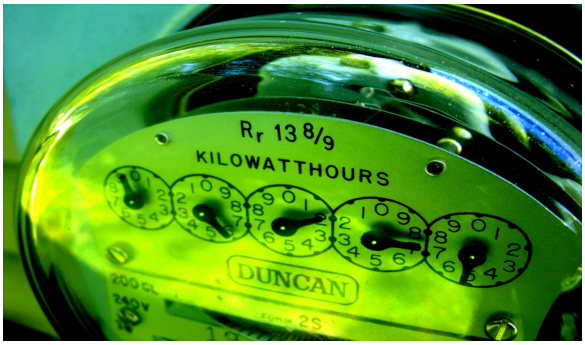

Dorsa-TOCKNA Community Assessment

City of San José Better Buildings Pilot Program

San José State University

Masters of Urban & Regional Planning Students

June 2011

Purpose

This report contains the key findings discovered during a thorough assessment of the Dorsa-TOCKNA neighborhood in east San José between September 2010 and June 2011. It is intended to serve as platform of facts related to existing conditions in the neighborhood, upon which the City of San José's staff can implement and build its Better Buildings Program. This program, sponsored by the U.S. Department of Energy and using funding from the American Recovery and Reinvestment Act of 2009, promotes large-scale adoption of residential energy efficiency retrofits in a variety of communities across the country.

Upon receiving grant funds to commence the Better Buildings Program, the City of San José selected the Dorsa-TOCKNA neighborhood as a pilot project for the recipient of energy retrofit work. Partners in this project include the City of San José's Environmental Services Department, the San José Strong Neighborhoods Initiative, San José State University graduate students in the Department of Urban and Regional Planning, and neighborhood leaders in the Dorsa-TOCKNA community.

From an urban planning perspective, a community assessment is an evaluation of the demographic and physical conditions of a targeted area and serves as a foundation for subsequent planning efforts that are likely to have both short- and long-term impacts. The themes in this assessment are consistent with the "whole neighborhood" approach that is intrinsic to the Better Buildings Program and takes into account existing conditions that could influence energy efficiency improvements within the neighborhood including demographics, the condition, types and age of the housing stock, and multi-year energy consumption data generously provided by PG&E. The research team also considered challenges to (and ideas for) program success such as lessons learned from case studies of other energy efficiency efforts in the U.S., the identification of home-based businesses in Dorsa-TOCKNA (which tend to be larger consumers of energy) and the availability of local contractors that might perform future building retrofitting and housing rehabilitation services.

Acknowledgements

We wish to acknowledge all of the groups and individuals who have contributed to this project. The following people provided valuable assistance in the development of the Dorsa-TOCKNA Community Assessment.

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Primary Role: Providers of Neighborhood Energy Consumption Data

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Adita Martinez

San José State University
Department of Urban & Regional Planning

Primary Role: Assessment of Dorsa-TOCKNA Neighborhood Existing Conditions; Consultants to the City of San José for Assessment Report Preparation

Professor Dayana Salazar, Chair
Professor Rick Kos, AICP, Project Manager
Professor Hilary Nixon, Project Consultation

Aknowledgements

The following urban planning graduate students at San José State University conducted the research and developed the content of this report for the Dorsa-TOCKNA Community Assessment project.

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Graduate students in the Fall, 2010 project team,
displaying a sample of the detailed maps produced for this report

Table of Contents

List of Figures

Executive Summary

The Dorsa-TOCKNA Community Assessment was developed by graduate students in the Department of Urban and Regional Planning at San José State University to support the pilot project of San José's Better Buildings Program. This program seeks to drive demand for energy efficiency retrofits while strengthening community networks, increasing economic growth, and encouraging overall environmental sustainability. Since funds for building retrofits targeting exclusively low-income areas have historically been scarce, the U.S. Department of Energy, the sponsor of this effort, is eager to see tangible results in such under-served areas. The City of San José is equally as eager to implement the Better Buildings Program locally, beginning in Dorsa-TOCKNA, as a way to achieve the City's adopted Green Vision goals.

The analysis represented in this report is consistent with a "whole neighborhood" approach to the documentation of existing conditions and identifies potential opportunities and barriers to program success. It is also intended to support efforts to extend the program to other San José communities. Factors addressed in this report include resident demographics; the condition, types and age of the housing stock; research findings specific to varying building types and their energy needs; and recommended outreach methods in the Dorsa-TOCKNA community to spread the word about available programs and funds for local residents.

Demographic information for this report was gathered from the 2010 Census for variables that have been released by the Census Bureau as of June 2011, and from the 2000 Census, otherwise. Additional information pertaining to the physical conditions of Dorsa-TOCKNA's housing stock was obtained via a house-by-house windshield survey, a careful visual inspection of the neighborhood. A description of the methodology used to complete this report is included in a companion document, Dorsa-TOCKNA Community Assessment: Methodology Guide, which can serve as a template to conduct similar assessments in other San José neighborhoods as the Better Buildings program expands.

Key Findings: Dorsa-TOCKNA Demographics

• **Population Density and Household Size**: There are approximately 11,000 San José residents living in Dorsa-TOCKNA, per the 2010 Census. The southernmost portion of Dorsa-TOCKNA has the highest number of people per household as well as the lowest median income within the neighborhood, per Census 2000 data. This may suggest a starting point for program outreach efforts by city staff. Also, the community as a whole has a higher household size than the average for San José. This implies higher average energy bills in this neighborhood, thereby increasing the potential for residential building retrofits in this area to yield more "bang for the buck".

• **Education and Language**: The development of Better Buildings Program outreach efforts and materials will need to take into account the fact that fewer than seven percent of residents possess a college degree. Additionally, Spanish, variety of Asian languages, and Pacific Island languages are highly prevalent in the community (as per Census Bureau).

• **Household Income**: Although median household income is higher in Dorsa-TOCKNA when compared to the statewide average per the 2000 census, this reflects the higher cost of living in the Silicon Valley rather than greater wealth.

Key Findings: Land Use and Housing Stock

• **Land Use**: Dorsa-TOCKNA's land uses are primarily residential and its housing stock is primarily owner-occupied. In fact, only three percent of the housing stock is vacant, per the 2010 census.

• **Home Value and Median Rent**: The median value of an owner-occupied home in Dorsa-TOCKNA is twenty-six percent less than the median for San José, and thirty-four percent less than that for Santa Clara County. The median rent in Dorsa-TOCKNA is thirty-six percent higher than that of California as a whole, but the median household income is only twenty-seven percent higher, based on 2000 Census data (Census 2010 data for these variables have not yet been released).

• **Age of Housing Stock**: Over ninety percent of homes are between forty-six and fifty-two years old, per 2010 County Assessor data, and were constructed when efficiency standards were lax or non-existent. In addition, thirty-seven percent of homes feature flat (or nearly flat) roofs that are

less likely to be well insulated.

• **Dual-Paned Windows**: Estimates based on a Fall 2010 visual inspection show that approximately seventy percent of homes have dual-paned windows that offer higher thermal performance than the single-paned windows that were common when neighborhood homes were constructed.

• **Home Businesses**: Field work conducted in Fall 2010, along with licensed business data provided by Work2Future, revealed the presence of many home-based businesses in Dorsa-TOCKNA, though only a small portion of these businesses are immediately evident based on visual inspection.

• **Ownership Tenure**: Of the 1,630 properties with recorded purchase dates as of Fall 2010, more than sixty-eight percent have been owned for ten years or less. Fewer than ten percent have been owned for more than thirty years. Generally speaking, when home ownership changes there is an opportunity for Better Buildings Program staff to work with the home seller and/or buyer to participate in energy-retrofit programs.

Key Findings: Residential Energy Consumption and Retrofit Contractors

• **Fuel Source**: Over two-thirds of Dorsa-TOCKNA households use natural gas as their heating fuel, based on Census 2000 data, which suggests that the provision of (or loans for) highly efficient natural-gas appliances (rather than electric appliances) may be popular in the community.

• **PG&E Energy Usage Mapping**: The project team, with assistance from city staff, was able to acquire energy usage trend data from PG&E for the study neighborhood, aggregated into blocks. Using Geographic Information System (GIS), the data was mapped to reveal trends in energy usage between 2008 and 2010. The resulting maps are included as Figures 32 to 35 in this report.

• **Educational Campaigns**: Case study research revealed that residential energy reductions can be successfully achieved by fostering targeted educational campaigns that emphasize modest improvements. This could include replacing light bulbs, sealing doors and windows, and repairing ducts. The installation of smart meters can also help reduce energy costs by raising awareness of consumption patterns by residents.

• **Support Local Contractors**: There are at least seventeen contractors in the area that provide services ranging from roofing to construction, to handyman tasks. With proper training, a "green workforce" could be developed within the community to implement energy retrofits, retaining investment dollars within the community.

Key Findings: Recommendations for Future Map Analysis

Below is a listing of the key findings that were developed as a result of this analysis. The community assessment included the collection of numerous variables related to housing and property conditions in Dorsa-TOCKNA. These variables included roof type, build date, number of stories, foreclosure status, and siding material. All of these variables have been collected into an organized ArcGIS database that will be submitted to the city staff upon completion of this project. We recommend that the staff consider the following pairings of variables using the GIS database to see if trends emerge by correlating these variable pairs:

• **Dual paned windows and Energy Usage**: Dual paned windows are more energy efficient than the single-paned windows that were common when most homes in the community were constructed. There may be a correlation between presence of dual-paned windows and energy costs.

• **Build Date and Energy Usage**: There may be a direct correlation between the age of homes in Dorsa-TOCKNA and their energy costs. It is also likely that newer homes contain newer, more energy-efficient appliances.

• **Foreclosures and Energy Usage**: While the GIS database contains information about distressed properties, we do not anticipate a strong correlation between such properties and their relative energy usage, other than to consider that vacant homes will consume less energy.

• **Foreclosures and Property Condition**: We do not expect to see a strong (or even especially useful) correlation between these variables. There might be instances in which a distressed property owner cuts back on property maintenance in light of mortgage-related problems.

Project Context

The analysis represented in this report is consistent with a "whole neighborhood" approach to the documentation of existing conditions in Dorsa-TOCKNA and identifies potential opportunities and barriers to Better Buildings Program success. It is also intended to inform efforts to extend the program to other San José communities. This section briefly highlights the goals of the program, funding sources, and consistency with the city's Green Vision.

Goals and Objectives of the Better Buildings Program

The Better Buildings Program in the City of San José aims to:

- Drive demand for energy efficiency retrofits in Dorsa-TOCKNA
- Create an active dialogue with residents and businesses of Dorsa-TOCKNA
- Conduct a research study that will provide a comprehensive overview of the neighborhood
- Use upgraded houses to showcase energy efficiency technologies that save money and reduce energy use
- Provide clear, easy to understand information about residential energy retrofits and identify sources of funding and energy programs for homeowners and residents
- Offer job training and financial resources for local construction and remodeling businesses so they are able to carry out energy efficiency upgrades and retrofits

Funding

Funding for the Better Buildings Program in San José comes from the U.S. Department of Energy, which created the program on a national level and provided a $30 million grant to Los Angeles County for a collaborative project involving the Association of Bay Area Governments (ABAG), and the Bay Area counties of San Francisco, Sonoma, Alameda, and the cities of Sacramento and San José. The City of San José received $750,000 to implement the Better Buildings Program in the Dorsa-TOCKNA community.

San José's Green Vision

The Better Buildings Program advances several of the sustainability goals established by the San José Green Vision. Adopted in October 2007, this fifteen-year plan includes goals related to:

- Clean tech jobs
- Reduced energy use
- Renewable energy
- Green buildings
- Zero Waste
- Recycled water
- Sustainable development
- Clean fleet vehicles
- Trees
- Zero emission street lights
- Interconnected trails

For more information on San José's Green Vision, visit: http://greenvision.sanjoseca.gov/

Project Partners

The following project stakeholders were involved in this community assessment and the rollout of San José's Better Buildings pilot program in Dorsa-TOCKNA:

- San José Environmental Services Department (Energy Program, Silicon Valley Energy Watch)
- San José Department of Housing
- San José Office of Economic Development (Work2Future)
- San José Redevelopment Agency (Strong Neighborhoods Initiative)
- San José State University, graduate students in the Masters of Urban & Regional Planning program
- The residents of the Dorsa-TOCKNA neighborhood
- Pacific Gas and Electric Company

The SJSU graduate students, authors of this report, served as consultants to the city staff members involved in the Better Buildings Program rollout. Additionally, the students served as liaisons between the city staff and residents of Dorsa-TOCKNA by attending community meetings and assisting in the preparation of outreach materials for the energy awareness event that took place in May 2011.

City of San José

Under the U.S. Department of Energy's Better Buildings Program, the City of San José joined in December 2009 with a broad-based group of public and private partners within California to construct new, innovative program models to accelerate building energy retrofits in communities across the state. These partners included the County of Los Angeles, the Association of Bay Area Governments (ABAG), the California Center for Sustainable Energy (CCSE), the Sacramento Municipal Utility District (SMUD), the California Energy Commission (CEC), and the California Air Resources Board (CARB). The City of San José selected the Dorsa-TOCKNA neighborhood as the pilot program focus area. Various agencies within the city are involved in both the larger Better Buildings Program and the Dorsa-TOCKNA pilot program.

Environmental Services Department

The Environmental Services Department's mission is to work with communities to conserve resources and safeguard the environment for future generations. Mary Tucker leads the Energy Program in the Sustainability and Compliance Division. The Environmental Services Department is managing the grant provided by the U.S. Department of Energy for the project.

Silicon Valley Energy Watch

Silicon Valley Energy Watch is a program within the Environmental Services Department. This initiative is unique because it is based on collaboration between the City of San José, Pacific Gas & Electric Company (PG&E), and other related partners such as Ecology Action. The purpose of the effort is to help Santa Clara County take advantage of cost-saving, energy-efficient technologies to reduce energy demand. The program offers free energy audits, targeted retrofits, technical assistance, education, training, and other services. Target audiences include municipal governments, non-profit agencies, small businesses, community organizations, professionals, and city residents. Silicon Valley Energy Watch is managed through the Environmental Services Department on behalf of PG&E.

Department of Housing

The Department of Housing's mission is to assist San José's lower- and moderate-income families by increasing, preserving, and improving housing that is affordable and livable and, to the extent possible, ensuring long-term affordability and contributing to neighborhood revitalization. The Department of Housing is providing showcase homes for the project.

Office of Economic Development: Work2Future

The Office of Economic Development works to maintain the City of San José's position as a top ranked place to conduct business, work, and live. Work2Future is a program within the Office that works with small and large businesses, community organizations, and educational institutions to focus on the economic and workforce demands in the San José area. Work2Future operates centers throughout the city to help job seekers develop skills and obtain training needed to find work, to assist businesses with staffing and economic development, and to provide youth with job skills and job searches. Work2Future is supporting workforce development through a portion of the grant.

San José Redevelopment Agency: Strong Neighborhoods Initiative

The role of the San José Redevelopment Agency is to build partnerships with local businesses and communities to create jobs, develop affordable housing, improve and strengthen neighborhoods, and build public facilities. Redevelopment Agency project areas cover approximately sixteen percent of the City's total area, and redevelopment projects generate roughly one-third of all jobs in San José. The Strong Neighborhoods Initiative (SNI) program was established by the City Council in 2002; SNI provides meaningful and visible change in each of its thirteen Neighborhood Focus Areas by achieving four primary goals:

1. Removing barriers to neighborhood action
2. Stabilizing neighborhoods in crisis
3. Mobilizing leaders to spur action in their communities
4. Connecting community priorities to available resources and seeking outside partnerships for resources

To achieve these goals, SNI works with community leaders in each Focus Area to create a tailored, comprehensive Neighborhood Improvement Plan and establish a key priorities action list. SNI is providing staff support for this project on an as-needed basis.

San José State University

San José State University's Urban and Regional Planning Department graduate students have been assigned to provide support to the city's Better Buildings Program rollout. This partnership represents the latest in a long line of successful collaborations between the university and the city and reflects a deep commitment to civic engagement on the part of both groups. The student team brings talents in the areas of demographic research, GIS-based spatial analysis, map production, and professional report preparation. The students were especially pleased to advance the mission of city staff members in the midst of significant staffing and financial cutbacks during the current recession.

Residents of Dorsa-TOCKNA

The community members of Dorsa-TOCKNA are integral to the success of this project. Based on their active participation in community meetings to their strong showing at the May 2011 energy awareness event, we anticipate a long-lasting, positive working relationship with the city staff. In particular, we wish to note the following individuals who were most helpful over the past year:

- Chuck Scott – neighborhood association leader in TOCKNA
- Olga Madera– neighborhood association leader in Dorsa
- Maria Avila– Vice President, Dorsa neighborhood association
- Adita Martinez – Secretary, Dorsa neighborhood association

Community Location and Land Uses

San José, California, located 55 miles south of San Francisco, is the heart of Silicon Valley. It is home to roughly one million people, nearly fifteen percent of the Bay Area's approximately 7.4 million residents. The Dorsa-TOCKNA community is located in east San José, south of Interstate 680 and east of Highway 101. The community is bordered by Story Road to the north, South King Road to the east, Tully Road to the south, and Reid-Hillview Airport to the east (see Figure 1). It is a just under one square mile in size.

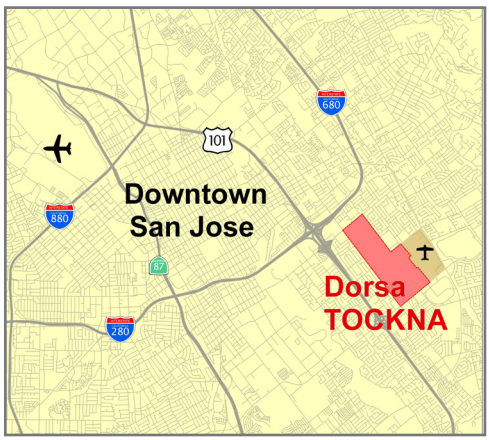


Figure 1 Dorsa-TOCKNA Community Location Map

Dorsa-TOCKNA is primarily a residential community, with 2,087 housing units (based on the 2010 Census), four public elementary schools, one public high school, and one private school. Some of the school campuses host outreach programs and provide services such as after-school care, adult education, language classes, and health care. Dorsa-TOCKNA is also home to a branch of the Boys and Girls Club, a neighborhood park, and two religious organizations. Commercial zones are primarily located at the intersection of King Road and Story Road, as well as along Tully Road. There are a number of home businesses distributed throughout the residential area.

Land Use Zoning

Figure 2 shows that Dorsa-TOCKNA is primarily zoned for medium-low density residential buildings, with a maximum of eight dwelling units per acre. There is a sizeable amount of land zoned for public uses (neighborhood schools and parks) as well as some General Commercial zoned parcels along the northern and southern edges of the neighborhood. There are very few multi-family housing units in Dorsa-TOCKNA.

Community Assets

The foundation for a thorough community assessment must include consideration of the physical assets that make the community "tick". Figure 3 depicts these assets in and around Dorsa-TOCKNA such as churches, schools, parks, and banks. These provide platforms for energy retrofit outreach efforts, including targeted flyer distribution and participation in community workshops and information fairs. By becoming partners with schools, religious communities, local businesses, and community leaders, city staff members can help spread information and enthusiasm for the Better Buildings Program.

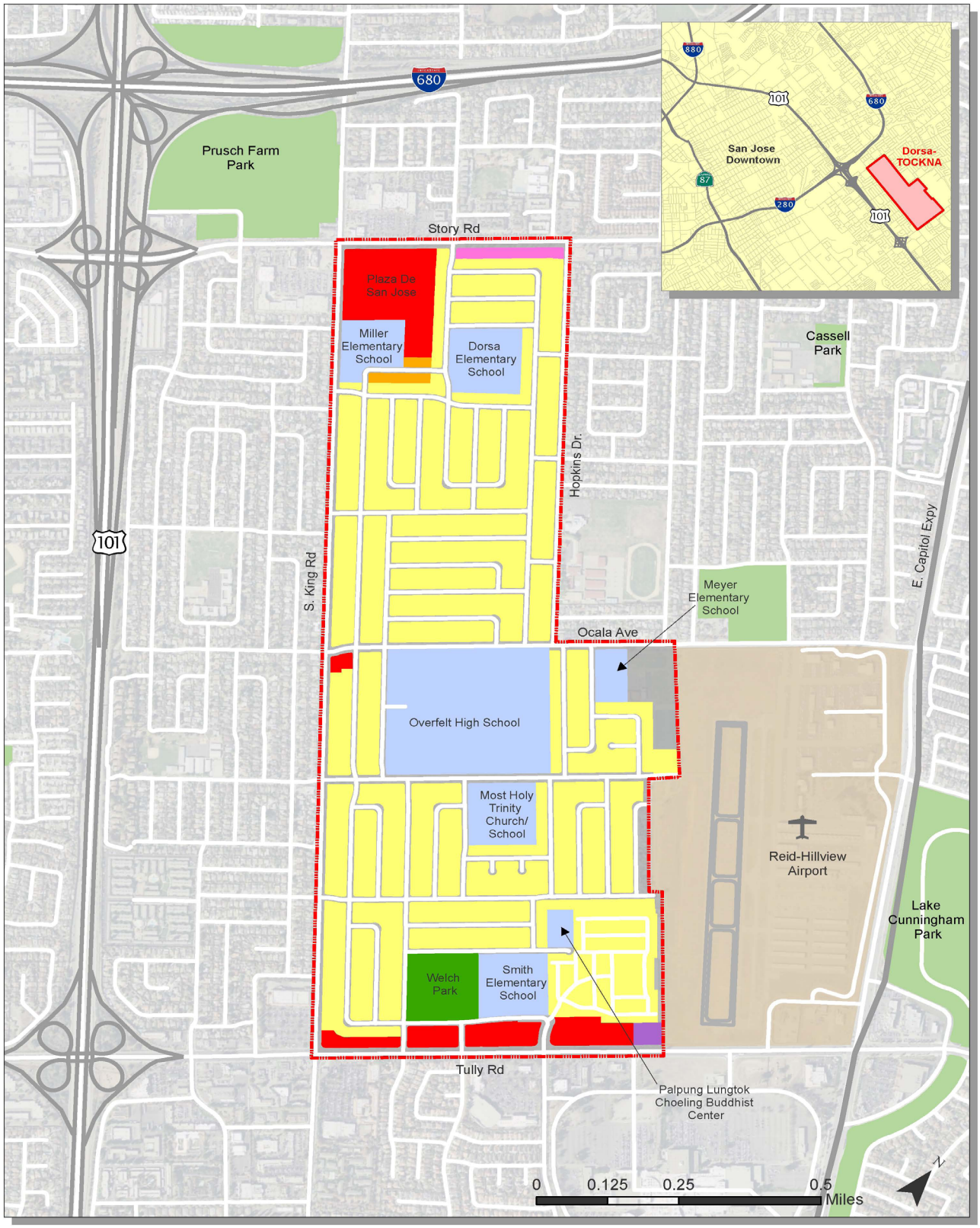


Figure 2

ZONING MAP
DORSA-TOCKNA COMMUNITY ZONING
CITY OF SAN JOSE BETTER BUILDING PROGRAM

Zoning Designations

- General Commercial
- Light Industrial
- Medium Density Residential (8-16 DU/AC)
- Medium Low Density Residential (8.0 DU/AC)
- Office
- Public Park and Open Space
- Public/Quasi-Public
- Dorsa-TOCKNA Study Area

*DU/AC: Dwelling Units Per Acre

Data Sources: City of San Jose Planning Division, Santa Clara County and U.S. Census 2000
Designed by: SJSU Urban & Regional Planning Students, 2010-2011

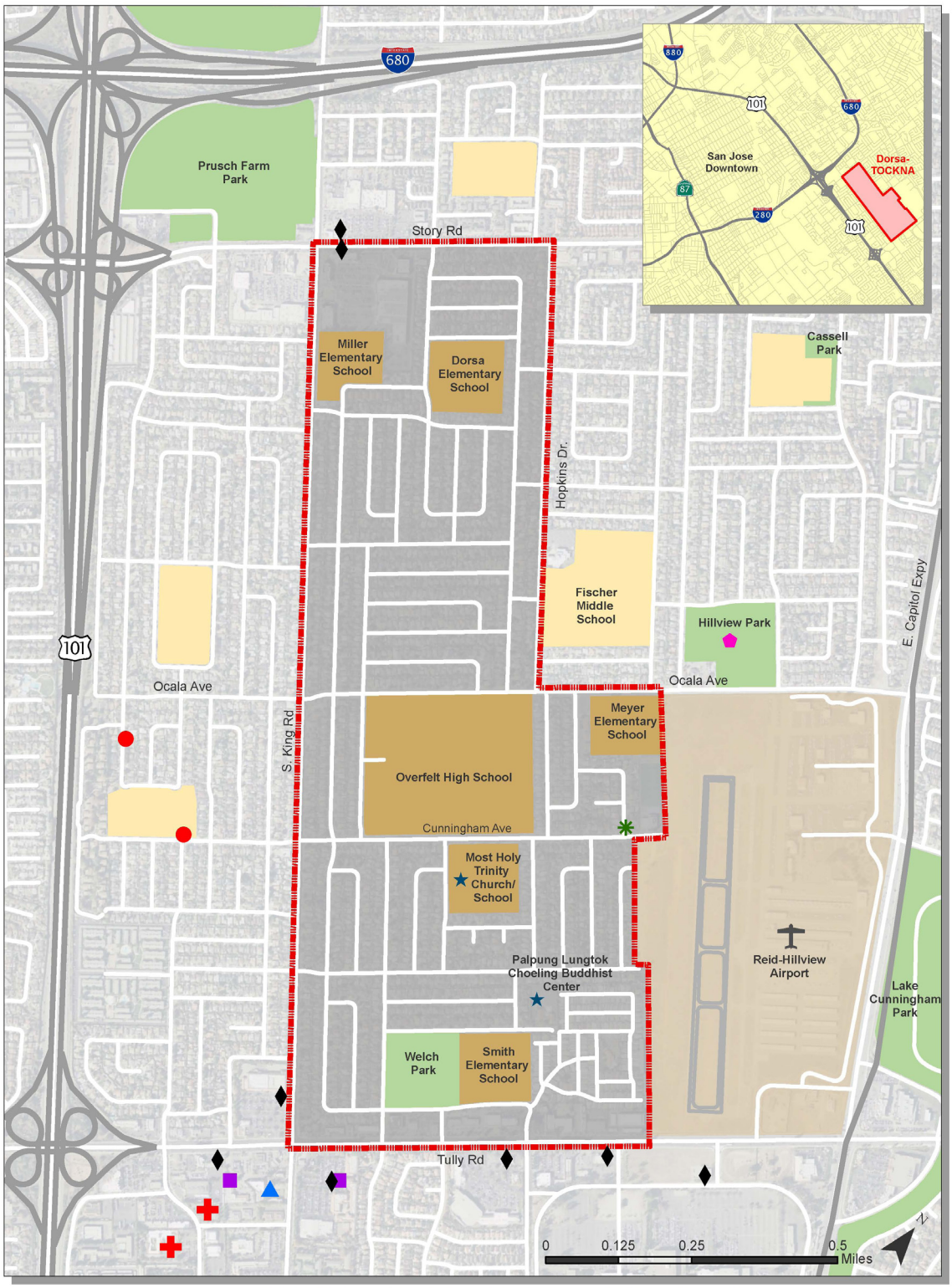


Figure 3

DORSA-TOCKNA COMMUNITY ASSETS MAP

CITY OF SAN JOSE BETTER BUILDING PROGRAM

- Dorsa-TOCKNA Study Area
- Parks
- Dorsa-TOCKNA Schools
- Other Schools
- Community Centers
- Early Childcare Center
- Health Services
- Immigration Services
- Mental Health Services
- Banking/Money Services
- Senior Services
- Spiritual Enrichment Services

Data Sources: City of San Jose Planning Division;Santa Clara County; KONA Community Services Network Community Assessment Report; Google

Designed by: SJSU Urban & Regional Planning Students, URBP 201, Fall 2010

Approach to Census Data Mapping

The US Census aggregates data at various levels of geography, the smallest being the block level which, in urban areas, generally corresponds to an actual city block. However, not all Census data variables are available at this smallest unit of analysis, primarily to ensure privacy. For this reason, this report uses the next-highest unit of data aggregation, block groups. Figure 4 shows the block group boundaries in Dorsa-TOCKNA.

The Census Bureau assigns each block group a seven-digit reference number. For readability purposes, each block group in Dorsa-TOCKNA has been assigned a corresponding letter (A through F) and all maps, graphs, and tables in this report reference these letters. Figure 4 shows each block group's reference number and its assigned letter.

Housing Occupancy

There are 2,087 housing units in Dorsa-TOCKNA, of which sixty-six were vacant according to the 2010 Census. In percentage terms, occupied housing units account for 97% of the housing stock, leaving 3% of units vacant. By way of comparison, the 2000 Census counted 1,985 housing units in Dorsa-TOCKNA, indicating that 102 new housing units were added over the course of the decade.

Population and Housing Units

Per the 2010 Census, nearly thirty percent of Dorsa-TOCKNA's approximately 11,000 residents lived in block-group E in the southernmost part of the neighborhood (Figure 5). Block group E also has the largest number of housing units in the neighborhood (Figure 6).

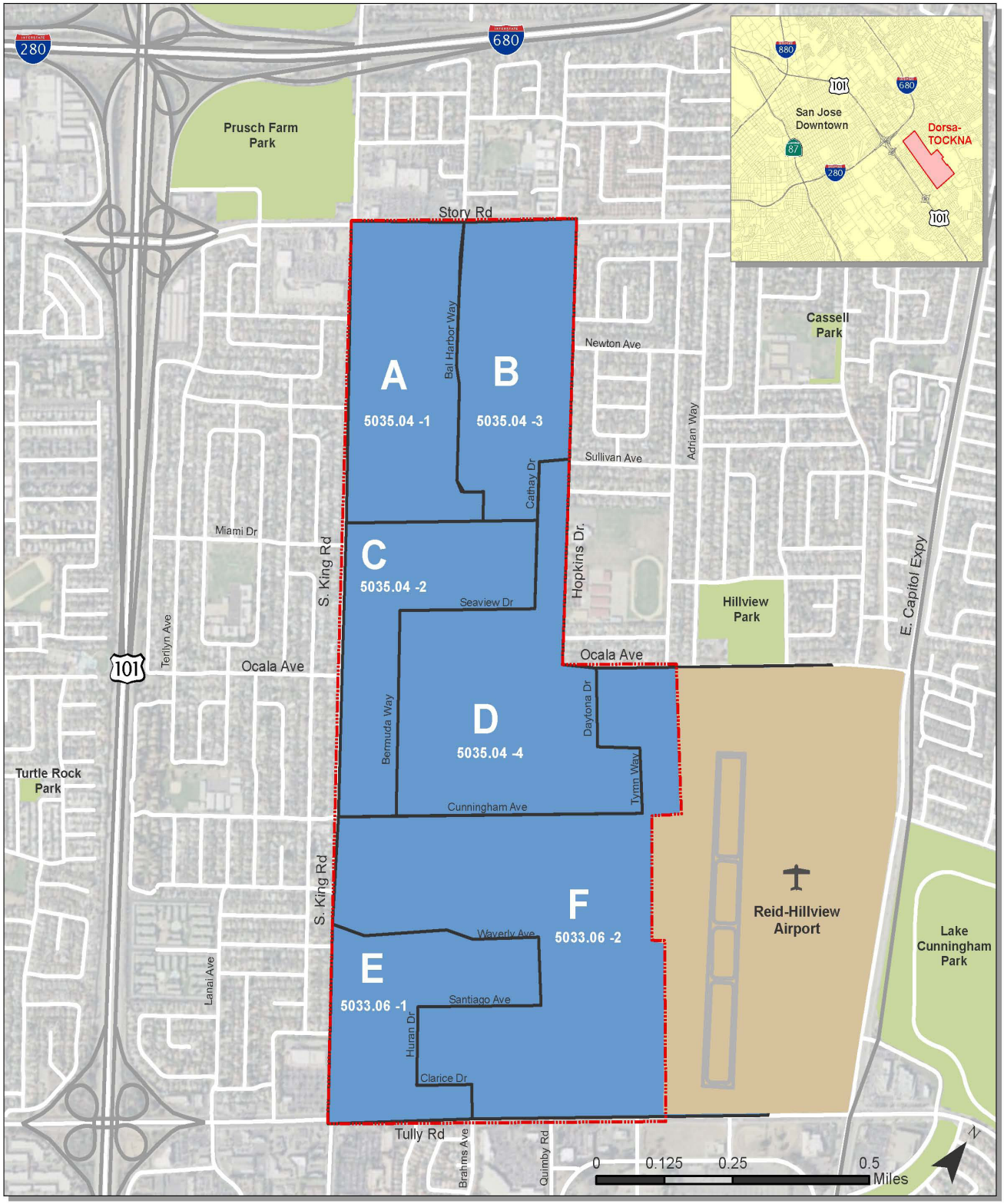


Figure 4

CENSUS BLOCK MAP
DORSA-TOCKNA COMMUNITY
CITY OF SAN JOSE BETTER BUILDING PROGRAM

Airport

Census Block Groups

Dorsa-TOCKNA Neighborhood Boundary

Data Sources: City of San Jose Planning Division, Santa Clara County and U.S. Census 2000
Designed by: SJSU Urban & Regional Planning Students, 2010-2011

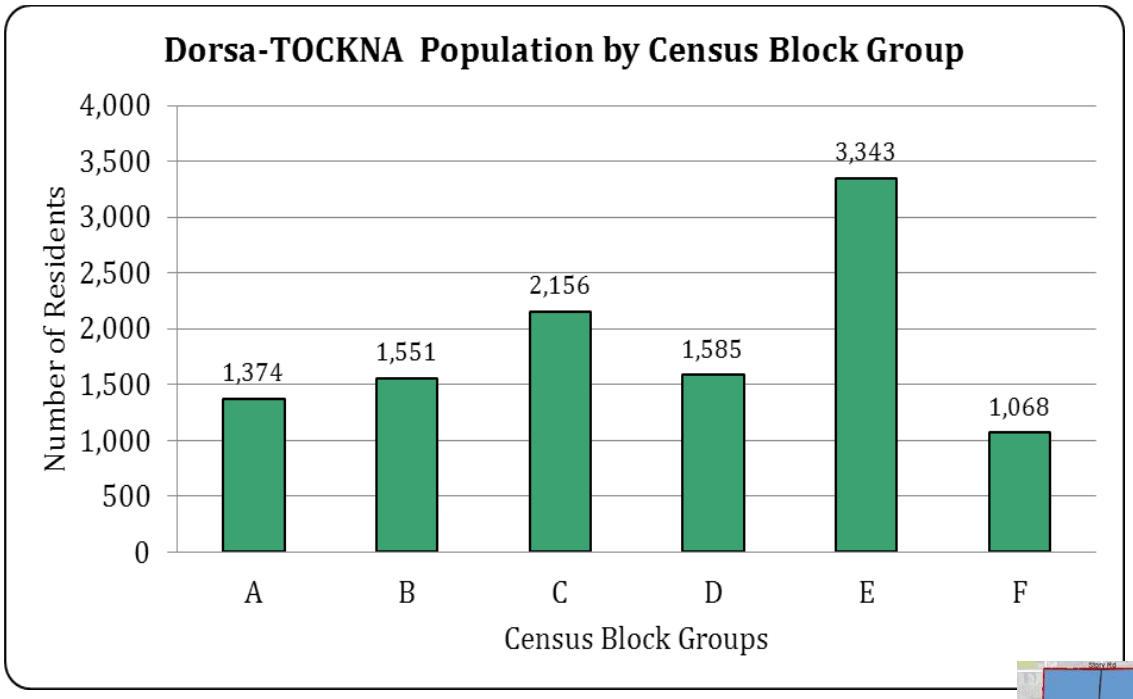
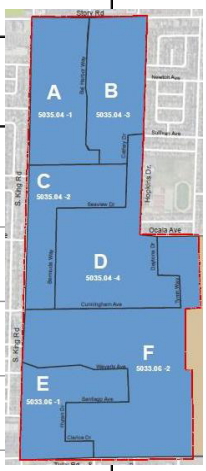


Figure 5 Dorsa-TOCKNA Population by Census Block Group
Source: US Census, 2010



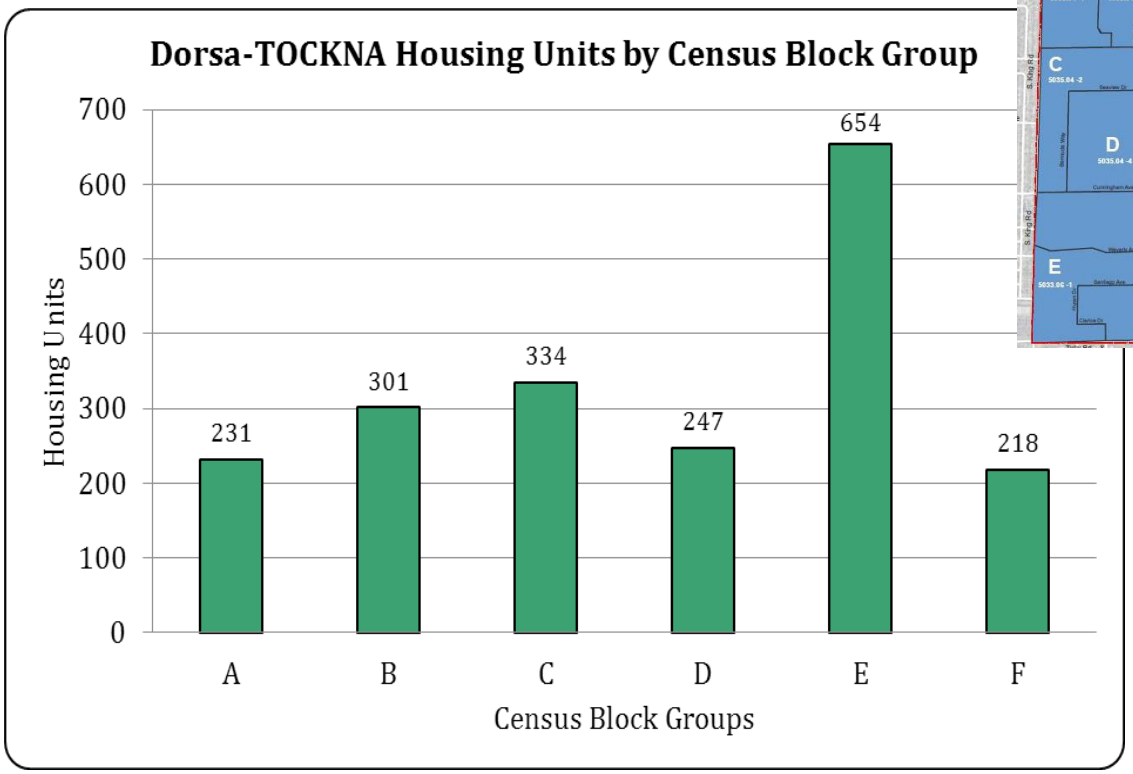


Figure 6 Dorsa-TOCKNA Housing Units by Census Block Group
Source: US Census, 2000 (note – number of housing units per block group unavailable from 2010 Census at time of report)

Educational Attainment

Figure 7 compares the education level of the Dorsa-TOCKNA community to that of the city, county and state per the 2000 Census. While over forty percent of people in Santa Clara County had a Bachelor's degree or higher at that time, fewer than seven percent of residents in Dorsa-TOCKNA possessed this level of education. Furthermore, compared to California overall, residents in Dorsa-TOCKNA were twice as likely to lack a high school diploma.

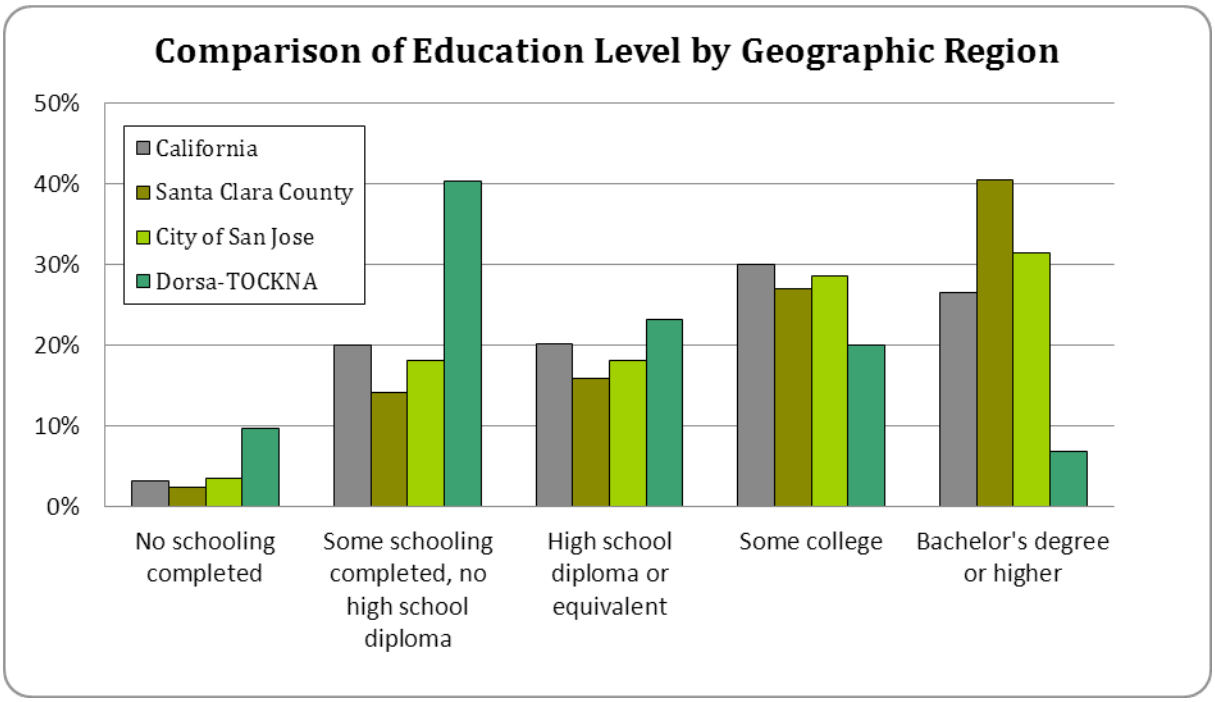


Figure 7 Comaprison of Educational Level by Geographic Region
Source: US Census, 2000

Race and Ethnicity

The 2010 Census revealed that Dorsa-TOCKNA is primarily comprised of Hispanic and Latino residents (seventy-three percent) and Asian residents (twenty-one percent). Whites represent only three percent of the neighborhood's residents. Figure 8 represents these statistics and compares Dorsa-TOCKNA's racial composition to that of the city as a whole as well as the state of California. Block groups in the northern part of the study area have the highest concentrations of Hispanic/Latino residents, while block groups in the south have the highest concentrations of Asian residents. 2010 Census data with racial statistics has not yet been released (it is expected in August, 2011). Although future research should investigate the racial/ethnic breakdown at

the census block group level, it is well known that a large majority of the residents classified as "Asian" by the Census Bureau are of Vietnamese origin.

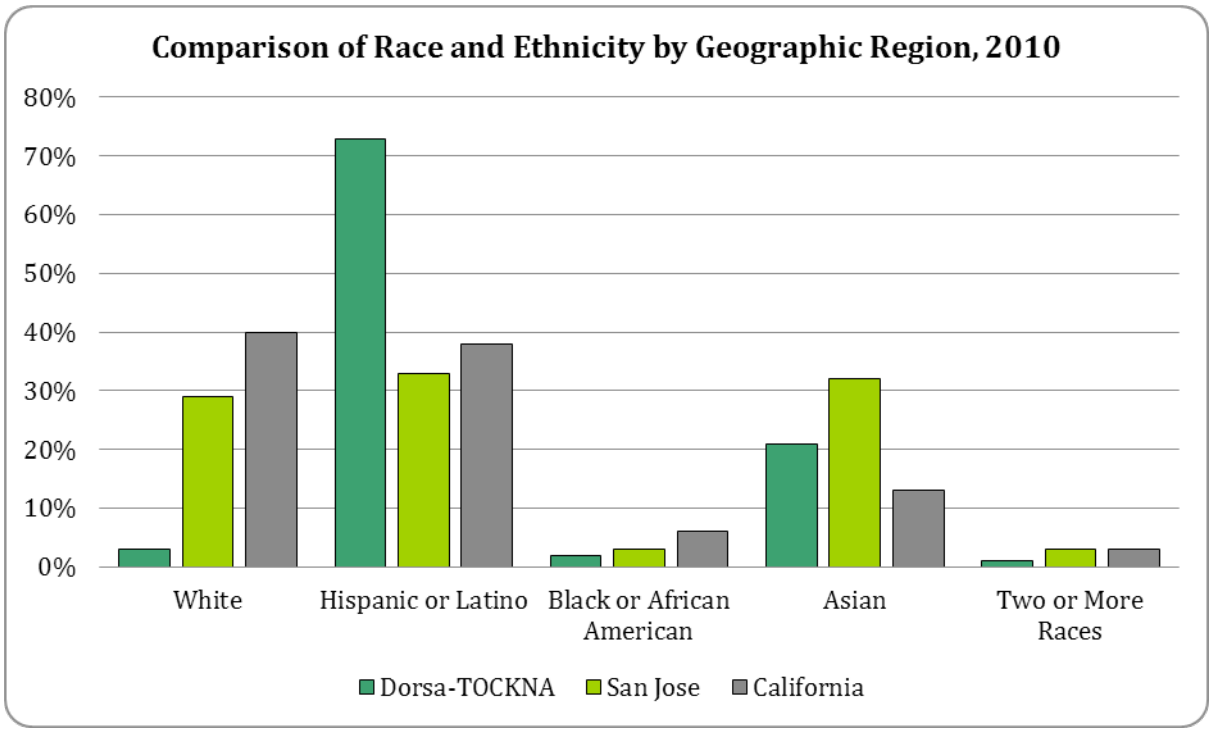


Figure 8 Comaprison of Race and Ethnicity by Geographic Region, 2010
Source: US Census, 2010

Language

According to the 2000 Census, a little over sixty percent of Dorsa-TOCKNA residents speak Spanish, and just over twenty percent of residents speak Asian and Pacific Island languages. Within these groups, there are residents who live in a household where they speak little or no English, a distinction that the U.S Census defines as *linguistic isolation*. It should be noted that such isolation is classified as "self-inflicted" by the Census Bureau. Figure 9 reflects this information.

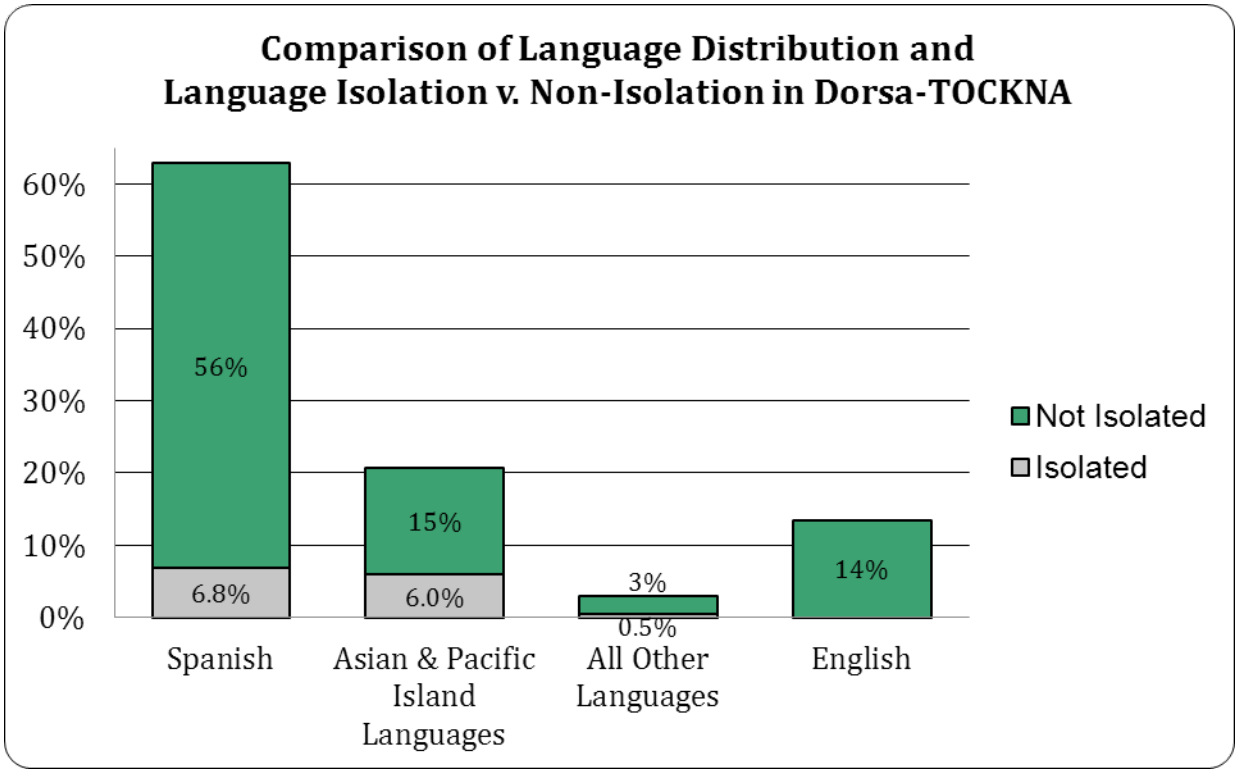


Figure 9 Comparison of Language Distribution and Language Isolation v. Non-Isolation in Dorsa-TOCKNA

Household Income

The median household income in Dorsa-TOCKNA, based on 2000 Census data, is compared to that of the city, county and state in Figure 10 (It is anticipated that 2010 income data will be released in August 2011). The median household income for Dorsa-TOCKNA was $65,029 - approximately twenty-eight percent higher than the median household income for California. However, the neighborhood has a lower median income than that of the immediate region, with residents earning twelve percent less than Santa Clara County as a whole, and eight percent less than in San José as a whole.

Within Dorsa-TOCKNA itself, income is not evenly distributed (see Figure 11). Of the six block groups in the neighborhood, block-group E has the second lowest median household income (and, as noted earlier, the highest number of residents). The difference in income between the highest income block-group (D) and the lowest (F) is substantial: nearly twenty-four percent.

Future research should include a table that compares household size to income, once 2010 Census data becomes available in the last quarter of 2011. By doing so, comparisons can also be made to the relationship between household size and income at the city and state levels.

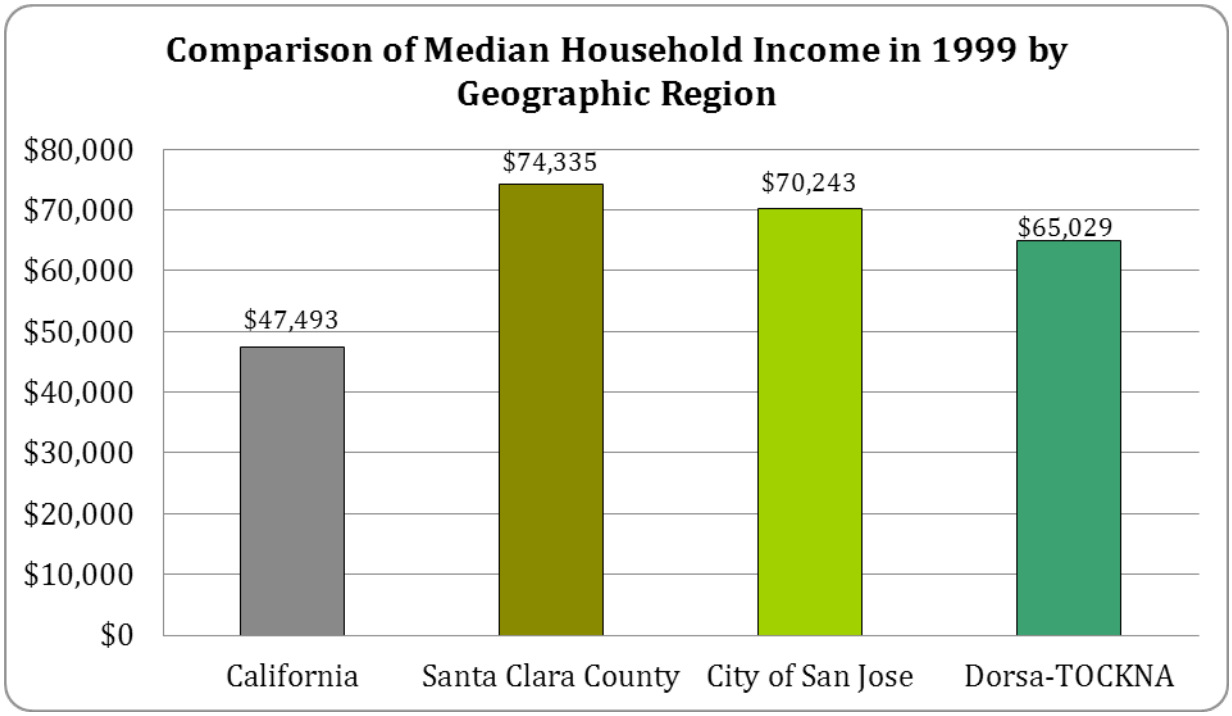


Figure 10 Comparisons of Dorsa-TOCKNA and Regional Median Household Incomes, 1999

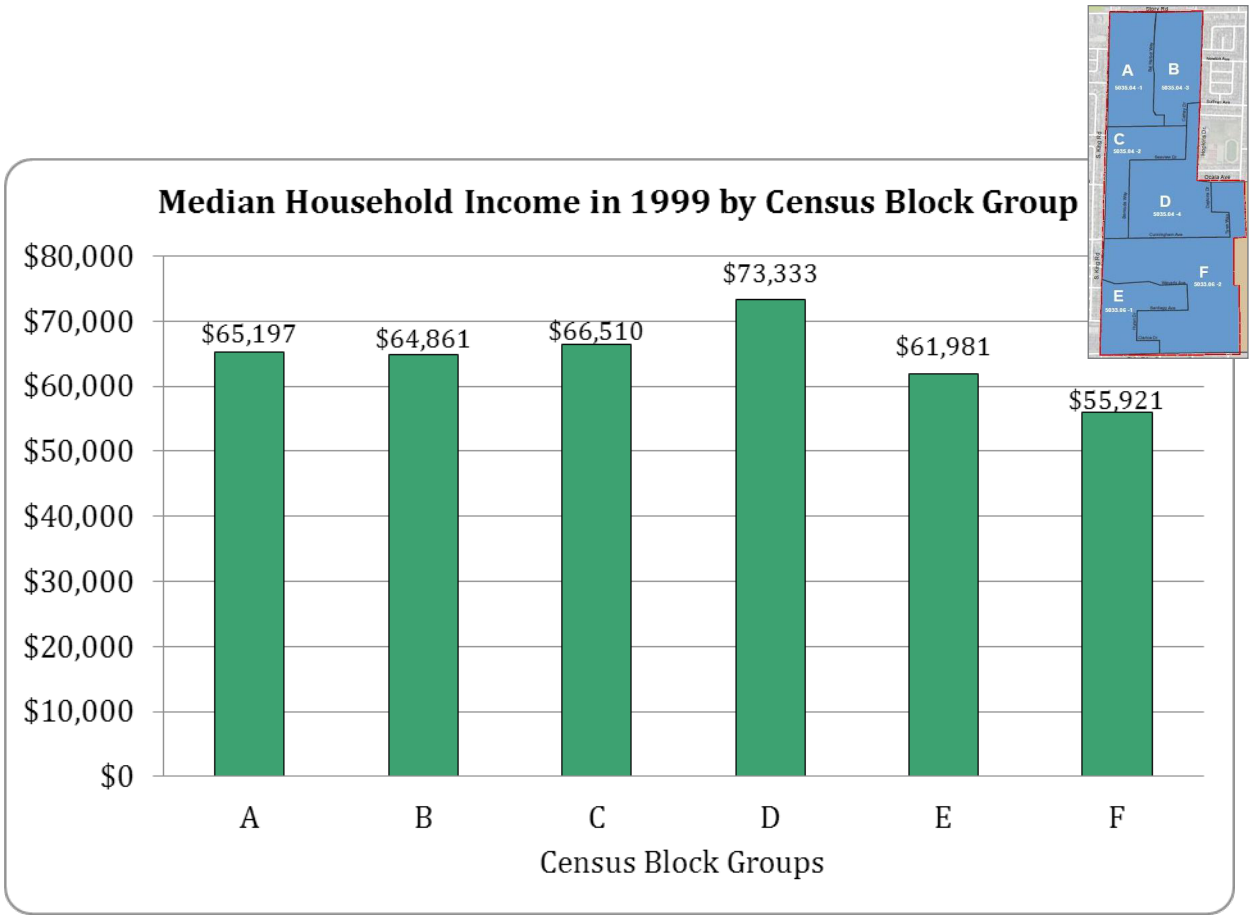


Figure 11 Dorsa-TOCKNA Median Household Income
Source: US Census, 2000

Household Size

The average household size in Dorsa-TOCKNA according to Census 2000 data was larger than that at the city, county, or state level. As Figure 12 shows, households with more than six people were clustered just north of Overfelt High School. With higher household sizes and lower household incomes (compared to the city and county) residents of Dorsa-TOCKNA have less buying power than the typical resident of San José or Santa Clara County. Additionally, with more people living in a single home – and many homes here are roughly fifty years old – household energy bills are likely to be higher in Dorsa-TOCKNA than elsewhere in the city and county. Taken together, these conditions should provide a larger incentive for neighborhood residents to participate in energy-retrofit programs funded by the Better Buildings effort.

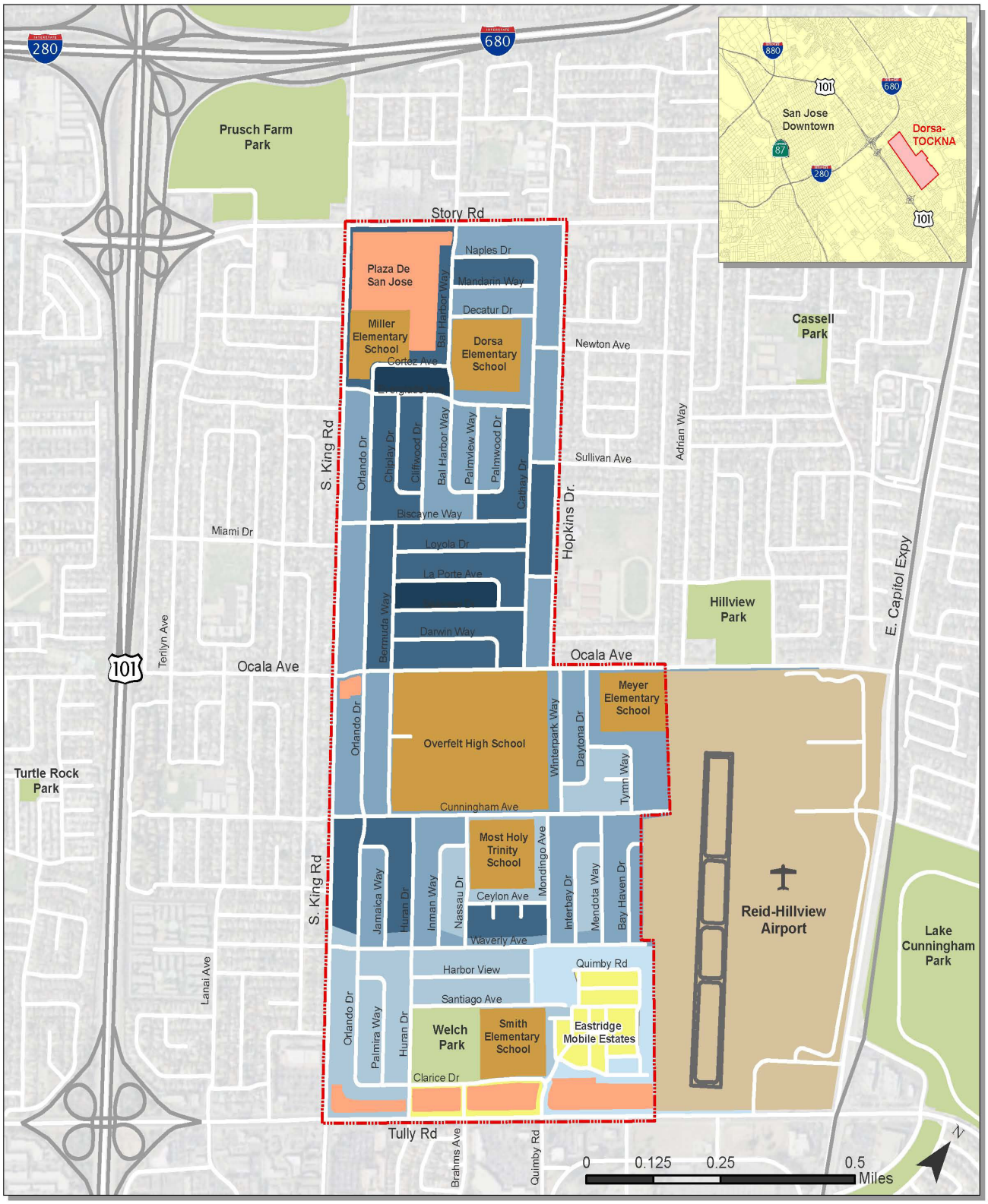


Figure 12

AVERAGE HOUSEHOLD SIZE PER CENSUS BLOCK
DORSA-TOCKNA COMMUNITY
CITY OF SAN JOSE BETTER BUILDING PROGRAM

Average Household Size per Census Block

- 7.1-8
- 6.1-7
- 5.1-6
- 4.1-5
- 3.1-4
- Data N/A

- Commercial Land Uses
- Parks
- Airport
- Dorsa-TOCKNA Schools
- Dorsa-TOCKNA Neighborhood Boundary

Data Sources: City of San Jose Planning Division, Santa Clara County and U.S. Census 2000
Designed by: SJSU Urban & Regional Planning Students, 2010-2011

Length of Home Ownership and Owner/Renter Split

Of the 1,630 properties with recorded purchase dates, more than sixty-eight percent have been owned for ten years or less (see Figure 13). Fewer than ten percent have been owned for more than thirty years. Note that this data is from the 2000 Census and does not take into account the recession of recent years. Housing ownership data from the 2010 Census is anticipated to be released in August 2011. Housing ownership data from the 2010 Census is anticipated to be released in August 2011. When released, this data is expected to show an even higher percentage of homes owned for ten years or less due to the housing recession. Another housing-related concern caused by the recession, foreclosures, is explored later in this section.

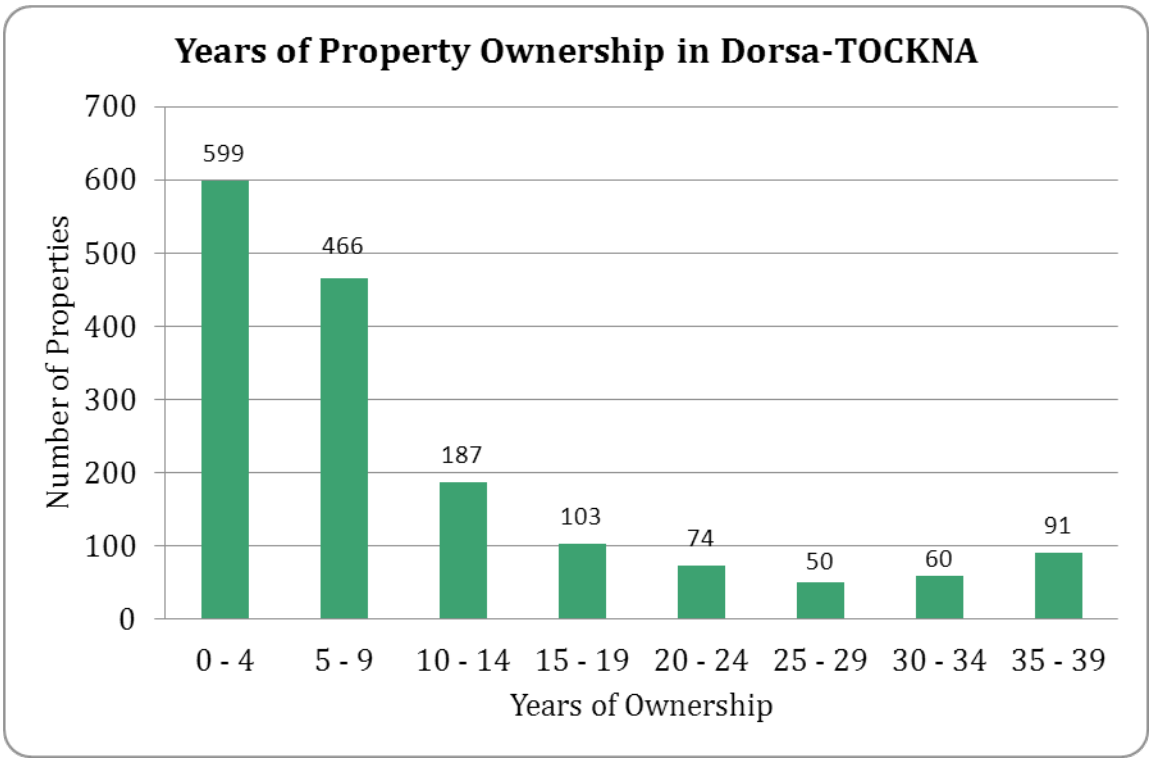


Figure 13 Dorsa-TOCKNA Years of Ownership
Source: US Census, 2000

The economic and housing market fluctuations that have occurred since 2000 undoubtedly have had an effect on the rate of ownership in the Dorsa-TOCKNA community, but according to 2000 census data, seventy-eight percent of all occupied housing units in Dorsa-TOCKNA were owner occupied. Refer to Figure 14 to see a breakdown of owner versus renter occupation at the census block level.

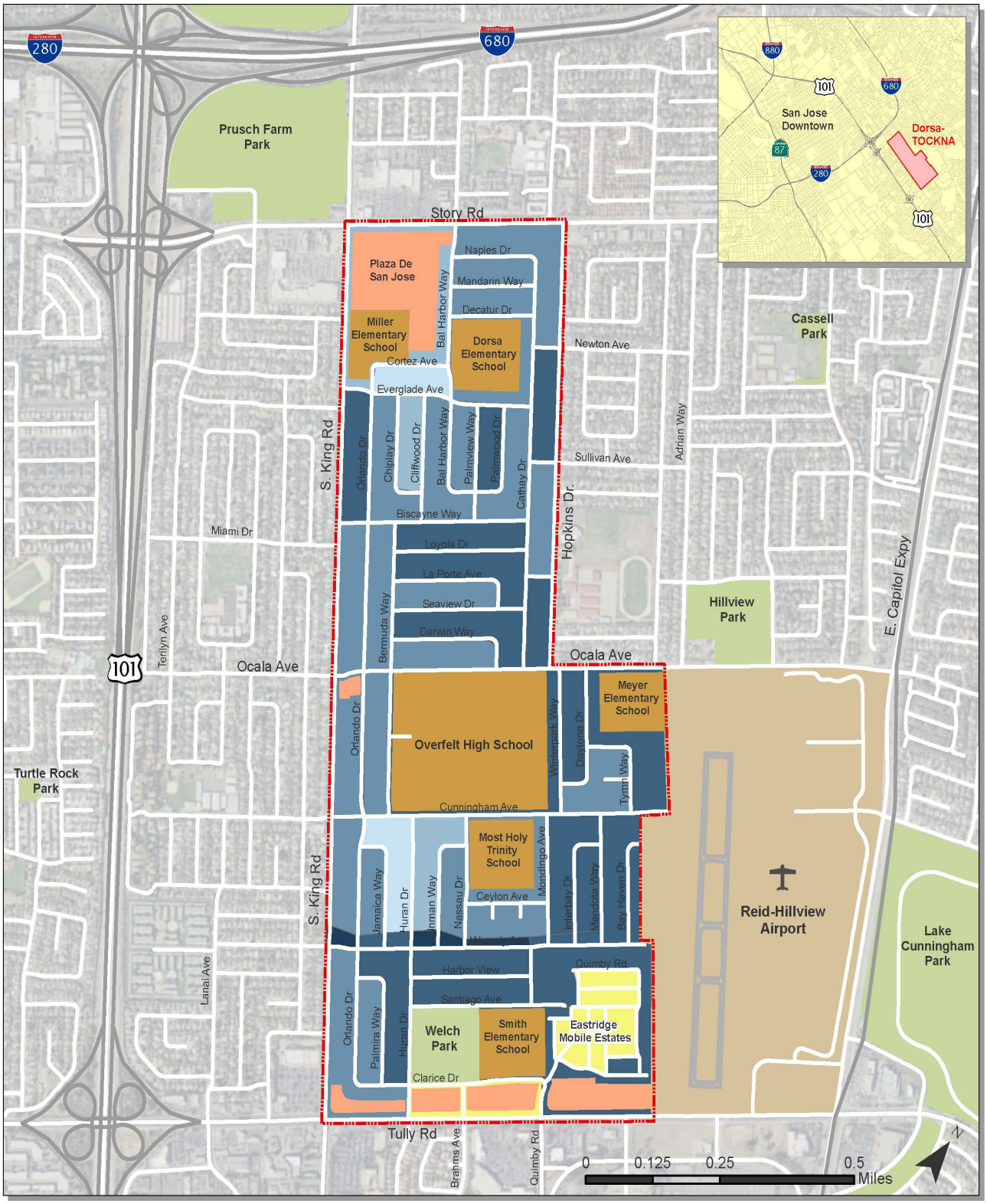


Figure 14 PERCENTAGE OWNER OCCUPIED HOMES BY CENSUS BLOCK LEVEL
DORSA-TOCKNA COMMUNITY
CITY OF SAN JOSE BETTER BUILDING PROGRAM

Percentage Owner Occupied Homes at Census Block Level
- 90.1-100
- 80.1-90
- 70.1-80
- 60.1-70
- < 60
- Data N/A

- Parks
- Airport
- Commercial Land Uses
- Dorsa-TOCKNA Schools
- Dorsa-TOCKNA Neighborhood Boundary

Data Sources: City of San Jose Planning Division, Santa Clara County and U.S. Census 2000
Designed by: SJSU Urban & Regional Planning Students, 2010-2011

Interestingly, Dorsa-TOCKNA has a higher rate of home ownership (seventy-eight percent) than Santa Clara County as a whole (sixty percent) and San José as a whole (sixty-two), as illustrated in Figure 15. Dorsa-TOCKNA's high rate of homeownership, coupled with its low median household income suggests that much of Dorsa-TOCKNA's wealth is invested in property.

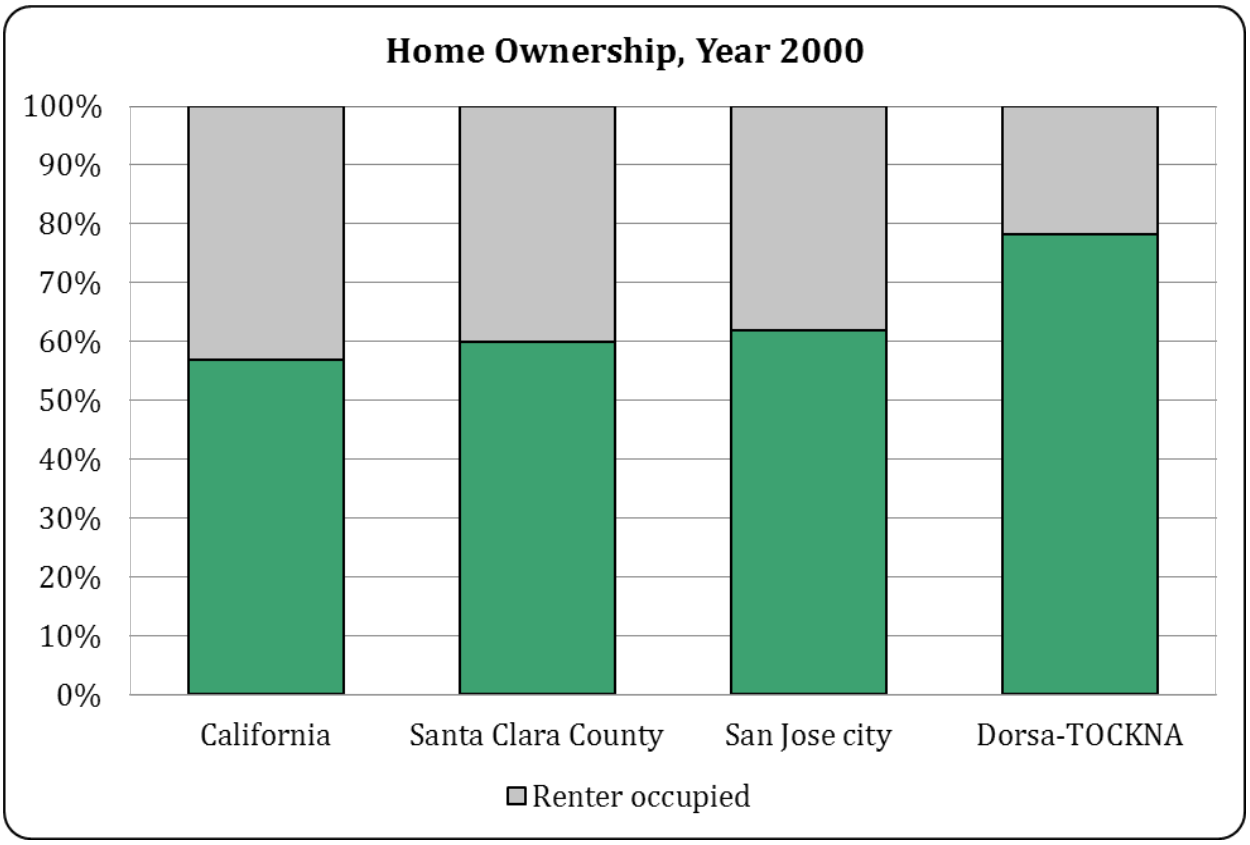


Figure 15 Dorsa-TOCKNA and Regional Home Ownership, Year 2000
Source: US Census, 2000

Home Rental Costs

The median rent in Dorsa-TOCKNA according to the 2000 Census and reflected in Figure 16 was thirty-six percent higher than that of California as a whole, but the median household income was also higher by twenty-seven percent. On a regional level, the situation is quite different: the median gross rent was thirteen percent higher in Dorsa-TOCKNA than in Santa Clara County as a whole, but the median household income was thirteen percent lower.

The residents of Dorsa-TOCKNA spend a disproportionate amount of their incomes on rent, demonstrating that higher incomes in the community reflect a higher cost of living, rather than greater wealth. Figure 17 reflects the distribution of rental costs within the neighborhood: block group F had the highest rents, forty-three percent higher than the lowest rents in block group D. We attempted to find a correlation between rental cost and building age but did not find a significant one. Generally, older homes are located mainly in the northern portion of the community (block groups A and B), and the newest are located in block groups E and F.

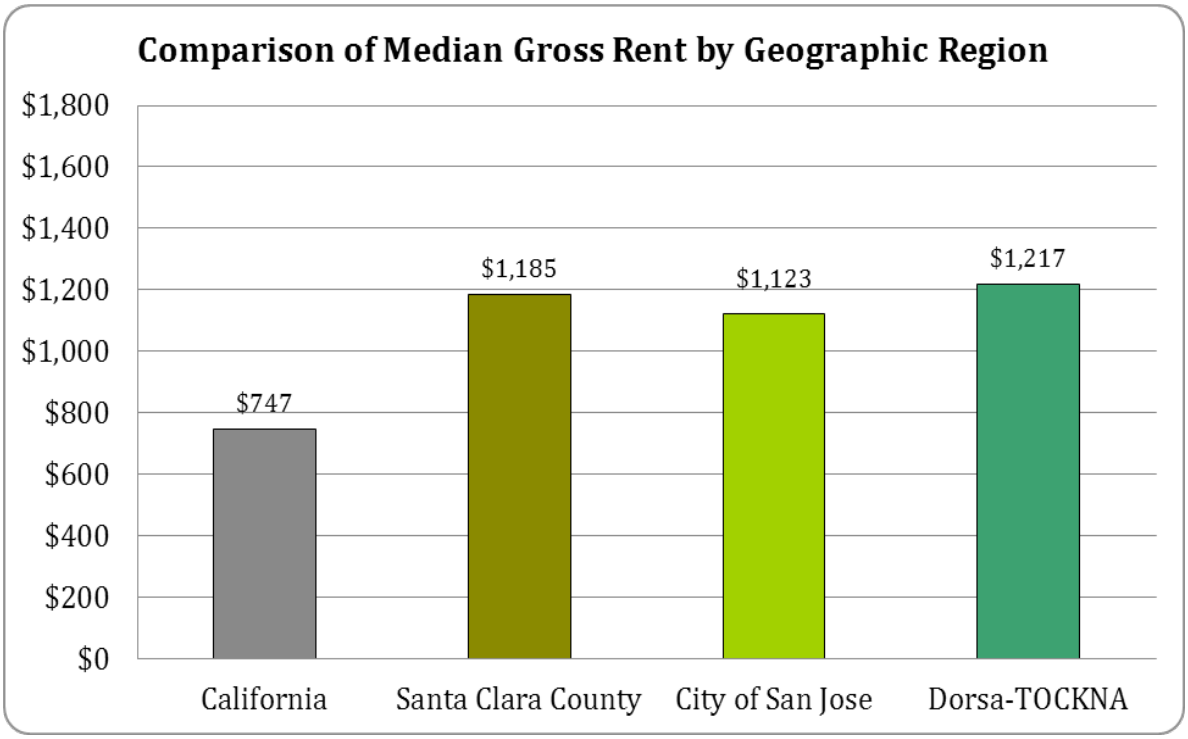


Figure 16 Dorsa-TOCKNA and Regional Gross Rents Comparison
Source: US Census, 2000

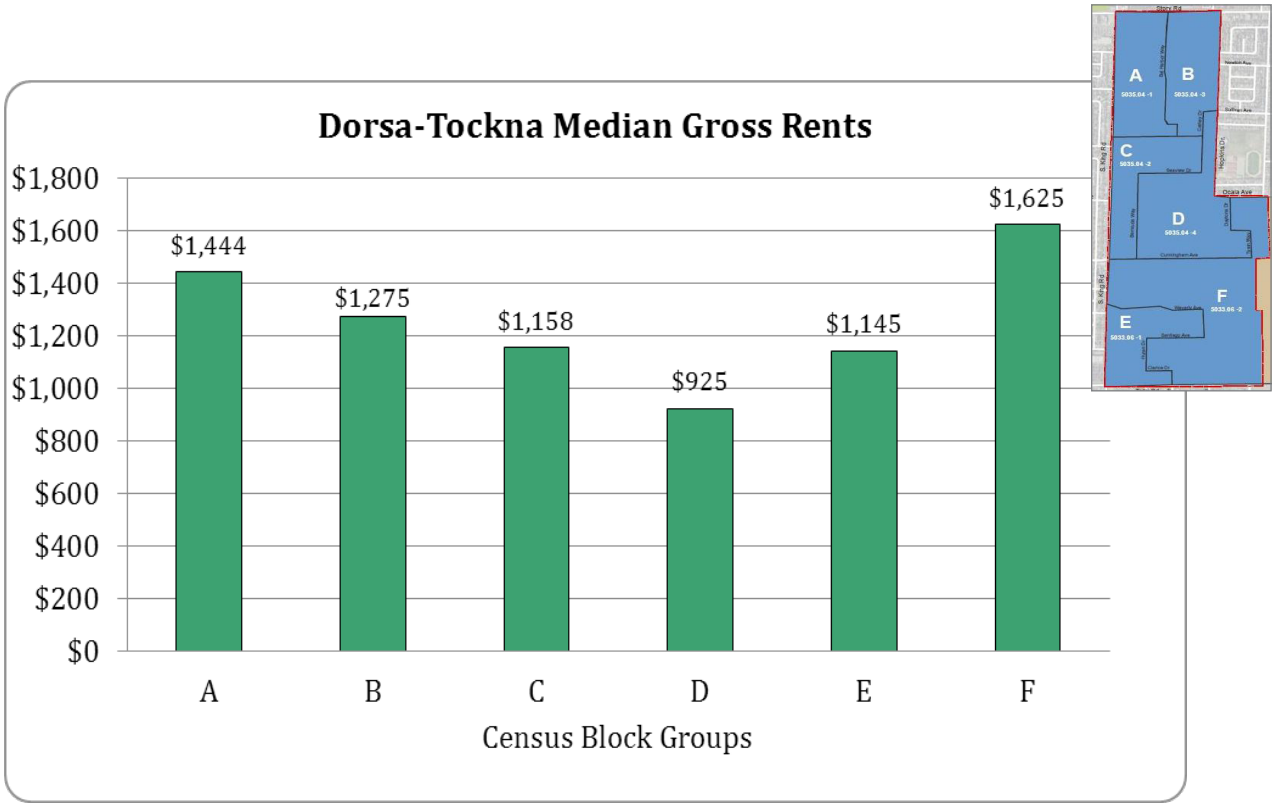


Figure 17 Dorsa-TOCKNA Median Gross Rent
Source: US Census, 2000

Housing Value and Foreclosures

While the year 2000 median rent in Dorsa-TOCKNA was higher than city and county medians, the value of owner-occupied housing units was lower (see Figure 18). The median values of owner-occupied homes in San José were greater than those in Dorsa-TOCKNA by approximately forty-seven percent or $98,000, while in Santa Clara County the median values of owner-occupied homes was greater by approximately fifty-three percent or $145,000. Block group F had the highest median home value, while block group E had twenty-three percent lower values (see Figure 19).

Future research should include an analysis of the average square footage of homes in Dorsa-TOCKNA, perhaps by acquiring the latest county assessor data. This observation has been included in the recommendations portion of this report.

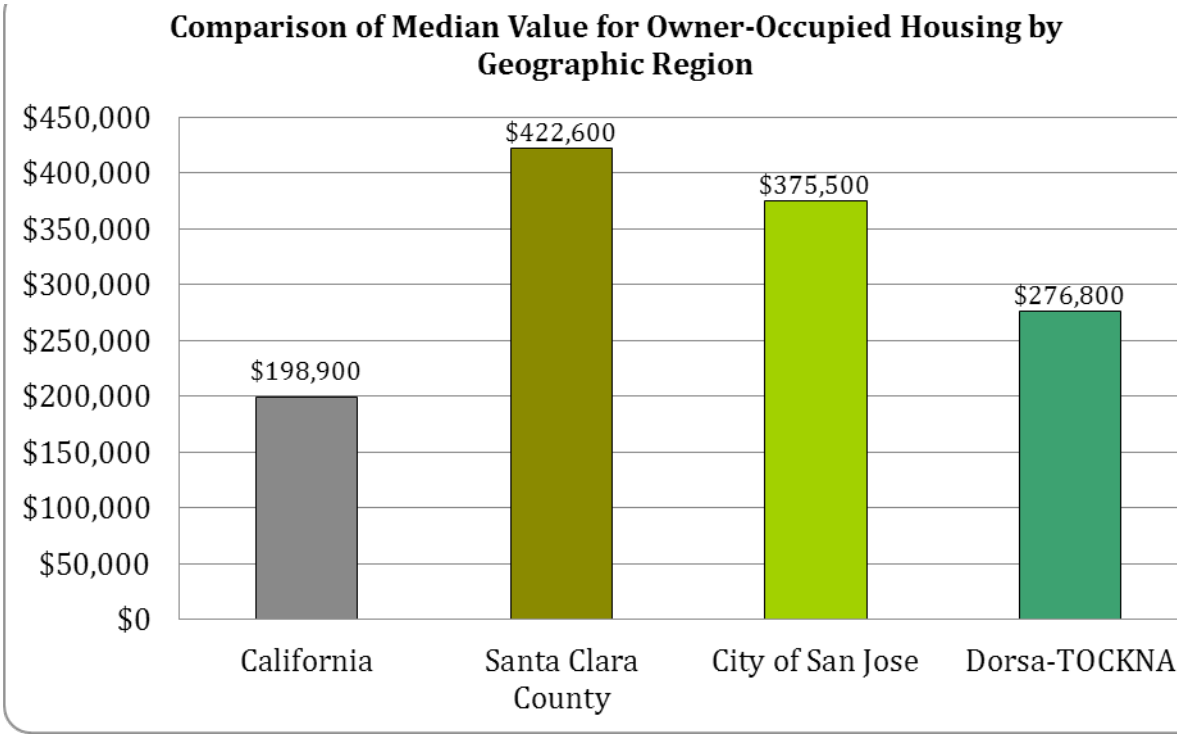


Figure 18 Dorsa-TOCKNA and Regional Median Home Values Comparison
Source: US Census, 2000

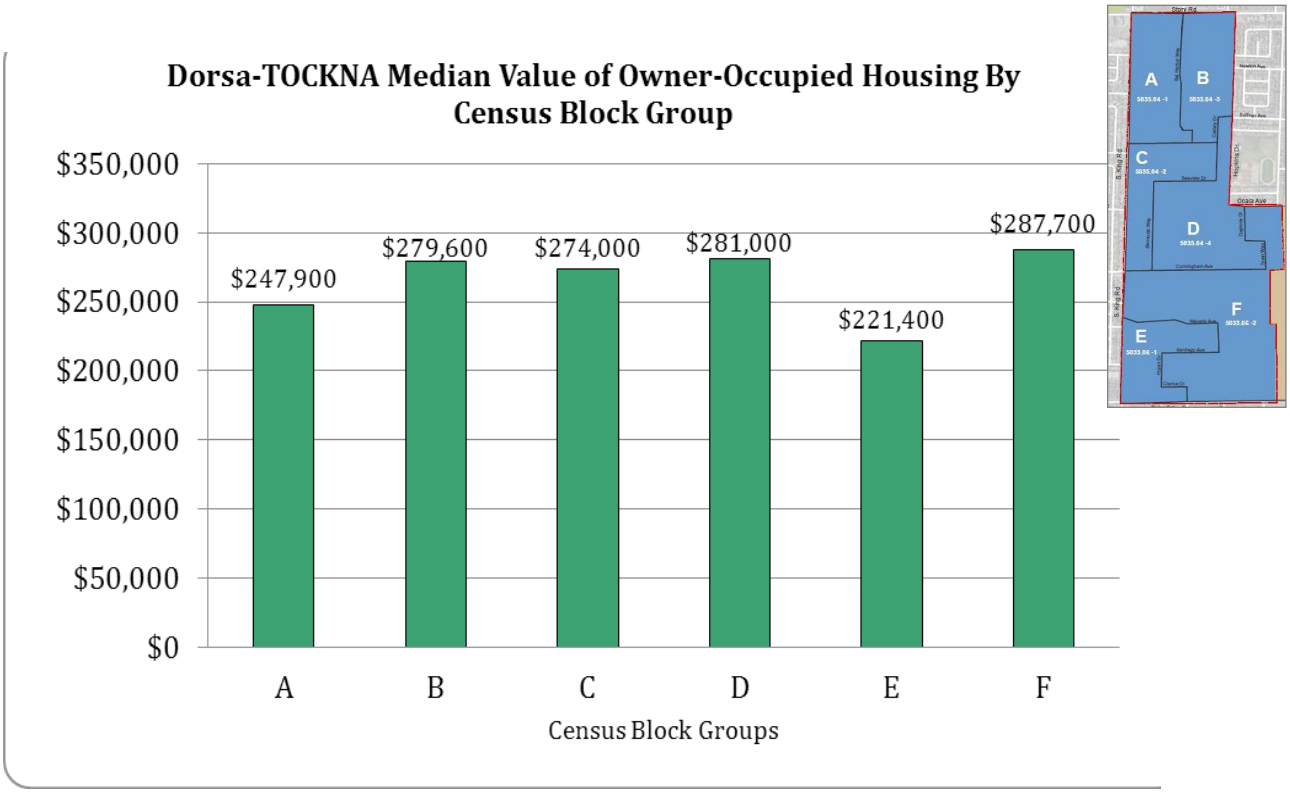


Figure 19 Dorsa-TOCKNA Median Home Value by Census Block Group
Source: US Census, 2000

Figure 20 reflects recent data (2010) pertaining to distressed properties, one measure of financial stress in the community. Future research should investigate whether there are differences in the foreclosure rates in Dorsa-TOCKNA compared to that of the city as a whole, and other neighborhoods within the city. This observation has been included in the recommendations portion of this report.

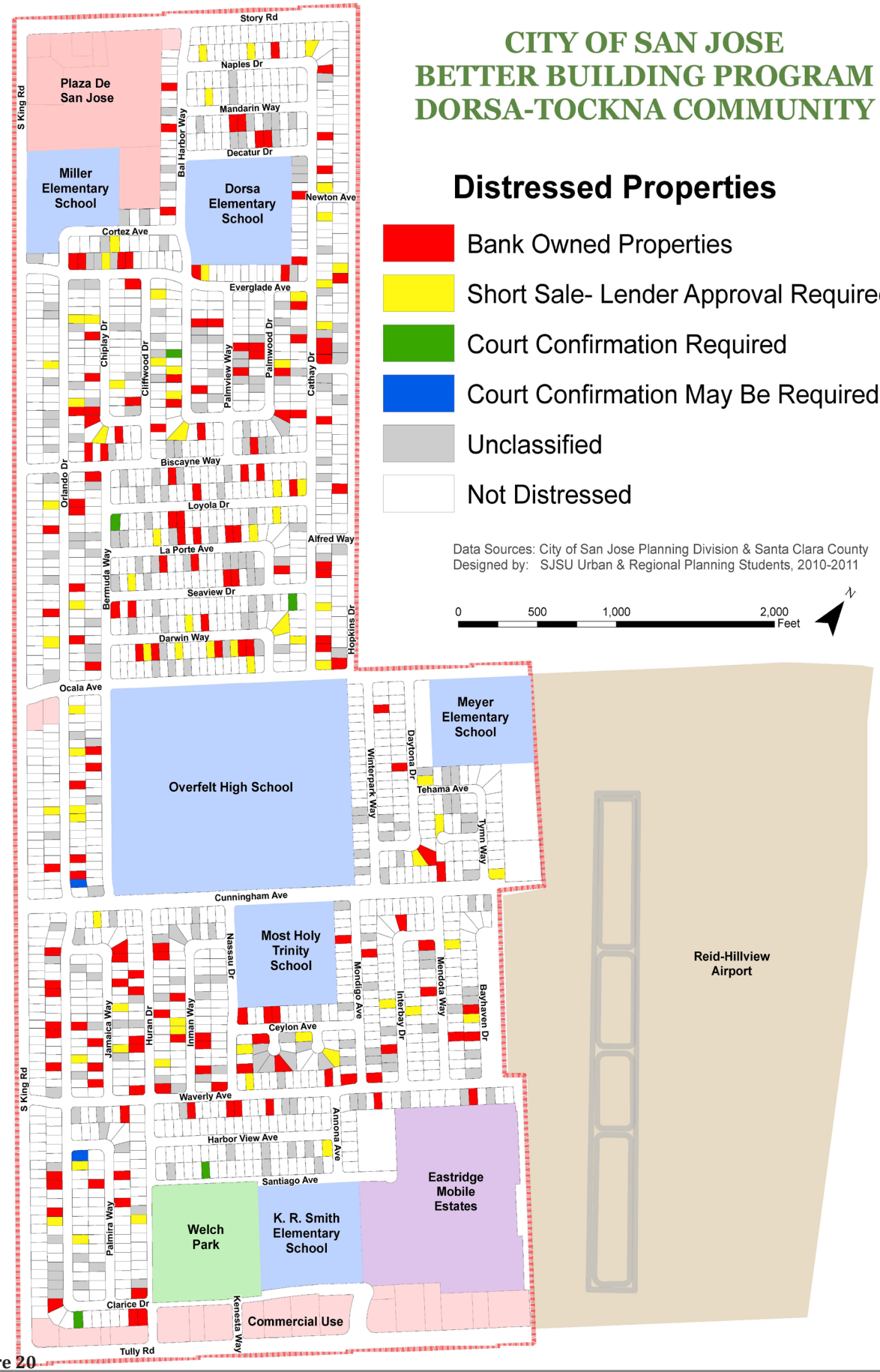

CITY OF SAN JOSE
BETTER BUILDING PROGRAM
DORSA-TOCKNA COMMUNITY
Distressed Properties
Bank Owned Properties
Short Sale- Lender Approval Required
Court Confirmation Required
Court Confirmation May Be Required
Unclassified
Not Distressed
Data Sources: City of San Jose Planning Division & Santa Clara County
Designed by: SJSU Urban & Regional Planning Students, 2010-2011
0
500
1,000
2,000
Feet
N
Story Rd
Naples Dr
Mandarin Way
Decatur Dr
Newton Ave
Everglade Ave
Cortez Ave
Plaza De San Jose
Miller Elementary School
Dorsa Elementary School
S King Rd
Bal Harbor Way
Chiplay Dr
Cliffwood Dr
Palmview Way
Palmwood Dr
Cathay Dr
Orlando Dr
Biscayne Way
Loyola Dr
La Porte Ave
Alfred Way
Bermuda Way
Seaview Dr
Darwin Way
Hopkins Dr
Ocala Ave
Overfelt High School
Meyer Elementary School
Daytona Dr
Winterpark Way
Tehama Ave
Tyrnn Way
Cunningham Ave
Most Holy Trinity School
Nassau Dr
Mondego Ave
Interbay Dr
Mendota Way
Bayhaven Dr
Ceylon Ave
Jamaica Way
Huran Dr
Inman Way
Waverly Ave
Harbor View Ave
Annona Ave
Santiago Ave
Reid-Hillview Airport
Eastridge Mobile Estates
Welch Park
K. R. Smith Elementary School
Palmira Way
Clarice Dr
Kenesta Way
Commercial Use
Tully Rd

Figure 20

Housing Stock Characteristics

This section describes the existing characteristics of residential buildings in Dorsa-TOCKNA, starting with housing age.

Building Age

The age of a home is significant when considering energy-retrofit options since technology and building code requirements change significantly over time. Generally speaking, aside from a newer pocket of homes just north of Dorsa Elementary School, the further south a home is located in the neighborhood, the newer it is. Over ninety percent of all homes in the Dorsa-TOCKNA community were built between 1959 and 1965. As mapped in Figure 21 and graphed in Figure 22, 711 homes were constructed in 1959 alone, the busiest construction year in Dorsa-TOCKNA. In 1960, home building remained strong with 325 completed dwelling units. While housing production continued apace for several more years, 1965 marked the final year of significant home construction, with 236 homes built. Only ninety-four homes have been built in Dorsa-TOCKNA since 1965, forty-three of them in 1979 alone.

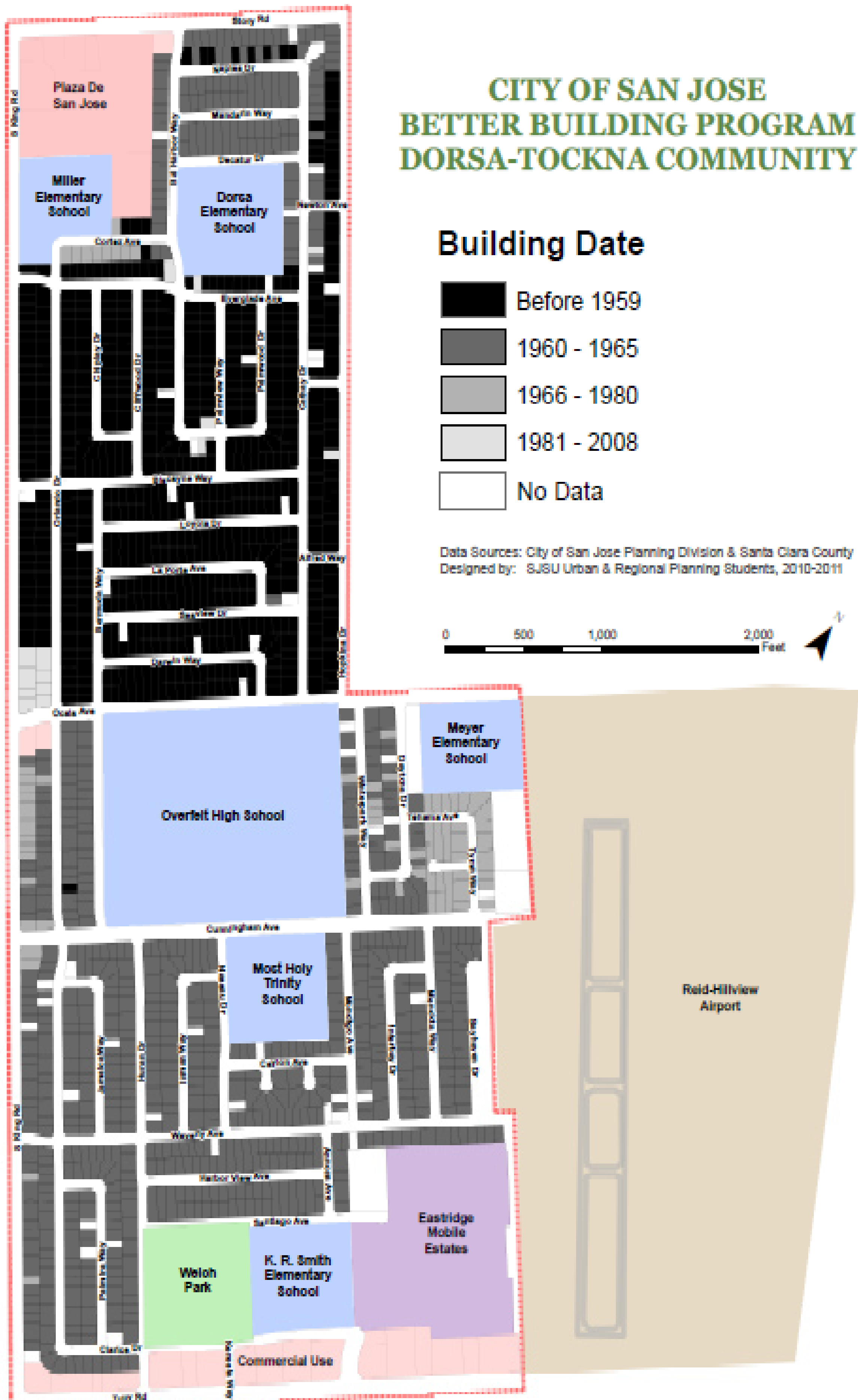

CITY OF SAN JOSE
BETTER BUILDING PROGRAM
DORSA-TOCKNA COMMUNITY
Building Date
Before 1959
1960 - 1965
1966 - 1980
1981 - 2008
No Data
Data Sources: City of San Jose Planning Division & Santa Clara County
Designed by: SJSU Urban & Regional Planning Students, 2010-2011
0
500
1,000
2,000
Feet
Plaza De San Jose
Miller Elementary School
Dorsa Elementary School
Overfelt High School
Meyer Elementary School
Most Holy Trinity School
Reid-Hillview Airport
Eastridge Mobile Estates
Welch Park
K. R. Smith Elementary School
Commercial Use

Figure 21

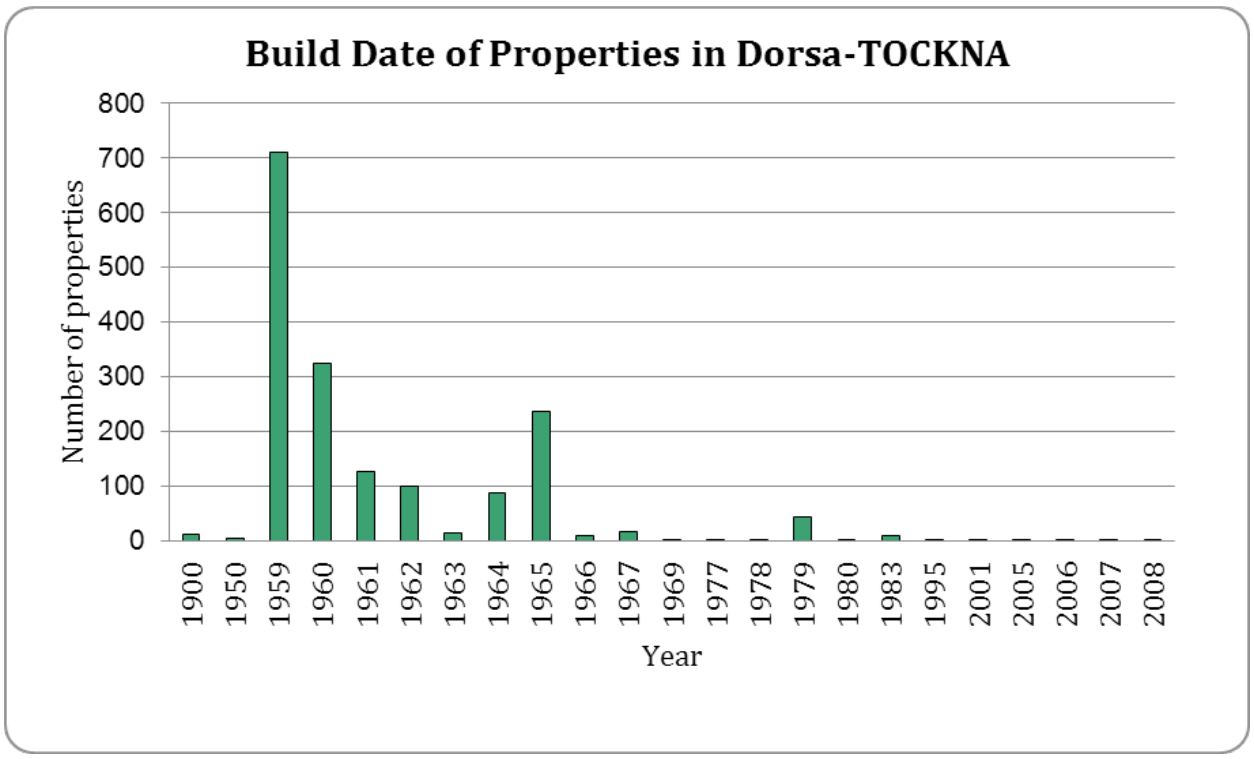


Figure 22 Dorsa-TOCKNA Housing Build Date
Source: Santa Clara County Assessor

Property Condition

A careful house-by-house, street-by-street "windshield survey" (a drive-by visual inspection) of the exterior of the homes in the neighborhood was conducted in Fall 2010 in order to collect data that could be used to find correlations, if any, between the age of the home, specific design features (e.g. window and roof type), and the general level of property maintenance. We speculated that a home that is not well maintained is likely to need the kind of retrofits that the Better Buildings Program promotes. We further speculated that poorly maintained properties could reflect the presence of renters; typically, these properties are not ones in which absentee owners invest in a great deal of expensive energy conservation improvements.

Figure 23 represents one outcome of the windshield survey. Homes are classified by condition: "poor," "fair," and "good". The following subjective measures were used:

- "**Poor**": mostly single-pane windows, roofing and siding that appeared to be old, and/or the entire property looked to be poorly maintained
- "**Good**": mostly having dual-pane windows, roofing and siding that appeared to be new, and a well maintained property
- "**Fair**": somewhere in between

Using these definitions, sixty-six percent of homes are in fair condition, twenty-eight percent are in good condition, and six percent are in poor condition. No single category dominates any particular portion of Dorsa-TOCKNA, as shown in Figure 23.

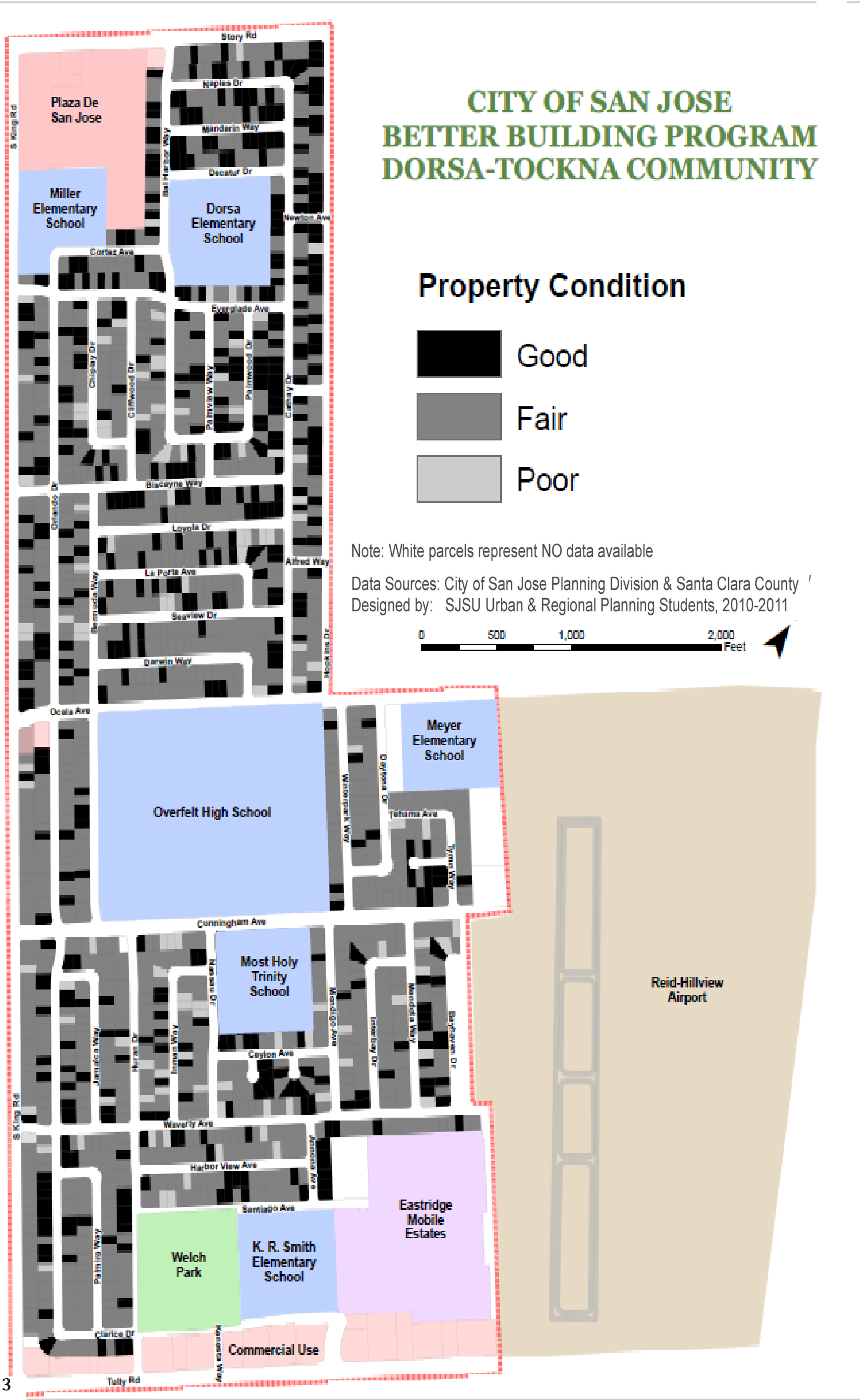

CITY OF SAN JOSE
BETTER BUILDING PROGRAM
DORSA-TOCKNA COMMUNITY
Property Condition
Good
Fair
Poor
Note: White parcels represent NO data available
Data Sources: City of San Jose Planning Division & Santa Clara County
Designed by: SJSU Urban & Regional Planning Students, 2010-2011
0
500
1,000
2,000
Feet
Plaza De San Jose
Miller Elementary School
Dorsa Elementary School
Overfelt High School
Meyer Elementary School
Most Holy Trinity School
Reid-Hillview Airport
Eastridge Mobile Estates
Welch Park
K. R. Smith Elementary School
Commercial Use
Story Rd
Naples Dr
Mandarin Way
Decatur Dr
Newton Ave
Cortez Ave
Everglade Ave
Biscayne Way
Loyola Dr
La Porte Ave
Alfred Way
Seaview Dr
Darwin Way
Ocala Ave
Cunningham Ave
Tehama Ave
Ceylon Ave
Waverly Ave
Harbor View Ave
Santiago Ave
Clarice Dr
Tully Rd
S King Rd

Figure 23

Roof Types and House Styles

There are three main styles of single-family homes in Dorsa-TOCKNA that generally reflect their build date and which can be categorized by their roof type. These types and their prevalence, as revealed during the windshield survey, are Flat or minimally-sloped (37%), Average-sloped gable (59%), and Steep-sloped gable (4%).

We speculate that homes with flat roofs (almost all of which are single-floored homes) are less likely to include insulation and simply have less room for any insulation in the first place. Steep-roofed homes in Dorsa-TOCKNA consistently feature a second story - this increases the square footage of the home and likely corresponds to higher energy consumption. Ninety four percent of the properties in Dorsa-TOCKNA are single storied; the remainder are two stories in height (see Figure 28).

Figure 24 Average-Sloped Gable Roof
Source: Jose Villareal

Figure 25 Flat or Minimally-Sloped Roof
Source: Jose Villareal

Figure 26 Steep-Sloped Gable Roof
Source: Jose Villareal

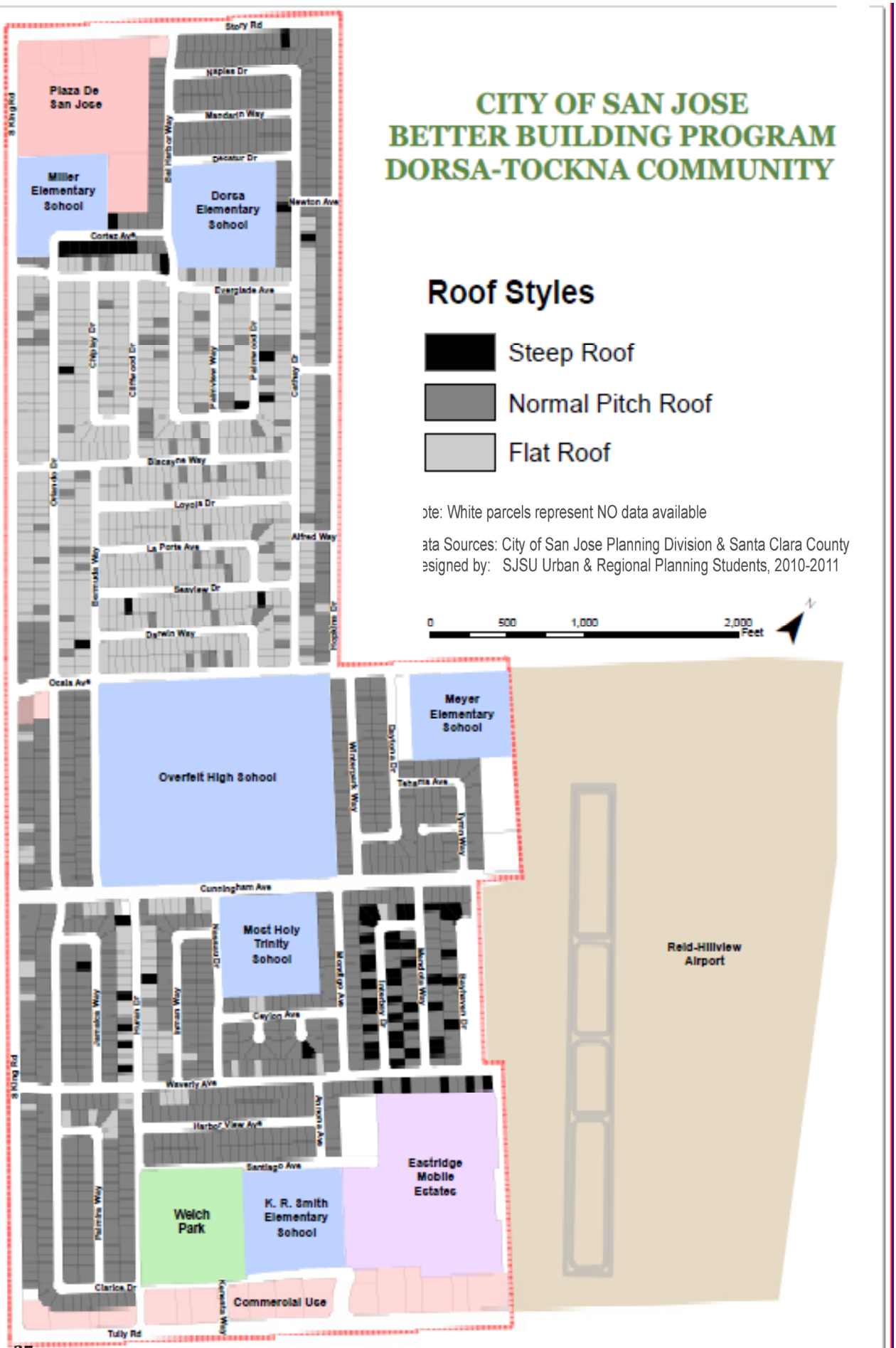

CITY OF SAN JOSE
BETTER BUILDING PROGRAM
DORSA-TOCKNA COMMUNITY
Roof Styles
Steep Roof
Normal Pitch Roof
Flat Roof
ote: White parcels represent NO data available
ata Sources: City of San Jose Planning Division & Santa Clara County
esigned by: SJSU Urban & Regional Planning Students, 2010-2011
0
500
1,000
2,000
Feet
Story Rd
Naples Dr
Mandarin Way
Decatur Dr
Newton Ave
Everglade Ave
Biscayne Way
Loyola Dr
La Porte Ave
Seaview Dr
Darwin Way
Ocala Ave
Cunningham Ave
Ceylon Ave
Waverly Ave
Harbor View Ave
Santiago Ave
Clarice Dr
Tully Rd
Plaza De San Jose
Miller Elementary School
Dorsa Elementary School
Overfelt High School
Meyer Elementary School
Most Holy Trinity School
Welch Park
K. R. Smith Elementary School
Eastridge Mobile Estates
Commercial Use
Reid-Hillview Airport

Figure 27

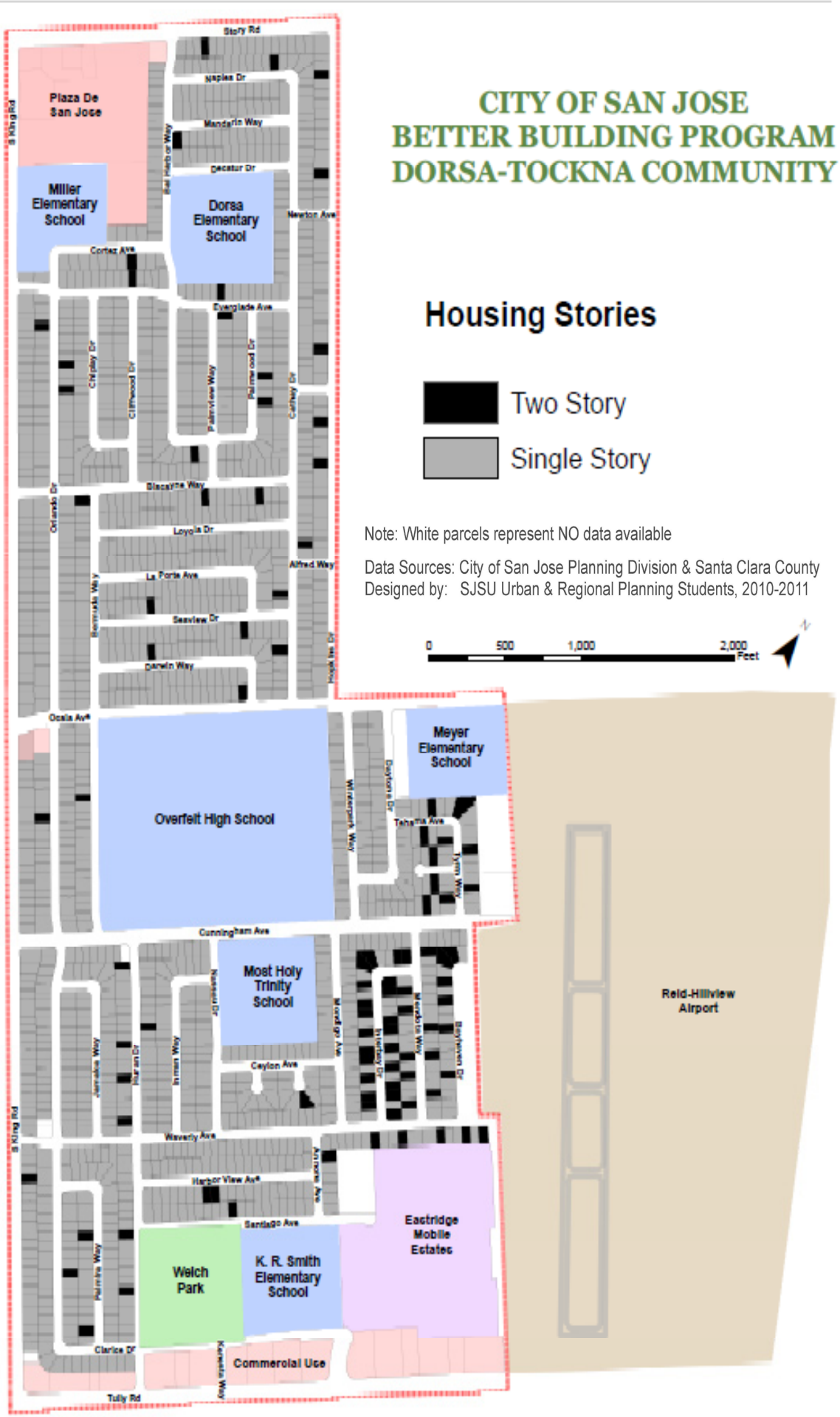

CITY OF SAN JOSE
BETTER BUILDING PROGRAM
DORSA-TOCKNA COMMUNITY
Housing Stories
Two Story
Single Story
Note: White parcels represent NO data available
Data Sources: City of San Jose Planning Division & Santa Clara County
Designed by: SJSU Urban & Regional Planning Students, 2010-2011
0
500
1,000
2,000
Feet
Plaza De San Jose
Miller Elementary School
Dorsa Elementary School
Overfelt High School
Meyer Elementary School
Most Holy Trinity School
Welch Park
K. R. Smith Elementary School
Eastridge Mobile Estates
Commercial Use
Reid-Hillview Airport
Story Rd
Cortez Ave
Cunningham Ave
Ceylon Ave
Waverly Ave
Harbor View Ave
Santiago Ave
Clarice Dr
Tully Rd

Figure 28

Dual-Paned Windows

These windows reduce the amount of air entering and exiting a building, thereby providing greater thermal performance. According to the U.S. Department of Energy, up to twelve percent of residential energy loss occurs through poorly insulated windows. We therefore added an observation of window types to our windshield survey, the results of which are shown in Figure 29. Seventy percent of the homes in Dorsa-TOCKNA were found to have dual-paned windows, with four percent of homes having both dual-paned and single-paned windows. It was assumed that dual-paned windows visible from the front of the house were indicators of dual-paned windows throughout the house. Field workers were able to identify the window type based on the degree of reflectivity that was evident; dual-paned windows tend to be more reflective in appearance.

Stucco Siding

The windshield survey revealed that fifty-six percent of building in Dorsa-TOCKNA community have stucco.

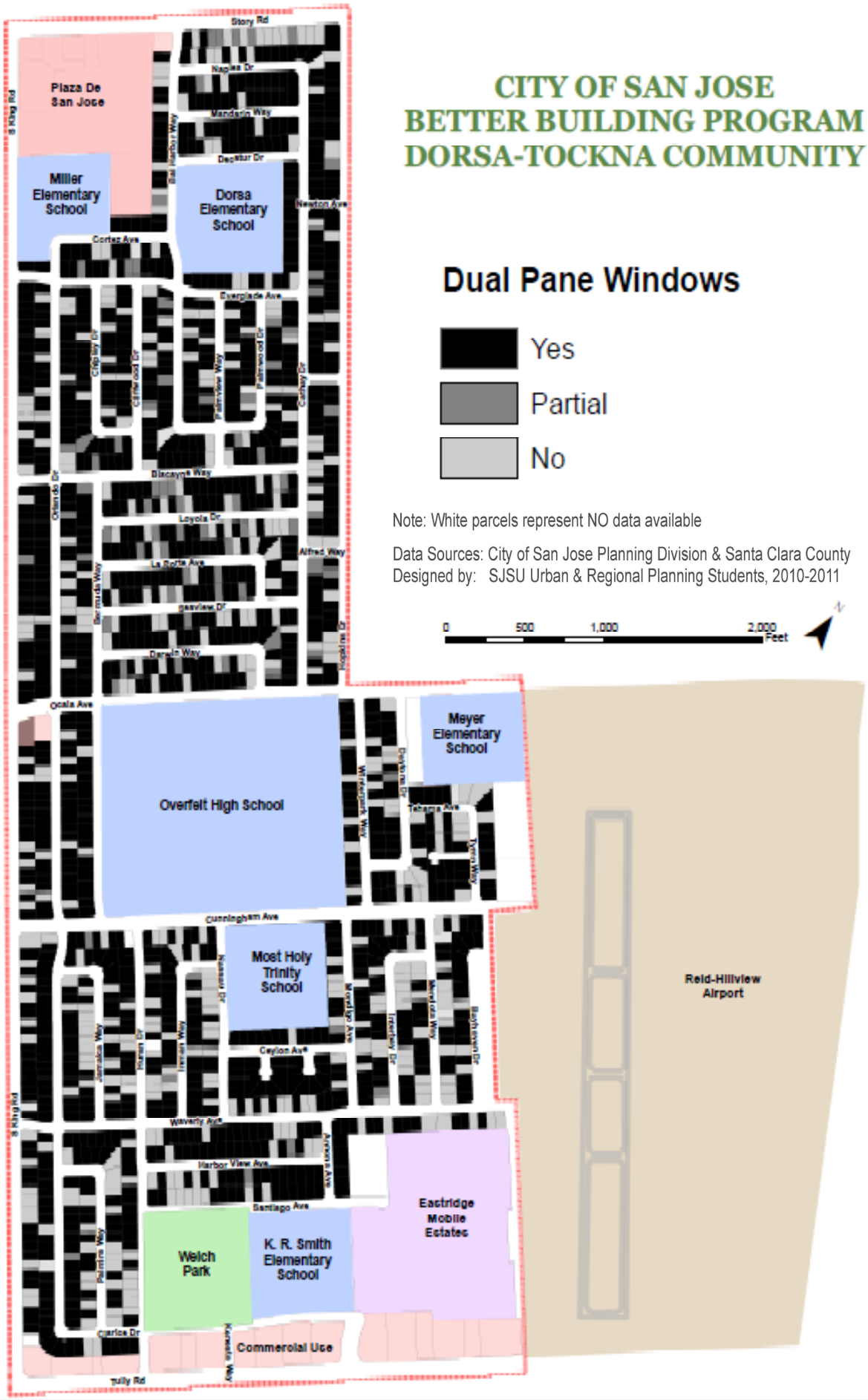

CITY OF SAN JOSE
BETTER BUILDING PROGRAM
DORSA-TOCKNA COMMUNITY
Dual Pane Windows
Yes
Partial
No
Note: White parcels represent NO data available
Data Sources: City of San Jose Planning Division & Santa Clara County
Designed by: SJSU Urban & Regional Planning Students, 2010-2011
0
500
1,000
2,000
Feet
Plaza De San Jose
Miller Elementary School
Dorsa Elementary School
Overfelt High School
Meyer Elementary School
Most Holy Trinity School
Welch Park
K. R. Smith Elementary School
Eastridge Mobile Estates
Commercial Use
Reid-Hillview Airport
Story Rd
Naples Dr
Mandarin Way
Decatur Dr
Newton Ave
Cortez Ave
Everglade Ave
Biscayne Way
Loyola Dr
La Porte Ave
Alfred Way
Oakis Ave
Cunningham Ave
Ceylon Ave
Waverly Ave
Harbor View Ave
Santiago Ave
Tully Rd
S King Rd

Figure 29

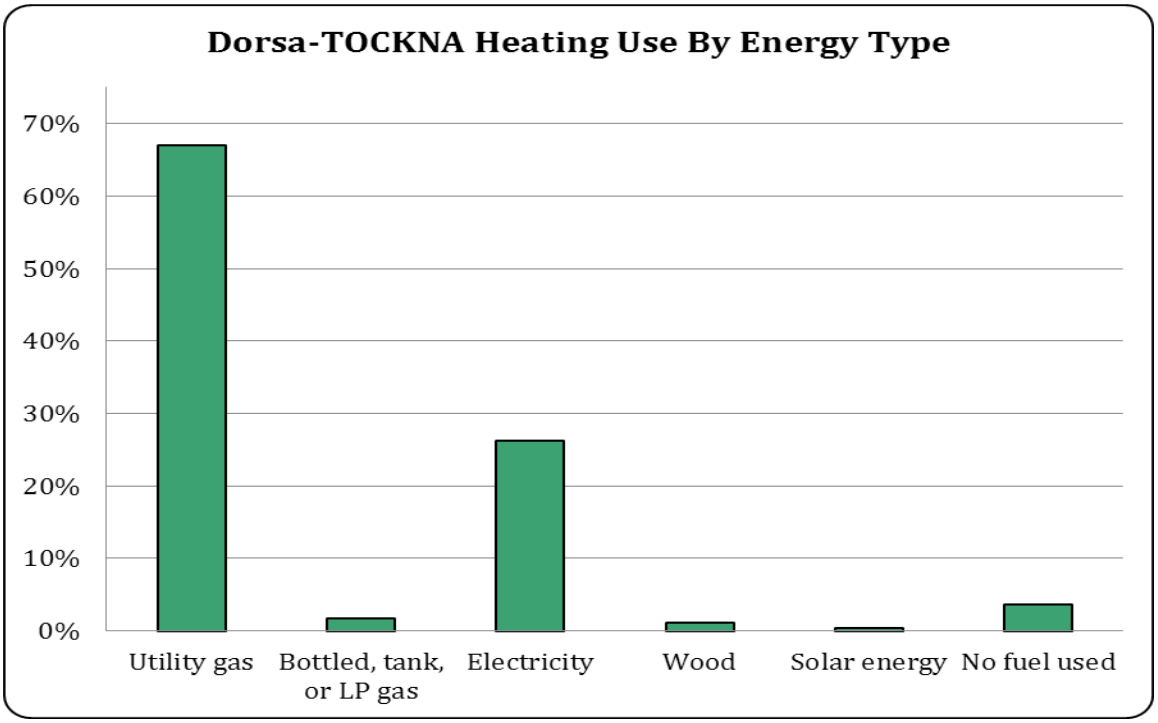


Figure 30 Dorsa-TOCKNA Heating Fuel Type Graph
Source: US Census, 2000

Heating Fuel Type

According to the 2000 Census, over two-thirds of households in Dorsa-TOCKNA used natural gas as their heating fuel, with the remaining households using electricity. Knowing the types of fuels and heating systems residents use provides the opportunity to strategize potential energy-retrofit improvements.

Home Business Conversions

The purpose for collecting data on neighborhood home business conversions is to identify properties that are likely to use energy steadily throughout the day and may therefore have a greater incentive to invest in energy retrofits. Licensed home businesses in the Dorsa-TOCKNA community are listed in Appendix A. Fewer than ten percent of properties listed in Appendix A showed obvious evidence of business conversions, such as signage. The most obvious conversions are evident along the major roads bordering the neighborhood where owners can target local passersby.

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Energy Consumption in Dorsa-TOCKNA

The Pacific Gas & Electric Company (PG&E) aggregates energy consumption data in sub-units of ZIP Code areas (known as "ZIP+4 Areas") that determine a more precise location than the ZIP Code alone. In Dorsa-TOCKNA there are 203 total ZIP+4 areas. PG&E accepts public requests for energy consumption data when study areas include more than fifteen properties – as long as any one property does not account for more than fifteen percent of total energy consumption in the request area. This is referred to as the "15/15 rule". To respect this requirement – and to facilitate GIS-based mapping using our existing Census geographic units – we requested residential energy consumption data for the Dorsa-TOCKNA community by census blocks. There are forty census blocks in the community, each with a minimum of twenty-five properties per block.

PG&E returned energy consumption data for the period of 2008 to 2010 and the results are reflected in Figures 31 through 34. We attempted to map the data using GIS to see if there were notable changes in consumption over this short time period. The maps show energy consumption (both natural gas and electric), both in terms of the "direction" of change during the period (e.g. lower, same, higher) and the "intensity" of change (e.g. increasing slowly, increasing rapidly), with information aggregated into census blocks per the "15/15 rule". The maps reveal some interesting patterns, but in general it essentially represents a "snapshot" in time; it is difficult to discern clear trends.

We recommend that future researchers request a data set from PG&E that covers a longer time period and consider the local climate patterns during the analysis period. For example, "cooling degree days", measured using data collected by the National Oceanic and Atmospheric Administration (NOAA), reflect periods when the average temperature is over 65 degrees; conversely, "heating degree days" indicate when the average temperature is below 65 degrees. The following web site allows users to generate their own local climate trend analysis using this information: http://www.ncdc.noaa.gov/oa/climate/research/cag3/cag3.html

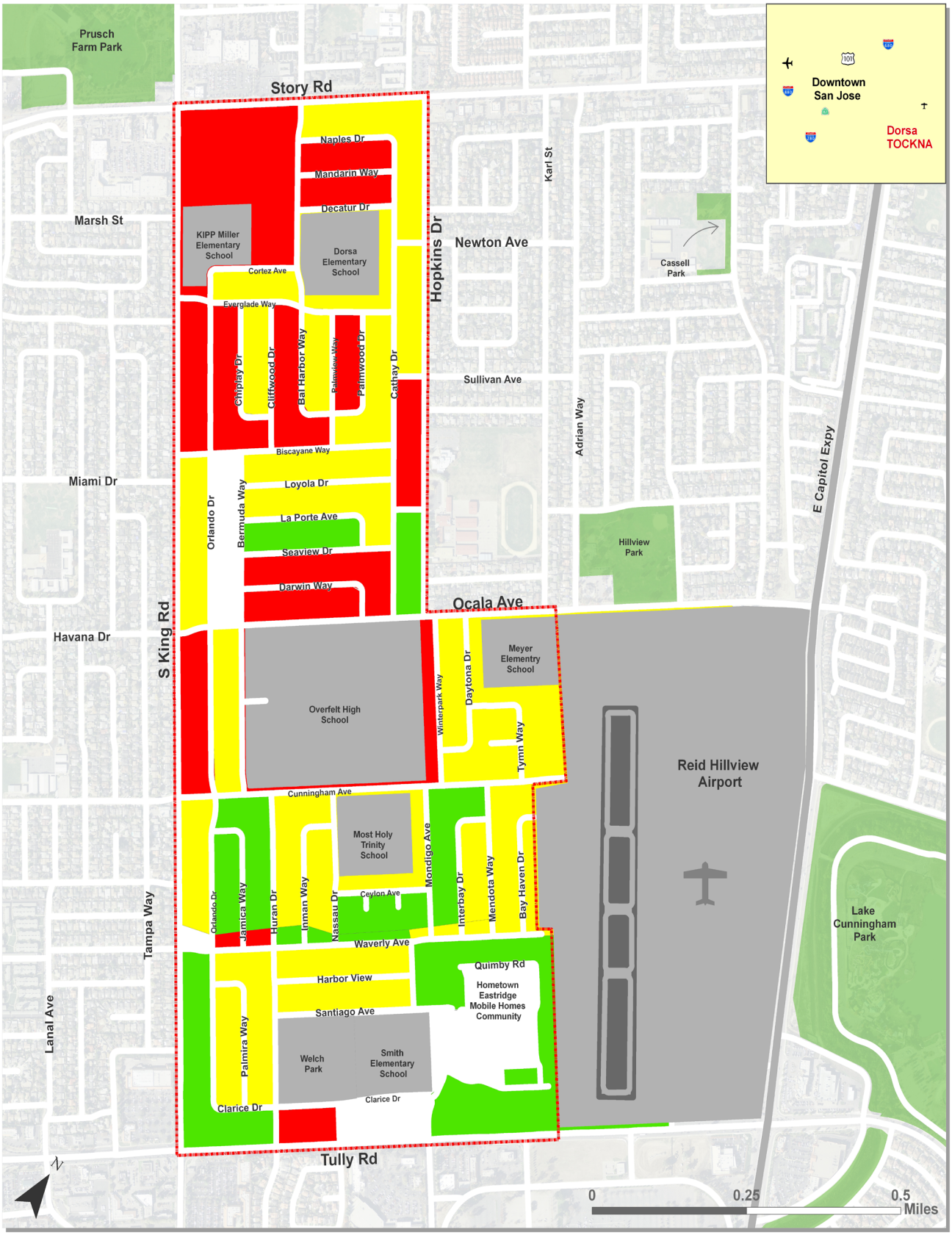

Figure 31

DIRECTION OF CHANGE IN ELECTRICITY USAGE BY CENSUS BLOCK (2008-2010) DORSA-TOCKNA COMMUNITY

- Decrease in Energy Usage
- No Change in Energy Usage
- Increase in Energy Usage
- No Data Available
- Dorsa-Tockna Study Area

Data Sources: Pacific Gas & Electric Company (PG&E), City of San Jose, Santa Clara Valley Transportation Authority (VTA), Santa Clara County

Designed by: Urban & Regional Planning Students, SJSU Fall 2010 & Spring 2011

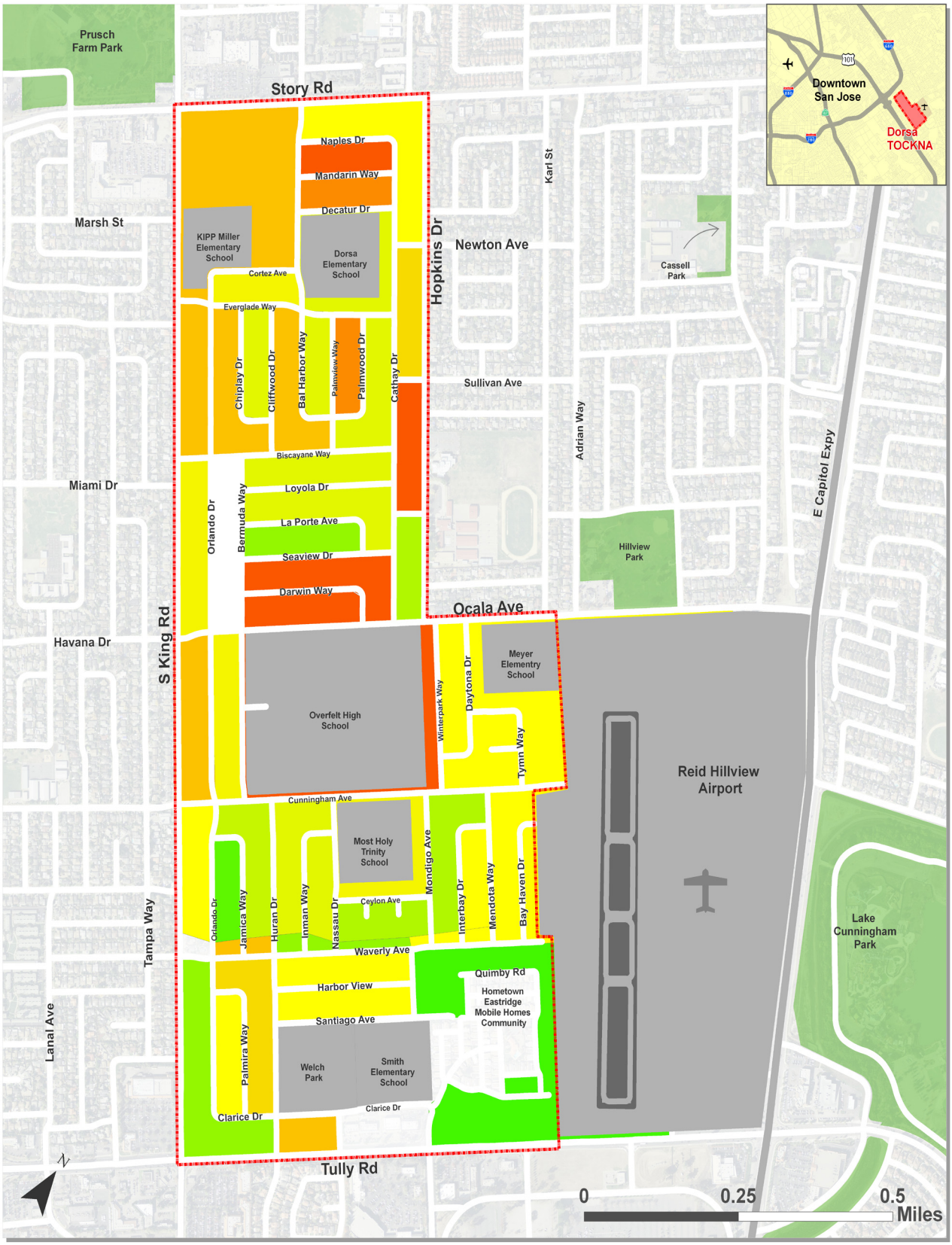

Figure 32

INTENSITY OF CHANGE IN ELECTRICITY USAGE BY CENSUS BLOCK (2008-2010) DORSA-TOCKNA COMMUNITY

Maximum Increase in Energy Use — Unchanged Energy Use — Maximum Decrease in Energy Use

No Data Available

Dorsa-Tockna Study Area

Data Sources: Pacific Gas & Electric Company (PG&E), City of San Jose, Santa Clara Valley Transportation Authority (VTA), Santa Clara County

Designed by: Urban & Regional Planning Students, SJSU Fall 2010 & Spring 2011

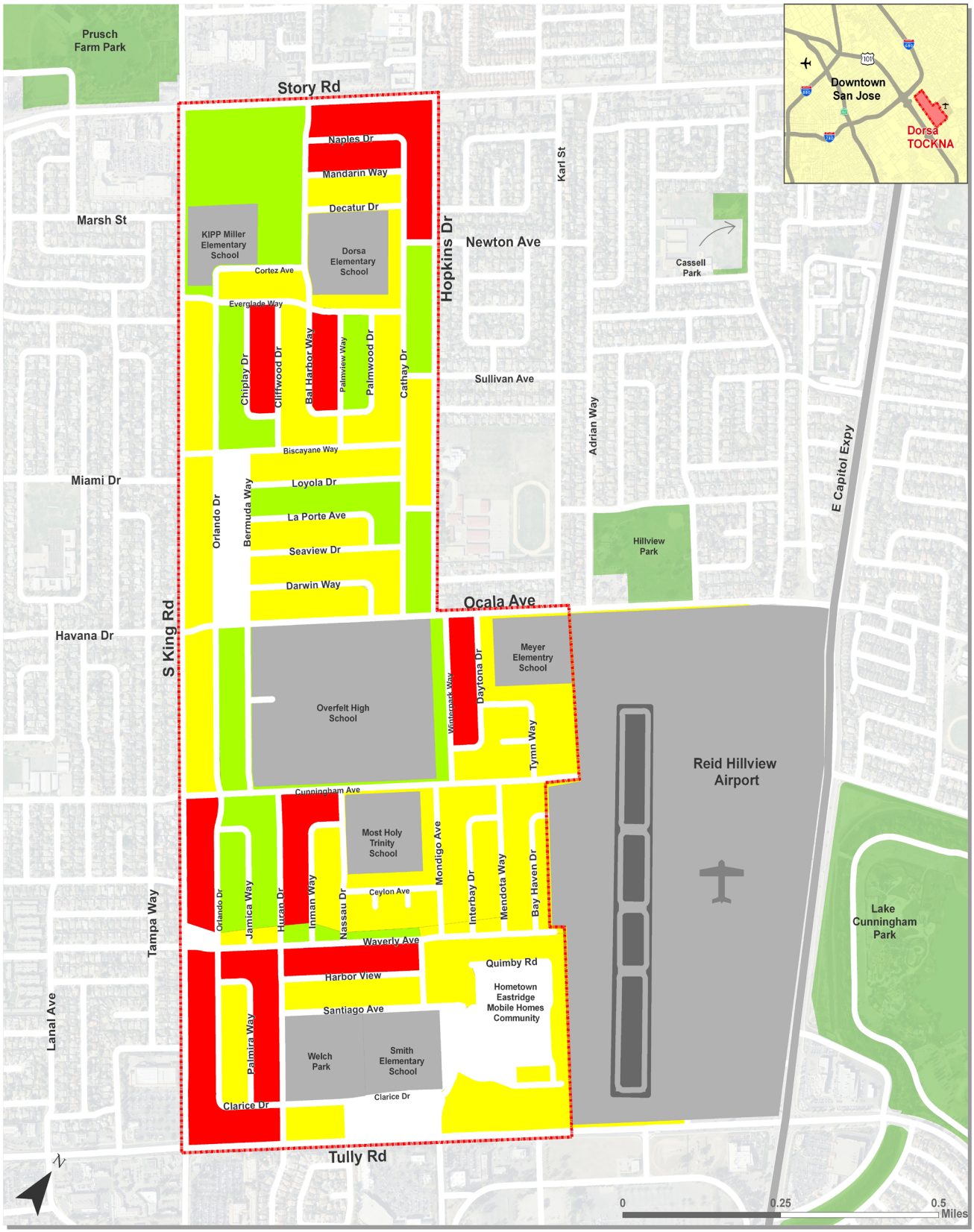

Figure 33

DIRECTION OF CHANGE IN GAS USAGE BY CENSUS BLOCK (2008-2010) DORSA-TOCKNA COMMUNITY

- Decrease in Natural Gas Usage
- No Change in Natural Gas Usage
- Increase in Natural Gas Usage
- No Data Available
- Dorsa-Tockna Study Area

Data Sources: Pacific Gas & Electric Company (PG&E), City of San Jose, Santa Clara Valley Transportation Authority (VTA), Santa Clara County
Designed by: Urban & Regional Planning Students, SJSU Fall 2010 & Spring 2011

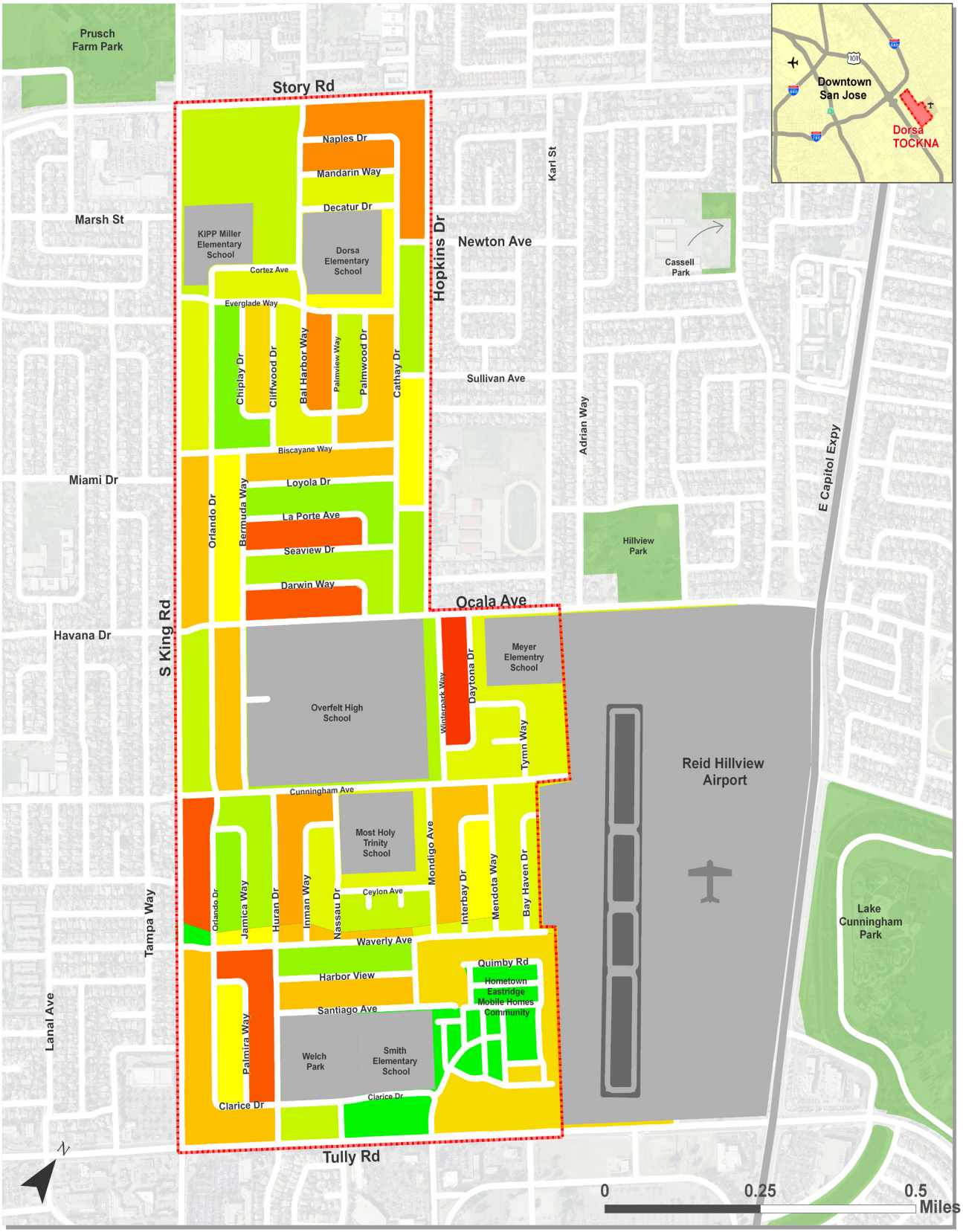

Figure 34

INTENSITY OF CHANGE IN GAS USAGE BY CENSUS BLOCK (2008-2010)
DORSA-TOCKNA COMMUNITY

Maximum Increase in Gas Use — Unchanged Gas Use — Maximum Decrease in Gas Use

No Data Available

Dorsa-Tockna Study Area

Data Sources: Pacific Gas & Electric Company (PG&E), City of San Jose, Santa Clara Valley Transportation Authority (VTA), Santa Clara County

Designed by: Urban & Regional Planning Students, SJSU Fall 2010 & Spring 2011

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Literature Review and Case Studies: Challenges and Solutions Related to Improving Energy Efficiency

As a bridge between the community assessment findings presented in the previous section and the recommendations we provide in the final section, this middle portion of the report is intended to summarize key findings obtained from a review of literature and case studies pertaining to energy efficiency improvements for buildings. This platform of findings proved useful in the preparation of specific ideas and next steps that we present later for encouraging energy efficiency in the Dorsa-TOCKNA neighborhood.

Since the neighborhood is primarily composed of single-family residential dwellings (with some commercial buildings as well), we investigated energy efficiency research related to these building types, as well as for multifamily dwellings; the latter should have broader applicability in other, denser San José neighborhoods as the Better Buildings Program expands beyond Dorsa-TOCKNA. We also highlight available funding programs that aim to reduce energy costs and improve energy efficiency. Next, we consider energy efficiency programs in Austin, Texas; Sonoma County, California; and Durham, North Carolina to see what lessons can be gleaned from those efforts.

Different building types consume energy in different manners. Below, we consider these characteristics for three primary building types and address some challenges to achieving higher levels of energy efficiency for each.

Single-Family Buildings

Single-family buildings have great potential for large energy efficiency gains, primarily because the majority of research, contractor training, and financing has been geared toward single-family home retrofits. Single-family energy consumption varies, but on average, fifty-three percent of energy is consumed by space heating, twenty percent of energy is consumed by water heating, sixteen percent of energy is consumed by appliances, and six percent of energy is consumed by cooking.[1]

1 Linda Steg, "Promoting Household Energy Conservation," *Energy Policy 36* (2008): 4449.

The reviewed literature identifies certain challenges to making single-family buildings more energy efficient, including:

- Consumers lack knowledge about energy consumption and efficiency, or underestimate energy consumption and its benefits, which can inhibit people from modifying their consumption behavior and/or retrofitting their homes
- Energy efficient equipment, such as new Energy Star certified appliances can have high up-front costs; therefore, not everyone may be able to afford upgrades
- Residential retrofits are typically only conducted in emergency situations, after old appliances fail [2]

The literature also reveals a number of potential solutions to these challenges, including:

- The purchase of energy efficient lighting and appliances can reduce energy costs by ten percent
- Relatively simply door and window sealing and window replacements to prevent air leaks can reduce energy costs by twenty percent
- Duct repair and sealing to prevent air leaks can reduce energy costs by fifteen percent
- Heating, ventilation, air conditioning (HVAC) equipment upgrades to ensure energy efficient technologies are being used can reduce energy costs by twenty percent
- Installation of smart meters to determine and monitor the times during which residents consume energy the most can lead to adjustments in energy usage to even it out [3]

Multi-family Buildings

Multi-family buildings are typically the largest consumers of residential energy, but they also provide the greatest opportunities for energy efficiency gains due to economies of scale. It appears from our preliminary research that most contractor training and financing programs tend to disregard multi-family buildings because they present more challenging hurdles for becoming energy efficient compared with single-family buildings.

2 Jennifer Thorne, "Residential Retrofits: Directions in Market Transformation," *American Council for an Energy-Efficient Economy*, A038, (Dec. 2003): 4; Linda Steg, 4450.

3 Jennifer Thorne, 4; Linda Steg, 4450-51.

Multi-family energy consumption varies depending on a number of factors, such as building age, height, and number of units. Space heating is typically the largest consumer of energy.[4]
Challenges presented by multi-family buildings toward becoming energy efficient include:

- Approximately eighty-five percent of multi-family units are renter occupied which presents a common conflict: who pays for energy retrofits, the renters, or the building owners?
- Nationally, eighty-eight percent of renters are classified as low-income and cannot afford energy retrofits; also, they typically do not own their own appliances
- Some multi-family buildings are master metered and therefore unit-specific energy consumption cannot be calculated easily
- Energy efficiency-oriented building codes only exist for new multi-family buildings; therefore, existing buildings are not held to the same energy efficiency standards
- There is a lack of contractors specializing in and possessing knowledge of multi-family building energy efficiency retrofits
- Multi-family buildings use shared infrastructure (pipes, ducts, etc.), presenting logistical challenges for scheduling and executing energy retrofits when numerous tenants are involved [5]

The literature also reveals a number of potential solutions to these challenges, including:

- Providing cash incentives or rebate programs with quick financial gains to both owners and renters of multi-family buildings to invest in and perform energy retrofits
- Training for contractors to conduct whole-building audits and retrofits to improve the availability of skilled labor needed to perform multi-family energy retrofits
- Mandating energy efficiency standards for new and existing multi-family buildings can ensure both new and existing multi-family land uses are held to energy efficiency standards
- Sealing doors and windows and replacing windows to reduce loss of heating or cooling through leaks
- Maintaining or replacing heating and ventilation systems, taking into consideration the type of heating system (electric or fuel), to ensure that new and energy efficient technologies are being used

4 Charles A. Goldman, Kathleen M. Greely and Jeffery P. Harris, "Retrofit Experiences in the U.S. Multi family Buildings: Energy Savings, Costs, and Economics, *Energy 13,* No.11, (1988): 798.

5 Charles A. Goldman, et al., 797-798; *Improving California's Multifamily Buildings: Opportunities and Recommendations for Green Retrofit & Rehab Programs,* (2010): 3-14; Joseph Laquatra, "Energy Efficiency in Rental Housing," *Energy Policy* 15, No. 6 (1987):550-551; Jennifer Thorne, 1-24; Linda Steg, 4449-1153.

- Installing outdoor resets and cutout controls to monitor heating systems can measure efficiency levels at all times (thirteen percent energy reduction)
- Steam balancing (i.e. main line air vents, boilers, thermostats, etc.) to reduce energy consumption by six percent
- Installing check meters that record energy use for specific locations to isolate energy consumption on a per-unit basis (percent energy reductions) [6]

Commercial Buildings

Commercial buildings can be complex and include various occupants with widely varying energy needs. Different commercial entities consume energy at varying degrees and may benefit from a broad spectrum of energy efficiency retrofits.

Challenges presented by commercial buildings toward becoming energy efficient include:

- Commercial building types differ (e.g. grocery stores, retail chains, restaurants, etc.) and they use different energy consuming technologies (e.g. refrigeration, machinery, etc.)
- Commercial energy audit programs typically adopt a "one-size-fits-all" approach which may not be applicable for all commercial building types
- Some commercial building types use 24-hour equipment (e.g. refrigeration, security, etc.) which consume more energy
- There is an increased use of lighting (i.e. parking lots, interior and exterior lighting, signage, etc.) which consumes more energy
- Some commercial buildings share infrastructure and therefore energy retrofits may be more complex, and they must be completed in as a collaborative effort amongst multiple owners and lessees [7]

6 Charles A. Goldman, et al., 700-800; Joseph Laquatra, 549-558; *Improving California's Multifamily Buildings: Opportunities and Recommendations for Green Retrofit & Rehab Programs*, 2-3.

7 Jennifer Thorne Amann and Eric Mendelsohn, "Comprehensive Commercial Retrofit Programs: A Review of Activity and Opportunities," *American Council for an Energy-Efficient Economy,* No. A052, (April 2005): 1-33.

The literature also reveals a number of potential solutions to these challenges, including:

- Introducing new auditing methods that are tailored to different commercial buildings rather than a one-size fits all approach
- Upgrading or replacing HVAC systems, including fans, pumps, and controls to ensure that new and energy efficient technologies are being used
- Focusing on 24-hour appliance retrofits and implementing appliance controls (i.e. refrigeration, vending machines, elevators, etc.)
- Implementing LED lighting (store interior and exterior, signage, and parking lot lighting) to reduce energy consumption [8]

Available Energy Efficiency Funding Programs

There are a variety of incentive programs available to residents and businesses to improve energy efficiency. Programs are available at the federal, state, and local government levels, and through private groups. Funding program audiences include owners of single family and multifamily residential buildings, along with commercial, industrial, and agricultural businesses. Qualifying criteria can include, but are not limited to, owner-versus renter occupancy, household income level, and size, height, and age of a building.

Funding distribution can be provided in the form of general funds, grants, bonds, and special taxes or fees.[9] These funding sources are generally selected based on political feasibility and program size. Distributed funds typically contribute to a wide variety of energy retrofits, but generally include home energy auditing, weatherization, complete home energy retrofits, and energy efficiency outreach and education.[10]

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8 Jennifer Thorne Amann, 1-33.

9 Merrian Fuller, *Enabling Investments in Energy Efficiency: A study of energy efficiency programs that reduce first –cost barriers to the residential sector* (Energy Resources Group, UC Berkeley, May 21, 2009), 6, http://uc-ciee.org/energyeff/documents/resfinancing.pdf (accessed October 10, 2010); Home Performance Resource Center. *Case Study: Berkeley FIRST* (Washington, DC: March 2010), 2 http://www.hprcenter.org/publications/ best_practices_case_study_berkeley.pdf (accessed Sep tember 22, 2010); Home Performance Resource Center. *Case Study: Palm Desert, California* (Washing ton, DC: March 2010), 2, http://www.hprcenter.org/publications/ best_practices_case_study_palm_ desert.pdf (accessed October 10, 2010).

10 Home Performance Resource Center. *Case Study: New Jersey Home Performance with ENERGY STAR* (Washington, DC: March 2010), 2-3, http://www.hprcenter.org/publications/best_practices_case_ study_new_ jersey.pdf (accessed October 10, 2010).

On-bill financing, which attaches the cost of energy retrofits to a property tax or utility bill rather than a separate loan, is the most common practice for program financing.[11] Often, on-bill financing is attached to a residence, meaning if a property is sold, the on-bill charge stays with the property. Therefore, new property owners would continue to pay the remaining cost of the serviced energy efficiency retrofits.

To reduce barriers to participation in energy efficiency financing programs, some funding programs have made energy retrofit opportunities more available to residents by providing grants or bonds monies for free retrofit services, or by subsidizing services by providing rebates and/or low interest loans.[12] Many programs that only offer loans or on-bill financing for energy retrofits may limit levels of participation by not providing more rebate and subsidy opportunities. In addition, on-bill financing does not address the split-incentive concern of owner-versus renter occupancy of rental properties. "Split-incentives" refers to the fact that property owners are typically required to be the program participant, taking on the financial burden of an energy retrofit, but there is no real incentive for rental property owners to do this because renters generally pay for energy costs.[13]

Case Studies

To illustrate the information provided in this section so far, the following sections describe innovative energy efficiency programs that the City of San José may want to consider as the Better Buildings Program evolves. Below are brief summaries of three successful U.S. energy efficiency retrofit programs.

Austin, Texas

Austin Energy runs the Austin Energy Residential Power Saver Program. The initiatives the utility offers include:

- Free home walk-through energy analyses
- Incentives for customers who cycle their air conditioners during peak demand periods
- Appliance Recycling

11 Merrian Fuller.
12 Merrian Fuller.
13 Merrian Fuller.

- Installation of new water heater timers for multifamily units
- Subsidized duct diagnostic testing

Austin Energy also promotes the *Home Performance with Energy Star Program* and provides two financing options to homeowners. Participants can choose to receive rebates that cover up to twenty percent of total retrofit costs, or participants can choose to participate in a low interest loan program if project costs are between $1,500 and $11,000. Loan rates differ depending on the lifetime of the loan. Qualified low income, elderly, or disabled homeowners are eligible to have some or all of the services of the program provided cost free. To date, more than 2,600 households have participated in the program, which has resulted in a twenty-five megawatt reduction in peak demand, a ten percent reduction in per capita energy consumption, and a twenty-five to thirty percent reduction in energy costs. In 2008 alone the program abated the emissions of 247 tons of carbon dioxide.

City and County of Durham, North Carolina

The City and County of Durham, North Carolina developed the *Durham Neighborhood Energy Retrofit Program* to address its community greenhouse gas emissions reduction goal of thirty percent by 2030. The program was divided into two funding phases. The first phase was funded by the U.S. Department of Energy and American Recovery and Reinvestment Act, and the second phase by the U.S. Environmental Protection Agency through its Climate Showcase Communities program. Each phase targeted specific Durham neighborhoods to perform energy efficiency retrofits, such as sealing air leaks in HVAC ductwork and around ground floor doors and windows, insulating and sealing attics, and installing programmable thermostats.

Qualifying criteria for program participants included being a resident of a program-targeted neighborhood, and being a property owner of a single-story home no larger than 2,000 sq. ft. in size that is free of any unvented gas appliances or other hazards. A $200-$300 buy-in was required of each participating household and all remaining costs of any necessary energy efficiency retrofits were fronted by the program. To date the program has reached out to eleven target neighborhoods, provided funding, and performed energy efficiency retrofits to 694 homes, for a total estimated energy savings of $300 per participating consumer.

Sonoma County, California

Sonoma County developed its *Energy Independence Program* (SCEIP) to reduce the County's greenhouse gas emissions to twenty-five percent below 1990 levels by 2015, in response to Assembly Bill 811, which gives local jurisdictions the power to provide loans partially generated through tax-assessed financing. The SCEIP is managed by the Sonoma County Water Agency and provides loans to residential and commercial property owners to perform energy retrofits. Tax assessment loans are appended to the owner's property tax. Loan lives are a maximum twenty years and are affixed to the property. In order to participate, property owners must apply for and obtain a proposal from a contractor, must be in good standing with tax and mortgage payments, have no existing liens on their property, and cannot be in bankruptcy. To date, $18.7 million dollars have been distributed for energy efficiency retrofits.

Key Findings and Recommendations for Next Steps

By performing this assessment we have gained valuable information regarding the population, housing charactersitics, and energy consumption in the Dorsa-TOCKNA community. We conclude the report by summarizing our key findings for Better Buildings Program staff members to consider as they work to evolve the program in Dorsa-TOCKNA and beyond.

1. Cultivate Opportunities for Outreach

There are various entities within Dorsa-TOCKNA that can help spread the word about the Better Buildings Program to residents. Utilizing its own capacity to improve and build upon its strengths from within, Dorsa-TOCKNA can rely on and encourage the use of local contractors for future retrofit work. Neighborhood delivery systems we identified include:

- **Neighborhood Associations:** Both Dorsa and TOCKNA have neighborhood associations that hold monthly meetings. The Dorsa community also appoints a rotating set of block captains to spread messages within the community.

- **Places of worship and religious organizations**
  - Palpung Lungtok Choeling Buddhist Center
  - Most Holy Trinity Church

- **Local schools and Parent-Teacher Associations**
  - Smith Elementary
  - Meyer Elementary
  - Overfelt High School
  - Miller Elementary
  - Dorsa Elementary

- **Local Contractors for Energy Efficiency Installations and Improvements (see Appendix B for a listing)**

A summary of the key stakeholders that emerged from our research and personal experiences in Dorsa-TOCKNA is provided in Appendix C.

A potential future partner for the City of San José's Better Building project is San José State University's **Green Wave program**. The San José State University Office of the President's Sustainability Initiative launched the Green Wave energy audit program in 2010. This program is designed to help the City of San José achieve two of its Green Vision Goals: a fifty percent reduction in per capital energy use by 2022; and the creation of clean tech jobs.

Seventy students were enrolled in the Green Wave program in the 2010-2011 school year. Students received a total of 24 hours of training over six weeks on conducting energy audits and solar assessment for homes and offices. The curriculum was design by Green Wave, under the leadership of Professor Katherine Kao Cushing, and Acterra, an environmental nonprofit that trains residents on conducting energy audits within their communities. Once their training was complete, Green Wave participants were required to perform a minimum of five energy audits. Only San José State University students, faculty, staff and City of San José employees were eligible for audits under the Green Wave program for the 2010-2011 school year. Audits were performed free of charge.

Green Wave auditors provided a basic consultation that lasted approximately two hours. The consultation included the following: a review of utility bills to assess electricity and gas consumption and a comparison of the bills to those of neighbors; inspecting for double-paned windows and weather stripping; conducting a "resource-use survey" (i.e. what steps have residents already taken to be more efficient); installing three, free compact fluorescent light bulbs and a free "smart strip" to eliminate energy-use when electronics are not in use. Auditors also talked to residents about their water-use and, if necessary, referred them to the Silicon Valley Water District, which has a program that offers in-home water audits for residents. From March through May of 2011, 72 SJSU students completed 220 free energy check-ps for over 300 community members within San Jose city limits. At the end of the audit, residents received an estimate of the expected savings (dollar value) of energy upgrades, as well as an estimate of the greenhouse gas reduction that will result. Those residents who received an audit were also asked to sign a commitment form to ensure that they will carry out some of the energy upgrades recommended by the auditor. Green Wave also follows-up with the residents and businesses to ensure the implementation of upgrades.

The future of the Green Wave program is uncertain at this point since it has not yet secured funding for the 2011-2012 school year. If the program continues in the future, there is the potential to partner with the City of San José to expand the program to include audits for other City residents.

2. Continue to build on the success achieved at the May 2011 community energy event

During our involvement with the Better Buildings Program, we coordinated with neighborhood leaders and other community organizations to encourage attendance at a May 2011 event at the Boys and Girls Club. We publicized the event through the distribution of flyers that were distributed at the monthly neighborhood association meetings, and we encouraged attendees to take extra flyers to give out to their neighbors in the community. A free lunch was provided by the Better Buildings Program to those who attended the event and completed a home energy usage survey. Vendors and organizations that specialize in energy conservation set up informative booths at the event. Entertainment was provided for children. Overall, the event was a success, though we suspect that attendance could have been greater with more advance notice given to residents and a more ambitious advertising campaign.

Figure 35 Councilmemeber Rose Herrera visits Maria Candida Langbauer, a member of Our City Forests and SJSU graduate student who contributed to this report.

Figure 36 Neighborhood residents meet with city staff members to discuss the energy event and review maps prepared by SJSU graduate students.

Figure 37 SJSU students Nathan Hotaling, Yu Nagai, Diana Pancholi and Viona Hioe, along wih Professor Rick Kos, prepare to greet neighborhood residents.

3. Continue to survey Dorsa-TOCKNA residents about home energy usage

In order to ascertain the needs of the Dorsa-TOCKNA community, their knowledge of energy efficiency programs, and how information is delivered to the community, a short and preliminary survey was prepared. The survey consisted of questions developed specifically for this community and were selected based on similar surveys conducted by various energy groups (utility companies, the U.S. Department of Energy, energy watch groups, etc.) The final questions were chosen from a larger sample of survey questions that were developed by San José State graduate students and modified by city staff for delivery at the May 2011 Community Energy Fair kickoff. The results will be used to focus outreach efforts in the community, and we recommend that surveys (including door-to-door surveys, with future student teams) continue to be conducted to reach residents who were unable to attend the event, since valuable information can be gathered that will help to further focus the next steps for program staffers. For reference, the survey questions were:

OCCUPANTS

1) How do you currently keep in contact with people in your community to receive information about community specific issues/events?

Source	Percentage
Flyers delivered to your home	46
Newspapers	18
School Newsletters	18
Internet	9
Most Holy Trinity Church	6
Facebook	3

2) Which radio station do you listen to or television station do you watch?

Radio Station: 91.9 91.5 94.1 99.7 100.9 105.7
106.1 107.7 810 1100 1170 1590

Television: Univision (18) Telemundo (7) NBC (4) FOX (3) CBS (2) PBS (1) CW (1)

3) What is your preferred form of contact?

	Percentage	
	Yes	No
Email	85	15
Home Phone	81	19
Cell phone (call)	64	36
cell phone (text message)	60	40
Personal Home Visits	10	90

COOLING

4) How do you cool your home?

	Percentage
Plug-in Fan(s)	41
Ceiling Fan(s)	21
None	21
Central A/C	9
Other	6
Room A/C (window units)	3

HEATING

5) How do you heat your home?

	Percentage
Central heating	38
Wall heater	29
Space heaters	21
Other	13

ENERGY EFFICIENCY

6) Have you added any energy efficiency measures to your home in the last 10 years?

	Percentage 'Yes'
Installation of light bulbs (CFL)	75
Low-flow toilet & shower heads	50
Attic insulation	32
Hot water pipe insulation	24
Air sealing	17
Duct sealing	6

7) Are you considering significant home improvement projects?

	Percentage
Yes, within a year.	32
Possibly, but I don't know when.	37
No.	32

4. Promote job training and continue to seek out financial resources to build a local retrofit workforce

Home retrofits require new skills and training to achieve efficiency goals. Many contractors may not yet view themselves as part of the "green economy" and may need further education and training. There are a number of Bay Area organizations and institutions that specialize in job training for these required skills. These include:

- Advanced Vocational Institute, the City College of San Francisco, Dr. J. Alfred Smith Training Academy
- Green Skills Academy, JobTrain
- Oakland Green Jobs Corps
- Cypress Mandela Training Center and Laney College
- Spanish Speaking Citizens Foundation
- Swords to Plowshares
- Treasure Island Job Corps
- Young Community Developers

5. Prepare targeted, tailored outreach materials in a manner that is respectful of neighborhood demographics

Better Buildings Program outreach materials for energy-retrofits must be prepared in a way that can easily cross a range of education levels and age groups. Those conducting energy-retrofit related efforts and creating outreach materials in Dorsa-TOCKNA will need to be aware and respectful of the community's unique demographics and cultural groups. While the vast majority of Dorsa-TOCKNA residents are not linguistically isolated, energy-retrofit outreach efforts will be most effective if written materials and information are available in English, Spanish, Vietnamese, and Pacific Island languages.

6. Consider additional research opportunities in Dorsa-TOCKNA

Time limitations did not permit the student study team to complete all aspects of research that they would have liked, but it is recommended that future research should include an analysis of the average square footage of homes in Dorsa-TOCKNA, possibly by acquiring the latest county assessor data. Additional future research could also investigate whether there are differences in the foreclosure rates in Dorsa-TOCKNA compared to that of the city as a whole, and other neighborhoods within the city (Note: please contact Rick Kos at SJSU if the city staff wishes to explore this work with another student team).

7. Look for opportunities to build research findings related to influencing energy efficiency behaviors into future outreach materials and internal staff discussions

It is estimated that by simply encouraging the adoption of new energy habits, energy consumption levels could be reduced by twenty to twenty-five percent.[14] The following barriers make changing energy habits a difficult task:

- Fourteen percent of Americans believe that they do not need to change their energy habits
- The public lacks proper knowledge of the technologies and practices that best reduce energy consumption
- The energy efficiency information provided to consumers can be difficult to understand
- The amount of information received by the public can be overwhelming and confusing

14 Karen Ehrhardt-Martinez, *Behavior, Energy, and Climate Change: Policy Directions, Program Innovations, and Research Paths* (Washington, D.C.: American Council for an Energy-Efficient Economy, November 2008), V, http://www.aceee.org/ sites/default/files/publications/researchreports/E087.pdf (accessed September 28, 2010).

- A of lack of household income can cause some residents to believe that they cannot participate in behavior changing programs [15]

It is critical for energy providers and conductors of energy efficiency programs to determine what type of information best encourages consumers to reduce their energy consumption. According to several studies, tailoring information to individuals and groups works best to achieve the highest energy savings.[16] Tailoring information to different consumer types helps ensure that consumers do not receive large amounts of generalized information that may not be applicable to them and may cause confusion.[17] Successful methods to market energy efficiency information to consumers include:

- Community specific marketing efforts that involve all stakeholders
- Marketing that emphasizes all benefits of energy efficiency, not just environmental benefits
- Marketing that presents information in a clear, easy to understand fashion, so people of all ages and education backgrounds can understand
- Informational, "word of mouth" marketing at community events given by trusted and friendly sources [18]

Energy audits have also been shown to positively influence energy habits. These audits involve having a trained professional conduct a walk-through of a home, providing consumers with specific behavior changes that can reduce energy consumption in a household by up to twenty-

15 Council on Environmental Quality, *Recovery Through Retrofit*, Middle Class Task Force, Washington, D.C., October 2009, 5, http://www.whitehouse.gov/assets/documents/Recovery_Through_Retrofit_Final_Report.pdf (accessed September 28, 2010); Mehdi Farsi, "Risk Aversion and Willingness to Pay for Energy Efficient Systems in Rental Apartments," *Energy Policy* 38, no. 6 (June 2010): 3078; Shirley Niemeyer, "Consumer Voices: Adoption of Residential Energy-Efficient Practices," *International Journal of Consumer Studies* 34, no. 2 (March 2010): 142-143; Jennifer Thorne, *Residential Retrofits: Directions in Market Transformation* (Washington, D.C.: American Council for an Energy-Efficient Economy, December 2003), 1, http://www.aceee.org/sites/default/files/publications/researchreports/a038.pdf (accessed September 28,2010).

16 Wokje Abrahamse et al., "A Review of Intervention Studies Aimed at Household Energy Conservation," *Journal of Environmental Psychology* 25, no. 3 (2005): 277-278.

17 Abrahamse et al., 277.

18 Linda Berry and Martin Schweitzer, "Residential Conservation Programmes for the Elderly," *Energy Policy* 19, no. 6 (July-August 1991): 604 http://www.aceee.org/ sites/default/files/publications/researchreports/U942.pdf (accessed September 28, 2010); Steven Nadel, Miriam Pye, and Jennifer Jordan, *Achieving High Participation Rates: Lessons Taught by Successful DSM Programs* (Washington, D.C.: American Council for an Energy-Efficient Economy, January 1994), 3.

one percent.[19] While this approach is highly effective, a program must not make the mistake of simply providing information to a consumer once. It should instead provide continuous feedback to consumers if it wishes to sustain energy reductions.[20]

The type of financial benefits that have been proven to be the most effective in influencing energy habits are immediate and substantial monetary gains.[21] It should be noted that tax credits are often not an effective tool for influencing behavior change or the installation of retrofits.[22]

Two effective tools that can be provided to residents in order for them to earn monetary gains are **in-home digital energy consumption monitors** and **enhanced billing**. A digital monitor shows residents the amount of energy currently being consumed. Digital monitors alone can lead to a twelve percent decrease in energy consumption.[23] Similarly, enhanced billing that provides significantly more detailed information than standard electrical bills allows consumers to evaluate their energy consumption and determine the best ways for them to reduce their energy use.[24]

8. Utilize the comprehensive neighborhood GIS database to create additional maps and to explore possible data correlations

The student team developed a comprehensive and fully documented ArcGIS geodatabase that captured all of the mapping data collected for this project, including parcel-level information for roof type, property conditions, assessor's parcel number; public lands such as schools and parks; all neighborhood streets and building footprints, and many others. Student team members with strong GIS skills are prepared to deliver the geodatabase to city staff at the completion of this project and will guide interested city staff members in the use of this rich source of information. Additionally, we will provide a "data dictionary" that clearly explains each data set's contents.

The student team was asked to suggest combinations of GIS datasets that might be effectively (or

19 Abrahamse et al., 277.
20 Abrahamse et al., 278.
21 Home Performance Resource Center, *Case Study: Long Island Green Homes* (Washington, DC: March 2010), 5, http://www.hprcenter.org/publications/best_practices_case_study_long_island.pdf (accessed September 28, 2010).
22 Abrahamse et al., 281.
23 Abrahamse et al., 278.
24 Abrahamse et al., 278.

ineffectively) correlated to "tease out" additional spatial patterns in Dorsa-TOCKNA, if any, in addition to those presented in this report. For example, it might be useful to overlay datasets pertaining to property condition and age of homes to see if there is a correlation between the age of the home and general upkeep. This, in turn, might also reveal "proxy patterns" of home ownership versus renter tenancy. Below we provide our preliminary recommendations as to certain data set pairings that might yield useful neighborhood insights:

- **Dual paned windows and Energy Usage**: Dual paned windows are more energy efficient than the single-paned windows that were common when most homes in the community were constructed. There may be a correlation between presence of dual-paned windows and energy costs.
- **Build Date and Energy Usage:** There may be a direct correlation between the age of homes in Dorsa-TOCKNA and their energy costs. It is also likely that newer homes contain newer, more energy-efficient appliances.
- **Foreclosures and Energy Usage:** While the GIS database contains information about distressed properties, we do not anticipate a strong correlation between such properties and their relative energy usage, other than to consider that vacant homes will consume less energy.
- **Foreclosures and Property Condition:** We do not expect to see a strong (or even especially useful) correlation between these variables. There might be instances in which a distressed property owner cuts back on property maintenance in light of mortgage-related problems.

Conclusion: Transferability to Other San José Neighborhoods

One of the main goals of the Dorsa-TOCKNA Better Buildings Pilot Program is to provide a model for community energy efficiency assessment that can be carried out in other communities in San José. While this document provides an example of the type of research and information that should be gathered in the early stages of a neighborhood retrofitting program, the companion guide, *Dorsa-TOCKNA Community Assessment: Methodology Guide*, provides a plan for how to conduct such an assessment. It contains a thorough outline of the process taken to prepare this report, including goal setting, team organization, stakeholder identification, and methods of data collection. It also contains strategies for community outreach and implementation. Together, the *Assessment* and *Guide* provide a best practices framework that we hope can be replicable in other San José neighborhoods.

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Appendix A: Home Businessses in Dorsa-TOCKNA

As part of energy retrofit practices, it is important to identify possible local beneficiaries of available funds for this program. This information comes from Dunn and Bradstreet, April 2011.

Company	Street Address	Year Est.	Primary NAICS Description
Insidersreferralcom Inc	1388 S King Rd	2007	Employment Placement Agencies
J T Construction Services Inc	1720 Ocala Ave	2009	New Single-Fanily Housing Construction (except Operative Builders)
JRS Hauling	1703 Cathay Dr	2000	General Freight Trucking, Local
Rios Janitorial Service	1862 Seaview Dr	2008	Janitorial Services
Do Son N	2119 Tehama Ave	2007	Offices of Physicians (except Mental Health Specialists)
Registration Ramos Alvarez	1332 S King Rd	2009	All Other Support Services
Atm Specialists Inc	1733 Story Rd	2008	Other Activities Related to Credit Intermediation
Topete Alionzo Gardening Svcs	1366 Orlando Dr	2001	Landscaping Services
E&J Handyman	1498 Palmview Way	2007	All Other Personal Services
Olague Photography	1689 Orlando Dr	2010	Photographic Studios, Portrait
Prism Painting Services	1799 Hopkins Dr	2007	Painting and Wall Covering Contractors
Dalyjoi Inc	1920 Biscayne Way	2008	All Other Support Services
Mgz Painting	1585 Orlando Dr	2009	Painting and Wall Covering Contractors
1708 Hair & Nail	1708 S King Rd	2008	Nail Salons
Area Chica	1333 Hopkins Dr	1997	Periodical Publishers
Cellco Partnership	1150 S King Rd		Telecommunications Resellers
Life Coach	1893 Loyola Dr	2009	All Other Support Services
El Valle Foods	1743 Cathay Dr	2008	All Other Support Services
Nunez Insurance	1764 Orlando Dr	2010	Insurance Agencies and Brokerages
Dora Landscaping	1690 Orlando Dr	2010	Landscape Architectural Services
Oberquell Specialties	1764 Biscayne Way	2010	All Other Support Services

Company	Street Address	Year Est.	Primary NAICS Description
Becerra S Plumbing	1814 Cortez Ave	2010	Plumbing, Heating and Air-Conditioning Contractors
Nands Janitorial Service	1579 Hopkins Dr	1998	Janitorial Services
Lindas Tailor	1990 Story Rd	1998	Other Clothing Stores
Garcias Gardening & Ldscpg	1405 Orlando Dr	1998	Landscaping Services
Mendonca Lawn Service	1743 Orlando Dr	1998	Landscaping Services
Romero Tax Service & Notary	1927 Decatur Dr	2010	All Other Professional, Scientific and Technical Services
Rokis Auto Detail & ACC	1801 Seaview Dr	2010	General Automotive Repair
Frank Montez	1984 Story Rd	1976	Glass and Glazing Contractors
Elenas Housecleaning	1453 Palmview Way	1999	All Other Consumer Goods Rental
El Charro Western Store	1138 S King Rd	1992	Shoe Stores
Edward E Campbell	1720 Ocala Ave Ste B	1967	Offices of Real Estate Agents and Brokers
Maria Urista	1482 Palmwood Dr	2000	Janitorial Services
Interntnal Assoc Indus Chplins	1418 Cliffwood Dr	1984	Vocational Rehabilitation Services
Universal Brokers Realty Inc	1960 Story Rd	1973	Offices of Real Estate Agents and Brokers
Viet Nam Hair Design	1830 S King Rd	2001	Beauty Salons
Viet Bao Kinh Te	1688 S King Rd	2002	Newspaper Publishers
Guevara Iganacio Landscape	1773 Bermuda Way	2002	Landscaping Services
A C R Rodriguez Landscaping	1796 Loyola Dr	1999	Landscape Architectural Services
G T Flooring	1385 Bal Harbor Way	2002	Flooring Contractors
Supreme Handyman Services	1337 Chiplay Dr	2002	Residential Remodelers
Aguilar Cleaning Service	1539 Orlando Dr	2003	Janitorial Services
Esteban Cruz Financial Svcs	1890 Daytona Dr	2003	Investment Advice
Hq Gardening	1409 Chiplay Dr	2004	Landscaping Services
Click N Designs	1874 Biscayne Way	2004	Computer Systems Design Services

Company	Street Address	Year Est.	Primary NAICS Description
Botellos House Cleaning	1879 Seaview Dr	2003	Janitorial Services
Tj Window Cleaning	1751 Biscayne Way	2004	Janitorial Services
San Miguel Enterprises Inc	1887 Loyola Dr	1988	All Other Specialty Trade Contractors
Edwardo Enterprise	1283 Hopkins Dr	2005	All Other Business Support Services
Aracelys Cleaning	1830 Darwin Way	2005	Other Services to Buildings and Dwellings
Narareth Tile Co	1415 Chiplay Dr	2005	Tile and Terrazzo and Tile Contractors
Castillos Roofing	1703 Cathay Dr	1981	Roofing Contractors
Luna Limousine Service	1897 Ocala Ave	2006	Limousine Service
José A Sanchez	1958 Tymn Way	2006	All Other Support Services
Eloys Trucking	1937 Mandarin Way	2006	General Freight Trucking, Local
Ledezma Family Day Care	1457 Hopkins Dr	2007	Child Day Care Services
Soto Family Day Care	1942 Loyola Dr	2007	Child Day Care Services
Lam Signs	1856 S King Rd	2007	Other Management Consulting Services
Nguyens Design	1742 Everglade Ave	2000	All Other Professional, Scientific and Technical Services
Bay Way Motors	1776 Darwin Way	N/A	Other Commercial and Industrial Machinery and Equipment Rental and Leasing
Decorciones Y Regalos Martinez	1703 Everglade Ave	N/A	Gift, Novelty and Souvenir Stores
Lees TV & Vcr Repair	1862 Story Rd	1988	Radio, Television, and Other Electronics Stores
Deep Services	2053 Ocala Ave	2008	All Other Professional, Scientific and Technical Services
Willie L Barker	1710 Orlando Dr	N/A	Child Day Care Services
Nexight LLC	1907 Decatur Dr	2009	All Other Support Services
AR Remodeling	1827 La Porte Ave	2007	Residential Remodelers
Amalias Rliv Ntrtnal Spplments	1855 Seaview Dr	2007	All Other Support Services
Techitu	1971 Bermuda Way	2008	All Other Support Services
San José Roof Max	1352 Chiplay Dr	2007	Roofing Contractors

Company	Street Address	Year Est.	Primary NAICS Description
Ericks Construction Inc	1944 Mandarin Way	2005	New Multifamily Housing Construction (except Operative Builders)
Eleazar House Cleaning	1391 Bal Harbor Way	N/A	Janitorial Services
Anas Housecleaning	1524 Cliffwood Dr	N/A	Janitorial Services
Pachecos Cleaning	2044 Waverly Ave	2010	Other Services to Buildings and Dwellings
Adrians Cleaning	1976 Waverly Ave	2007	Other Services to Buildings and Dwellings
EE Landscaping	1803 Quimby Rd	2008	Landscape Architectural Services
Duongs Appliance Service	1975 Harbor View Ave	2008	Appliance Repair and Maintenance
Shady Acres Properties LLC	2183 Mondigo Ave	2008	New Single-Fanily Housing Construction (except Operative Builders)
Josélyns Carpet Cleaning	1894 Waverly Ave	2008	Other Services to Buildings and Dwellings
Construction Dynamic Co	1945 Ceylon Ave	2008	New Single-Fanily Housing Construction (except Operative Builders)
Angelic Nail	1779 Quimby Rd	2001	Nail Salons
Thu Nguyen Insurance Agency	1989 Quimby Rd	2008	Insurance Agencies and Brokerages
All Bay Hardwood Floor	2170 S King Rd	2010	Floor Covering Stores
Dt Concrete	2158 Waverly Ave	2010	Poured Concrete Foundation and Structure Contractors
Mind Builder Center	2161 Interbay Dr	2010	New Single-Fanily Housing Construction (except Operative Builders)
Martin Garden Service	2347 Orlando Dr	2010	Landscaping Services
Ek Fashions	2002 Harbor View Ave	2001	Clothing Accessories Stores
Cora De Jesus Daycare	1913 Ceylon Ave	1987	Child Day Care Services
Artistic Tree Surgeons	2061 Huran Dr	1998	Landscaping Services
Wyrick Randall & Hong	2072 Orlando Dr	1997	New Single-Fanily Housing Construction (except Operative Builders)
Saigon Billiards	2077 Inman Way	2001	All Other Amusement and Recreation Industries
Meza Landscaping	2139 Huran Dr	2010	Landscape Architectural Services
Marias Daycare	2052 Mondigo Ave	2010	Child Day Care Services

Company	Street Address	Year Est.	Primary NAICS Description
Handyman Associates	2150 Huran Dr	2010	All Other Personal Services
Spiritual Serenity Massage	2326 S King Rd	2010	Other Personal Care Services
Curran Ed & Luz	1780 Clarice Dr	2000	Other Residential Care Facilities
One Touch Cleaning	2087 Mendota Way	2010	Other Services to Buildings and Dwellings
Evergreen School District	2025 Clarice Dr	N/A	Elementary and Secondary Schools
J A Armenta Construction	2277 Huran Dr	2002	Highway,Street and Bridge Construction
Phonecard Wholesale	1794 Quimby Rd	N/A	Wired Telecommunications Carriers (except Satellite)
Rose Ni Corporation	2340 Palmira Way	2002	Home Health Care Services
Rossys Housecleaning	2052 Mondigo Ave	2004	Other Services to Buildings and Dwellings
Riveras Dry Cleaner	2062 Jamaica Way	2004	Appliance Repair and Maintenance
Laptop Wonder	1839 Quimby Rd	2003	Computer Systems Design Services
Golden Wagon Insurance	2060 Waverly Ave	2004	Insurance Agencies and Brokerages
Carmen Pastore	2129 Ocala Ave	2004	All Other Miscellaneous Store Retailers (except Tobacco Stores)
Ba Ho	2108 Orlando Dr	2000	Gift, Novelty and Souvenir Stores
Jennifers Moving	2127 Orlando Dr	2005	All Other Support Activities for Transportation
Pinoy Printing & Graphics	2166 Mondigo Ave	2005	Quick Printing
Murillo Paint	2060 Orlando Dr A	2005	All Other Support Services
Lynn Boles	2491 Ocala Ave	1984	Hardware Stores
Jasmines Catering	1822 Quimby Rd	2005	Caterers
Ayotlan Landscape	2071 Jamaica Way	2005	Landscape Architectural Services
Gonzalez Gardening	2201 Huran Dr	1990	Landscaping Services
Palpung Lungtok Choeling	2175 Santiago Ave	2006	Religious Organizations
Mary K Sullivan	2290 Orlando Dr	2007	Administrative Management and General Management Consulting Services
Over Top Tree Care	1951 Tymn Way	N/A	Landscaping Services
Cantrell Construction	2174 Mondigo Ave	N/A	New Single-Fanily Housing Construction (except Operative Builders)

Company	Street Address	Year Est.	Primary NAICS Description
2 Brothers Shoes	2127 Jamaica Way	N/A	Women's, Children's, and Infants' Clothing and Accessories Merchant Wholesalers
AR Carpet Cleaning	2004 S King Rd	2009	Other Services to Buildings and Dwellings
Pnb Remittance Centers Inc	1983 Quimby Rd	N/A	Commodity Contracts Dealing
Consuelo Garza	2183 Mondigo Ave	2009	All Other Support Services
Limon Productions	2155 Ocala Ave	2000	Promoters of Performing Arts, Sports, and Similar Events with Facilities
Cwh Corp	2260 Orlando Dr	N/A	All Other Support Services
Forex Cargo	2013 Tully Rd	1984	Freight Transportation Arrangement
American Container Line	2366 S King Rd	1994	General Freight Trucking, Long-Distance, Truckload
Linores Dry Cleaner	2199 Nassau Dr	2007	Other Services to Buildings and Dwellings
José Silvas Gardening	2158 S King Rd	1996	Landscaping Services
Feliza Hair & Nail	2044 S King Rd	2009	Beauty Salons
Dulces Family Daycare	1963 Harbor View Ave	2010	Child Day Care Services
El Jardin De Rosas Fmly Child	1901 Santiago Ave	2010	Child Day Care Services
Josés Handyman	1898 Cunningham Ave	N/A	New Single-Fanily Housing Construction (except Operative Builders)

Appendix B: Local Contractors

This information comes from the Dunn and Bradstreet, April 2011.

Company	Street Address	Year Est.	# of Employees	Primary SIC Description/Line of Business	First Name	Last Name	Title
J T Construction Services Inc	1720 Ocala Ave	2009	1	Single-family housing construction	N/A	N/A	N/A
Becerra S Plumbing	1814 Cortez Ave	2010	1	Plumbing contractors	Ignacio	Becerra	Principal
G T Flooring	1385 Bal Harbor Way	2002	2	Floor laying and floor work, nec	Martha	Garcia	Principal
Supreme Handyman Services	1337 Chiplay Dr	2002	1	General remodeling, single-family houses	Carlos	Artiga	Owner
San Miguel Enterprises Inc	1887 Loyola Dr	1988	8	Appliance installation	Manuel	Vargas	President
Castillos Roofing	1703 Cathay Dr	1981	1	Roofing contractor	José	Castillo	Owner
AR Remodeling	1827 La Porte Ave	2007	1	General remodeling, single-family houses	Adan	Ramirez	Principal
San José Roof Max	1352 Chiplay Dr	2007	1	Roofing contractor	Vic	Artache	Principal
Ericks Construction Inc	1944 Mandarin Way	2005	8	Residential construction, nec	Erick	Vasquez	President
Shady Acres Properties LLC	2183 Mondigo Ave	2008	2	Single-family housing construction	Consuelo	Garza	Principal

Company	Street Address	Year Est.	# of Employees	Primary SIC Description/Line of Business	First Name	Last Name	Title
Construction Dynamic Co	1945 Ceylon Ave	2008	1	Single-family housing construction	Victor	Gee	Principal
Mind Builder Center	2161 Interbay Dr	2010	1	New construction, single-family houses	Agustin	Deotina	Principal
Wyrick Randall & Hong	2072 Orlando Dr	1997	2	New construction, single-family houses	Randal	Wyrick	Owner
Handyman Associates	2150 Huran Dr	2010	1	Handyman service	Lucio	Gonzalez	Principal
Golden Bay Plumbing	2105 Cunningham Ave	2006	1	Plumbing contractors	Charles	Scott	Principal
Cantrell Construction	2174 Mondigo Ave	N/A	3	Single-family housing construction	William	Cantrell	Owner
Josés Handyman	1898 Cunningham Ave	N/A	1	Single-family housing construction	José	Aparicio	Owner

Appendix C: Stakeholder Review Summary

This Appendix reflects the list of organizations, stakeholders and individuals that the SJSU graduate student team worked with over the course of this one-year effort.

Stakeholder or contact's name	Stakeholder or contact's position	Stakeholder or contact's relevance to the Better Buildings Program
Shayna H. Hirshfield	Silicon Valley Energy Watch Program Coordinator City of San José - Environmental Services Department	Shanya has connected our project with the relevant staff at PG&E as well been an invaluable source of information on local, state and federal energy retrofit information and funding.
The Vietnamese Community Newspaper Paper		The community newspaper for Vietnamese speakers in San José. The address to the newspaper is 2350 South Tenth Street, San José 95112.
San José Mercury News		The local newspaper for San José, a possible way to spread the news about Energy Retrofitting Programs for the neighborhood.
Rose Herrera	City Councilmember for District 8	The neighborhood of TOCKNA is located in District 8.
Xavier Campos	City Councilmember for District 5	The neighborhood of Dorsa is located in District 5.
Kerynn Gianotti	PG & E	Kerynn attended the December presentation.

Stakeholder or contact's name	Stakeholder or contact's position	Stakeholder or contact's relevance to the Better Buildings Program
Laura Arechiga	Leader of the Tully Ocala Capitol King Neighborhood Association (TOCKNA)	
City of San José, Office of Economic Development		Address: 200 E. Santa Clara Street, San José, CA 95113-1905
City of San José - Housing Department		Address: East Santa Clara Street T-12, San José, CA 95113
Department of Environmental Services		Address: 200 East Santa Clara Street, San José, CA 95113
Smith Elementary	Elementary School located in the neighborhood	Address: 2025 Clarice Drive, San José, CA 95122-1297
Palpung Lungtok Choeling Buddhist Center		Address: 2175 Santiago Ave, San José, CA 95122 Identified as community stakeholder/asset
Most Holy Trinity School/Church		Address: 2040 Nassau Drive, San José, CA 95122-1748 Identified as community stakeholder/asset
Meyer Elementary		Address: 1824 Daytona Drive, San José, CA 95122-1797 Identified as community stakeholder/asset

Stakeholder or contact's name	Stakeholder or contact's position	Stakeholder or contact's relevance to the Better Buildings Program
Miller Elementary School		Address: 1250 South King Road, San José, CA 95122-2146 Identified as community stakeholder/asset
Overfelt High School		Address: 1835 Cunningham Avenue, San José, CA Identified as community stakeholder/asset
Dorsa Elementary		Address: 1290 Bal Harbor Dr. San José, CA 95122 Identified as community stakeholder/asset.
José Villarreal	Strong Neighborhoods Initiative	José attended the December meeting. He is also the contact for the TOCKNA food bank (every third Saturday of the Month at Holy Trinity) and the King Ocala Neighborhood Association
James Stagi	Rehab Program Administrator	James attended the December meeting.
Robert Lopez	Policy Development Specialist	Robert attended the December meeting. He works in the Housing Department
Steve Luckenbach	ESD Communications Division	Steve attended the December meeting.
Olga Madera	President, Neighborhood Association	Olga is the president of the Dorsa Neighborhood Association. She holds this position voluntarily.
Katherine Kao Cushing	SJSU Sustainability Director, Office of the President/Director of Green Wave Program	Katherine is head of the Green Wave program at SJSU, which trains students in conducting home/office energy audits.

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