receive up to \$50 million in funding from California’s Cap and Trade revenues. Eligible recipients of these grant programs are limited to the following qualifying entities: cities, counties, qualifying districts (e.g. schools, parks, recreation, water, and local taxing districts), and/or nonprofit organizations. Furthermore, Wilmington’s ‘disadvantaged’ status provides the community with the opportunity to receive funding that covers up to 90 percent of project costs. In order to implement the green features of the proposed Living Streets initiative, Wilmington organizations can benefit the most from The Green Trees for the Golden State Grant. Recipients of this grant can receive funding in the amount of \$30,000 to \$75,000.

- Active Transportation Program (ATP). ATP ensures that disadvantaged communities have access to funding for the implementation of projects that foster the use of active transportation.

#### LOCAL FUNDING SOURCES

- Kaiser Permanente Southern California Community Benefit Grants Program. Grants of \$25,000 or more are made available to non-profit organizations, government agencies and institutions to promote their Community Health Initiative. This initiative promotes healthy eating and active living through smart growth and health promotion.
- Harbor Community Benefit Foundation. The Harbor Community Benefit Foundation provides funding for projects that address cumulative environmental and health impacts caused by the Port of Los Angeles. Through the Foundation’s Community Benefit Grant Program, eligible community-based organizations and educational institutions can be eligible to receive up to \$100,000 in funding.

### RECOMMENDATIONS

- The City prioritize the implementation of multi-modal transit projects identified in the proposed Mobility Plan 2030 in Green Zone or Clean Up Green Up communities, such as the addition of bicycle lanes along the priority backbone network and Bicycle Enhanced Network (BEN) proposed in Wilmington.
- The City implement a “Green Streets” program or ordinance in light industrial zones that incentivizes businesses to increase green infrastructure improvements on the street to account for cumulative impacts of light industrial stormwater runoff.
- The City partner with community-based and other civic organizations to increase tree planting along goods movement streets, such as Alameda St., where space is available to provide larger tree canopies on street medians and along railway embankments.
- The City partner with community-based and other civic organizations to increase pedestrian comfort and safety along Anaheim Street, through increased shade, street furniture, lighting, and infrastructure improvements such as curb bulb-outs. The City should consider assessing infrastructure improvements when adding the proposed bicycle lane along Anaheim Street.
- To increase economic vitality in Wilmington, the City should include Avalon Blvd. in the Mayor’s Great Streets initiative.
- Avalon Blvd. is an excellent candidate for the installation of parklets to increase civic space and vegetation along the street. Due to the high cost of parklets, implementation by local businesses to install the street features is infeasible. The City should encourage partnerships with local organizations to raise funds for parklet installation on Avalon Blvd.
- In addition, the City should develop a “mobile parklet” pilot program to reduce the cost of parklet of installations. These “mobile parklets” can serve multiple communities and have the opportunity to specifically target disadvantaged communities that lack funding to install parklets.

**FIGURE 6: INNOVATIVE SHADING STRUCTURES AROUND PALM TREES**



Photo Credit: Duvall Design Inc.  
[http://fabricarchitecturemag.com/articles/0911\\_cs\\_caribbean\\_shade.html](http://fabricarchitecturemag.com/articles/0911_cs_caribbean_shade.html)

**FIGURE 7: MOBILE PARKLET IN SAN FRANCISCO**



Photo Credit: <http://desantislandscapes.com/landscape-installation/parkletts-and-pocket-parks/>

## ENDNOTES

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# GLOSSARY

**AB 32** - Assembly Bill 32 (the Global Warming Solutions Act of 2006) is a California State Law that fights climate change by establishing a comprehensive program to reduce greenhouse gas emissions from all sources throughout the state to 1990 levels by 2020.

**Bike Sharrow** - Short for shared lane bicycle arrow. This pavement marking includes a bicycle symbol and two white chevrons as an indicator to motorists that bicyclists are permitted to use the full lane.

**Bioremediation** - A waste management technique that uses naturally occurring organisms to break down hazardous substances into less toxic or non-toxic substances.

**CalEnviroScreen** - A science-based, analytical tool to be used to help identify California communities that are disproportionately burdened by multiple sources of pollution and other stressors. An evolving screening methodology developed by the Office of Environmental Health Hazard Assessment of CalEPA, CalEnviroScreen version 2.0 was released in April 2014. It combines social, demographic and environmental factors to allow for community sub-areas (most recently census tracts) to be ranked according to cumulative health impacts.

**Cap and Trade** - A policy to promote a market-based system for reducing emissions from polluting sources by providing economic incentives. A limit, or “cap” is set on total pollution levels. Permits or “credits” are sold or traded, representing the ability to emit a certain amount of pollutants.

**Carbon dioxide equivalent (CO<sub>2</sub>)** - Carbon dioxide equivalency is a quantity that describes, for a given mixture and amount of greenhouse gas, the amount of CO<sub>2</sub> that would have the same global warming potential (GWP), when measured over a specified timescale (generally, 100 years). For example, the GWP for methane over 100 years is 25 and for nitrous oxide 298. This means that emissions of 1 million metric tons of methane and nitrous oxide respectively is equivalent to emissions of 25 and 298 million metric tons of carbon dioxide.

**Clean Up Green Up (CUGU)** - A policy initiative that aims to address environmental

justice issues in Los Angeles communities disproportionately affected by cumulative impacts of concentrated industrial land uses and other polluting sources. The policy campaign proposes to protect public health by using planning tools to mitigate pollution; invest in economic development with financial and planning incentives to retain jobs and create new, green enterprises; reduce existing environmental hazards through streamlined inspection and enforcement; and expand public-private partnerships to leverage outside resources.

**Cumulative Impacts** - “Cumulative impacts means exposures, public health or environmental effects from the combined emissions and discharges in a geographic area, including environmental pollution from all sources, whether single or multi-media, routinely, accidentally, or otherwise released. Impacts will take into account sensitive populations and socioeconomic factors, where applicable and to the extent data are available.” (CalEPA, Cumulative Impacts, December 2010, p. 26, <http://oehha.ca.gov/ej/pdf/CIReport123110.pdf>)

**Displacement** - A process whereby households have their housing choices constrained by the actions of another social group.

**Drayage Trucking** - The transport of containerized cargo by specialized trucking companies between ocean ports, rail yards, shipping docks, and to the final destination.

**Feed-In Tariff** - A feed-in tariff (FIT) program guarantees that customers who generate electricity from solar panels or other renewable energy generators will receive financial compensation at a predetermined price from a utility provider, in exchange for all electricity the customer provides to the public-utility power grid.

**Food Desert** - A geographic area in which mainstream grocery stores are either entirely absent or inaccessible to low-income shoppers due to high prices and inadequate public transit.

**Gentrification** - The buying and renovation of houses and stores in deteriorated urban neighborhoods by upper- or middle-income families or individuals, thus improving property values but often displacing low-income families and small businesses.

**Green Zone** - A community undergoing an organized transition from a toxic hotspot to a vibrant and healthy place to live, work and play. This transition is led by the community itself, and achieved through an innovative model of collaboration among community leaders, government allies, and green businesses. The Clean Up Green Up policy recommends the creation of Green Zones as geographic focus areas for the standards and incentives provided for in that policy.

**Greenhouse Gas Reduction Fund** - A fund created by three bills (AB 1532, SB 525, SB 1018) passed by the Legislature and signed into law by Governor Brown in 2012. The fund receives cap-and-trade auction proceeds and provides the framework for how the auction proceeds will be administered.

**Greenhouse Effect** - The process by which heat from the Earth is radiated outward and absorbed by greenhouse gases in the atmosphere. This action by greenhouse gases prevents heat from dissipating into space and keeps Earth warm enough to sustain life. Some human activities, such as the combustion of fossil fuels, intensify this warming effect by releasing additional greenhouse gases into the atmosphere.

**Greenhouse Gases** - Greenhouse gases are components of the atmosphere that contribute to the greenhouse effect. Some greenhouse gases occur naturally in the atmosphere, while others result from human activities, such as the combustion of fossil fuels. Assembly Bill 32 aims to reduce the greenhouse gases of carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons and perfluorocarbons. Other greenhouse gases include water vapor, ozone, nitrous oxide, and chlorofluorocarbons.

**Heat Island Effect** - A metropolitan area that is significantly warmer than its surrounding rural areas due to human activities.

**Living Streets** - Streets designed and engineered to be safe, accessible, and convenient for everyone—not just drivers, but bicyclists, transit riders, wheelchair users and pedestrians of all ages and abilities.

**Complete Streets** - A design concept that embraces physical improvements to meet the needs of drivers, transit riders, bicyclists and pedestrians.

**Green Streets** - A design concept that incorporate features to facilitate improved storm water management and landscaping.

**Net Metering** - A system in which customers who generate electricity from solar panels or other renewable energy generators may transfer surplus power to a public-utility power grid. In exchange, customers receive credit that will offset the customer's electricity bill.

**NO<sub>x</sub>** - A generic term for the mono-nitrogen oxides, nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>), which are produced from the reaction of nitrogen and oxygen gases in the air during combustion. In areas of high motor vehicle traffic, the amount of nitrogen oxides emitted into the atmosphere as air pollution can be significant. NO<sub>x</sub> gases react to form smog and acid rain, and are central to the formation of tropospheric ozone.

**Particulate Matter (PM)** - A complex mixture of extremely small particles and liquid droplets. Particle pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The PM designation is often followed by a number (such as PM<sub>10</sub> or PM<sub>2.5</sub>) with that number identifying the size of the particle in question. The size of particles is directly linked to their potential for causing health problems.

**Polycyclic Aromatic Hydrocarbons (PAH)** - Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 different chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances like tobacco or charbroiled meat. PAHs are usually found as a mixture containing two or more of these compounds, such as soot. The Department of Health and Human Services (DHHS) has determined that some PAHs may reasonably be expected to be carcinogens.

**SB 535** - Senate Bill 535, adopted in 2012, requiring that 25 percent of available moneys in the Greenhouse Gas Reduction Fund is allocated to projects that provide benefits to disadvantaged communities, with the requirement that 10 percent of funds are spent directly within these communities.

**Sensitive receptors** - Land uses where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. They include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. Also referred to as "sensitive uses."

**SO<sub>x</sub>** - A generic term that refers to all sulphur oxides, the two most significant of which include sulphur dioxide (SO<sub>2</sub>) and sulphur trioxide (SO<sub>3</sub>). Man-made sources of sulphur dioxide include sour gas processing, oil sands production, coal combustion, ore refining, chemical manufacturing and other fossil fuel processing and burning. Emissions that lead to high concentrations of SO<sub>2</sub> generally also lead to the formation of other SO<sub>x</sub>. SO<sub>x</sub> can react with other compounds in the atmosphere to form small particles. These particles penetrate deeply into sensitive parts of the lungs and can cause or worsen respiratory disease, such as emphysema and bronchitis, and can aggravate existing heart disease, leading to increased hospital admissions and premature death.

**Volatile organic compounds (VOCs)** - Gas emissions from certain solids or liquids. VOCs are emitted by a wide array of products, many of which may have short- and long-term adverse health effects. Examples include paints and lacquers, paint strippers, cleaning supplies, pesticides, building materials and furnishings.

# BIOGRAPHIES

## 2014 CANDIDATES FOR MASTER OF URBAN & REGIONAL PLANNING, UCLA

**Carolyn Abrams** has a background in youth development and holds a Bachelor of Science in Community and Regional Development from UC Davis. As an urban planning student, she is completing the Regional and International Development concentration and her primary research interests include gender, immigration policy, and urban labor markets.

**Sheela Bhongir** specializes in community and economic development. She graduated from California State University Northridge with a Bachelor's in Urban Studies and Planning. Her work experience includes working with Waste Management in Sun Valley, the Los Angeles City Planning Department, and Healthy City in Echo Park.

**Sandra Casas** focuses on community and economic development. Sandra holds a Bachelor's degree in International Development Studies from UCLA and has extensive experience in working with immigrant communities.

**Alycia Cheng** specializes in Transportation Policy and Planning. She has worked as a researcher at UCLA's Institute of the Environment and Sustainability, and is currently working as a researcher at the UCLA Center for the Study of Inequality. Alycia received her Bachelor's degree in Sociology from UCLA, with a minor in Urban and Regional Studies.

**Gustavo De Haro** specializes in design and development. He holds a Bachelor's in Psychology from UCLA and has an extensive background in public sector labor and community organizing. His primary research and training is centered on the process of equitable development and affordable housing in the Southern California region and Baja California, Mexico.

**Anthony Delgado** previously attended UC Irvine while minoring in African American Studies. He is also interested in urban education and addressing mass incarceration. Anthony, a Muslim Ecuadorian, is involved with Islah LA and Masjid Ibaadillah in Los Angeles.

**Emily Gable**, LEED AP, has focused on climate change mitigation and adaptation, equity, and urban design while at UCLA. She has worked on community plan updates for the Los Angeles Department of City Planning, affordable housing research for SAJE, and green certification systems (STAR and LEED) for Santa Monica and a Bay Area architecture firm. Emily holds a Bachelor's degree from Pomona College where she studied anthropology, archaeology, and environmental analysis.

**Chad Horsford** has concentrated on Community Economic Development and Housing. Chad currently works as a Graduate Researcher with the Program for Environmental and Regional Equity (PERE) where he contributes to research on regional equity, environmental justice, and immigrant integration.

**Ara Kim** has focused at UCLA on Community Economic Development and Housing. She is currently working at Abode Communities as a Project Management Associate. Ara holds a Bachelor's degree from California Polytechnic University San Luis Obispo in History, with minors in Women's and Gender Studies and English. Previously, Ara has worked in organizing, research and advocacy with labor, community and policy organizations.

**Julia Lippe-Klein's** area of focus is Environmental Analysis and Policy. She works at a bicycle non-profit called C.I.C.L.E., where she coordinates education programs and community events that support active transportation in Los Angeles.

**Randy Mai** is interested in Housing Policy, Real Estate Development and Finance. He holds a Bachelors of Arts degree in Asian American Studies, Asian Languages and Culture, and Urban and Regional Studies from UCLA. Prior to becoming a graduate student and while pursuing his graduate studies, Randy gained experience working in the non-profit sector, Los Angeles City Hall, and the labor movement.

**Dennis Maravilla's** interests include economic development, affordable housing, mixed-use development, construction and analyzing geospatial data. He holds a B.S. in Geographic Information Systems. Dennis has worked with the U.S. Census Bureau, U.S. Coast Guard's Chief Office of Civil Engineering, and various real estate firms in building mixed use and education facilities.

**Daisy Miguel** focuses on transportation and housing. She is currently working as an assistant program manager at Los Angeles Neighborhood Initiative (LANI) where she is helping the organization renew the Byzantine Latino Quarter Business Improvement District. She received her bachelor's degree from the UC San Diego where she studied Urban Planning and American Politics.

**Natalie Nava** is a Policy Analyst for T.R.U.S.T. South LA working on Equitable Transit-Oriented Development projects and creating safe, accessible complete streets in South LA. She believes community-driven planning, equity-focused cross-sector policy advocacy, and strategic communications are vital to creating an economically thriving and sustainable city. She holds a dual bachelor's in Chicano/Chicana Studies and Sociology from San Diego State University.

**Melinda Parshall**, LEED AP, encourages sustainable development through environmental policy and analysis, urban design, and economic development. Prior to joining UCLA, Melinda lived in Saudi Arabia while managing capital projects for the King Abdullah University of Science and Technology (KAUST). Her involvement with KAUST began in 2006 when she worked on the master plan design and community development of the new campus. Melinda graduated from Trinity University in 2006 with a degree in history.

**Tulsi Patel** is concentrating in Environmental Analysis and Policy. Currently working with a Los Angeles planning consulting firm, she is involved in multiple projects related to economic development and environmental justice. Other interests include public spaces and urban forestry as they intersect with both climate change adaptation and healthy communities. Tulsi received a B.S. in Environmental Economics and Policy at UC Berkeley.

**Chhandara Pech's** current research focuses on intergenerational socio-economic mobility among the Southeast Asian population. He has contributed to research projects for the California Department of Housing and Community Development (HCD) and the Ford Foundation. He also recently co-authored a paper on the impact of the foreclosure crisis in Los Angeles County. Chhandara is currently a research staff at the UCLA Center for the Study of Inequality.

**Isella Ramirez** grew up in the City of Commerce, a community overburdened with industrial pollution just southeast of downtown Los Angeles. She has concentrated on Community Economic Development at UCLA. She holds a B.A. in Latin American and Latina(o) Studies from Vassar College. She has extensive experience in environmental justice community organizing and policy advocacy.

**Benjamin Russak** focuses on economic and environmental equity, employing a connected analysis of housing, habitation and market activity that prioritizes social stability through alternative housing models, local food production and closed-loop waste management strategies. Ben has worked as a policy intern for T.R.U.S.T. South LA and is experienced in justice-oriented campaign development through community dialogues and popular education.

**Dolly Sithounnolat's** area of concentration has been Community and Economic Development at UCLA. She is currently working as a project coordinator at Thai Community Development Center where she is evaluating the East Hollywood's Vermont/Western transit oriented specific plan that was adopted in 2001. Prior to graduate school, Dolly was a program manager for the Ocean Avenue Commercial Corridor in San Francisco and established the area as a business improvement district.

## COMMUNITY SCHOLARS

**Roxana Aguilar** is a workforce development specialist, rooted in environmental and social justice work in Los Angeles. She earned her undergraduate degree in Latin American and Environmental Studies from the University of California at Santa Cruz. Currently, she serves as the Vocational Training and Transition Services Coordinator at the Los Angeles Conservation Corps where she empowers young adults through career pathway development.

**Raquel Armenta** has worked in the Eastside communities of Boyle Heights, Incorporated East Los Angeles, El Sereno and Lincoln Heights for 10 years organizing campaigns that advance a racial justice agenda in schools and communities. She is a Board Member and volunteer for Proyecto Jardin, an organization that promotes sustainability through organic urban farming, culture as a tool for community building and healing, and community organizing as a strategy for improving climate injustices for communities of color.

**Delia Arriaga Anaya** is the Project Manager for the Dream Resource Center, where she coordinates projects by and for immigrant youth. She's a graduate of UCLA and has several years of experience working in Boyle Heights and South Gate communities. While at UCLA, Delia was a campus organizer with IDEAS (Improving Dreams, Equality, Access, and Success) for four years and served as a site coordinator for Roosevelt High School's after school program.

**Christina Baggao** has been active in advocacy and community development over the past six years. For the past four years, Christina has served as Development Associate at PACE (Pacific Asian Consortium in Employment). Additionally, she has been involved with organizations like Asian Professional Exchange, the National Coalition of Asian Pacific American Community Development, and the REDF Social Enterprise Academy. She earned her B.A. in Political Science from UC Santa Barbara.

**Vanessa Cardona** completed a master's degree in Public Health from San Francisco State University in 2012. Her thesis advocated for community based participatory research when solving community health problems caused by environmental toxins. Vanessa has volunteered with Communities for a Better Environment in Wilmington and currently works for the Los Angeles County Department of Public Health.

**Anabell Chavez** is a community activist and has been Member at Large of the Wilmington Neighborhood Council since 2010. As a native of Wilmington, she is passionate about addressing the inequities and environmental challenges facing her community. Ms. Chavez is also a co-founder of and contributor to the blog, WilmingtonWire. She received a master's degree in Journalism from the University of Southern California and represents Communities for a Better Environment in Community Scholars.

**José Fernández** is a community organizer at East Los Angeles Community Corporation (ELACC). He supports Boyle Heights' residents in their campaign to have the Boyle Heights Community Plan reflect their priorities. Prior to ELACC, José was a two-year apprentice for Community Development Technologies (CDTech) through the Public Allies Los Angeles program. He is a graduate of UCLA with a dual degree in Chicana and Chicano Studies and Political Science.

**John Guevarra** is a Research and Policy Analyst for the Don't Waste LA campaign at Los Angeles Alliance for a New Economy (LAANE). He holds a Master of Urban and Regional Planning from UCLA. In his role at LAANE, John is working with the City of Los Angeles to implement a plan that streamlines recycling, reduces landfilling, and replaces dirty diesel trucks with alternative fuel trucks.

**Cynthia Guzman** is an Associate at Estolano LeSar Perez Advisors (ELP), a woman-owned, minority-owned consulting firm based in Los Angeles. In her role at ELP, Cynthia provides strategic counsel and project support to public agencies, foundations, and non-profits in the areas of workforce and economic development. She holds a Master of Urban and Regional Planning from UCLA.

**Dan Hoffman** is the Executive Director of the Wilmington Chamber of Commerce. He and his wife Sue have lived in Wilmington for over forty years where they raised their three daughters. He has been involved in many community improvement projects. Dan has helped bring the YMCA program center to Wilmington, and helped build neighborhood watch, business watch, and manages the Wilmington Business Improvement District.

**Imelda Padilla** is the Field Deputy for Councilwoman Nury Martinez. Prior to serving in this role, Imelda served in various capacities at Pacoima Beautiful, including managing the Safer Homes and youth programs and as a lead organizer. She received her undergraduate degree in Political Science with a minor in Chicano Studies from UC Berkeley.

**Marjorie Phan** is a graduate of UC Davis, where she earned a degree in Environmental Science and Policy. She currently works for the City of Los Angeles Airports Department (LAWA). Prior to joining LAWA, Marjorie worked in City of Los Angeles Housing and Community Investment Department (HCIDLA). She has also been a volunteer activist for the Sierra Club Angeles Chapter's The Organics Project for the past two years.

**Andres Ramos** is a graduate of UC Santa Cruz, where he conducted research related to urban planning and local economic disparity in Watsonville, CA and Lima, Peru. In Community Scholars, Andres represents People for Parks, a community-based organization centered on creating safe park space in LA. As a project coordinator, he is responsible for managing a Strategic Growth Council Urban Greening plan and communicating the importance of community school parks.

**Miguel Ramos** is the Bicycle Outreach Coordinator at Multicultural Communities for Mobility (MCM). He helps coordinate Spanish language bicycle safety workshops to diverse community groups throughout Los Angeles County. Miguel also serves on the City of Los Angeles' Bicycle Advisory Committee, where he continues to share perspectives on how underserved communities can obtain sustainable equity within the bike movement.

**Lizzeth Henao Rosales** is the Assistant Director of Equitable Development at Strategic Actions for a Just Economy (SAJE). Prior to joining SAJE, Lizzeth worked on environmental justice issues at the Natural Resources Defense Council (NRDC). On behalf of NRDC, Lizzeth was a founding member of the Alliance for Community Transit-Los Angeles (ACT-LA), a citywide coalition working to ensure equitable development in transit corridors.

**Samyrha Saba's** holds strong interests in the interrelationship between holistic and environmental health. She currently shapes the work for her health and that of our environment by way of food justice, spoken word/theater, indigenous ceremony, and popular education with Proyecto Jardin, Moonaguas Theater, Peace and Dignity Journeys, I.D.E.P.S.C.A's Aprendamos Program, and other spaces for movement and healthy progress. Samyrha is currently working on a B.A. in Environmental Studies.

**Kristy Sandoval** is a public artist who has contributed to beautifying Pacoima while enriching schools and non-profit organizations with art education. She has played a vital role in the development along Van Nuys Blvd. dubbed as "Mural Mile." Many of her murals are done by engaging community members in the design and implementation process. Most recently Kristy has co-founded an all womyn mural group whose goal is to bring awareness through public art.

**Gordon Snead** is the Manager of Community and Economic Development at the South Bay Center for Community Development (SBCC). He is a graduate of UC Berkeley, where he studied Political Science and Peace and Conflict Studies. Gordon began working in the community sector in 2010, as the founder of the International Rescue Committee at UC Berkeley, utilizing popular education techniques to organize refugees across the San Francisco Bay Area.

**Sarah Valdez** is a graduate of UCLA, where she received a bachelor's degree in English Literature. She is a native of San Pedro and is currently a longshorewoman at POLA and POLB. Sarah aspires to pursue graduate studies in environmental science, a goal she is working toward by taking courses at Los Angeles Harbor College and California State University, Long Beach.

**Zyshia Williams** is a native of Belize and is completing her last year as an undergraduate at UCLA, where she has studied International Development Studies and Accounting. Zyshia is an intern at USC's Program for Environmental and Regional Equity (PERE) as well as the Center for the Study of Immigrant Integration. She also serves on the board of UCLA's IDEAS (Improving Dreams, Equality, Access, and Success).

## INSTRUCTOR

**Michele Prichard** is the Director of Common Agenda at the Liberty Hill Foundation which provides grantmaking, training and alliance-building programs to address poverty, racial justice and environmental health. She received the Council on Foundation's Distinguished Service Award in 2012, the association's highest honor, and was appointed in 2011 by Mayor Villaraigosa to the Board of the Harbor Community Benefit Foundation. Michele is co-author of *LA RISING: The 1992 Civil Unrest, the Arc of Social Justice Organizing, and the Lessons for Today's Movement Building* (2012). She has served as a Senior Fellow in the UCLA School of Public Affairs since 2007. She received her B.A. in Political Science and Urban Studies from Washington University in St. Louis, and her Master of Arts from the UCLA School of Urban Planning in 1989.

## PROJECT ADVISOR

**Donald R. Spivack**, AICP, is Policy Consultant for the Los Angeles Collaborative for Environmental Health and Justice and an Adjunct Instructor at the University of Southern California Price School of Public Policy. He was formerly Deputy Chief of Operations and Policy at the Los Angeles Community Redevelopment Agency, where he oversaw the formulation of many of that Agency's community benefits policies, including Living Wage, Service Worker Retention, Responsible Contractor, Construction Careers and Healthy Neighborhoods, was lead author on the Agency's Neighborhood Conservation Strategy and a joint City of Los Angeles-Redevelopment Agency Industrial Land Use Policy. He serves on the Advisory Board of the Los Angeles River Revitalization Corporation and holds a B.A. in Architecture from the University of Pennsylvania and a Master of City Planning from Yale University.

## TEACHING ASSISTANT

**Hina Sheikh**, prior to enrolling in the Master of Urban and Regional Planning Program at UCLA, worked for several community-based organizations in Massachusetts, India and Los Angeles. During her time at UCLA, she has focused on labor and economic development. She is a co-author of a cross comparison study titled, *Informal Worker Organizing as a Strategy for Improving Subcontracted Work in the Textile and Apparel Industries of Brazil, South Africa, India and China*. She is also co-editor of the forthcoming volume, *How Global Migration Changes the Workforce Diversity Equation*.

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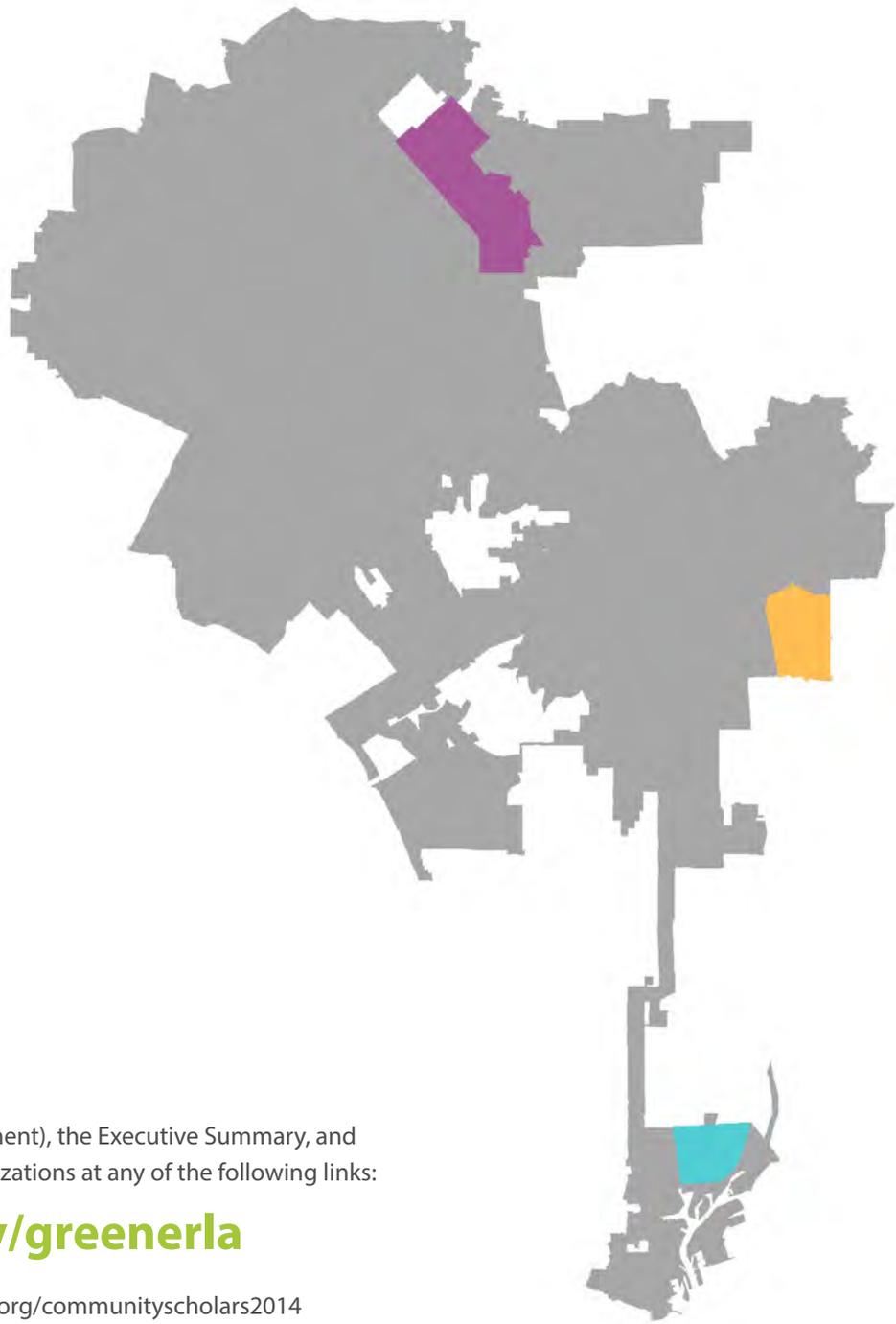
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### NEIGHBORHOOD INFOGRAPHICS

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### INTRODUCTION & NEIGHBORHOOD TITLE PAGE MAPS

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Download this full report (Vision Document), the Executive Summary, and learn more about the supporting organizations at any of the following links:



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