EFFECTS OF TRANSIT-ORIENTED DEVELOPMENT ON AFFORDABLE
HOUSING, JOB ACCESSIBILITY, AND AFFORDABILITY OF
TRANSPORTATION IN THE METRO GREEN LINE CORRIDOR OF LOS
ANGELES (CA)

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By

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ABSTRACT

Effects of Transit-Oriented Development on Affordable Housing, Job Accessibility, and Affordability of Transportation in the Metro Green Line Corridor of Los Angeles (CA)

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The premise of this study is that an understanding of catalysts and impacts of social and economic change in the Los Angeles Metro Green Line study corridor and an analysis of current planning policies can help identify how future planning policies may generate more ideal and positive outcomes for the study corridor. This study evaluated the conditions within the transit corridor with four selected station areas defined by a one-mile radius from each station. The stations that make up the transit corridor are along the Los Angeles Metro Green Line that runs east west between Redondo Beach and Norwalk. A mile radius buffer was chosen to fully capture the spacing between the stations linearly and use that to define the corridor's primary area of influence.

This study evaluated the changes in demographic composition, housing affordability, transportation affordability and job accessibility within the Metro Green Line corridor between the year 2000 and 2010. Trends in the corridor revealed that over a ten-year span, the corridor saw shifts in demographic composition, growth in job and housing densities and increases in the cost of housing.

Over the ten years, the corridor has not yet developed to the standards of a location efficient environment. This study recommends that protection of vulnerable populations such as the high proportion of renter-occupied housing units is important

because they are more likely to make up core transit riders that need public transportation. Preserving and building affordable housing near transit would enable households to save money on both transportation and housing expenditures and can work towards making the corridor more affordable. By understanding the three main variables in the context of social equity, a decision-maker can avoid the potential of negative gentrification, displacement, and promote economic viability in the corridor.

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TABLE OF CONTENTS

LIST OF TABLES.....	x
LIST OF FIGURES	xi
1 INTRODUCTION	1
1.1 Introduction to the General Topic	1
1.2 Purpose of Study and Study Specifications	3
1.2.1 Hawthorne Station	5
1.2.2 Crenshaw Station	5
1.2.3 Vermont Station	5
1.2.4 Avalon Station	5
1.3 Hypotheses	5
1.4 Specification of Final Product	6
2 BACKGROUND	7
2.1 Brief History of Transit in Los Angeles	7
2.2 History of the Metro Green Line	9
2.2.1 Early Years	9
2.2.2 Infrastructure Setbacks	10
2.2.3 Issues of Social Equity	10
2.2.4 Missing Connections and Future Extensions	11
2.3 Station Area Planning	12
2.3.1 Renovation of Station Area Planning: Corridor Level Planning	12
2.3.2 Policy Driving Station Area Planning in Los Angeles	15
2.3.2.1 LA/2B – Policy Goals	15
2.3.2.2 Policy on Moving Forward	16
2.4 Literature Review	17
2.4.1 Social Equity and Transit	17
2.4.2 Affordable Housing in TODs	18
2.4.3 Affordable Transportation and Housing in TODs	19
2.4.4 Job Accessibility in TODs	22
3 METHODOLOGY	24
3.1 Literature Review	24
3.2 Corridor Definition	24
3.3 Compilation of Census Data	24
3.3.1 Housing Affordability Data	25
3.3.2 Transportation Affordability Data	25
3.3.3 Job Accessibility Data	25
3.4 Analysis of Data	26
3.5 Derivation of Conclusions	26
4 ANALYSIS AND FINDINGS	27
4.1 Defining the Corridor	27
4.2 Trends in Demographic Characteristics over Time in the Corridor	30
4.2.1 Age	30

4.2.1.1	Age Distribution.....	30
4.2.1.2	Age Trends	30
4.2.2	Income	32
4.2.2.1	Income Distribution.....	32
4.2.2.2	Wage Trends	35
4.2.3	Race and Ethnicity.....	36
4.2.3.1	Race Distribution.....	36
4.2.3.2	Race Trends.....	38
4.2.3.3	Ethnicity.....	40
4.2.4	Housing	43
4.2.4.1	Values of Housing Stock.....	44
4.2.4.2	Housing Affordability	49
4.2.4.3	Age of Housing Stock.....	52
4.2.5	Combined Housing and Transportation Affordability	53
4.2.6	Vehicle Availability and Mode of Access to Work.....	56
4.2.7	Employment Characteristics over Time	57
4.2.7.1	Total Jobs	57
4.2.7.2	Job Inflow and Outflow	57
4.2.7.3	Job Destinations	60
4.2.7.3.1	Where Workers Live who are Employed.....	60
4.2.7.3.1	Where Workers are Employed Who Live.....	61
4.3	Main Effects of the Green Line on Demographic, Social, & Economic Trends	63
4.3.1	Demographic Trends.....	63
4.3.2	Housing Affordability.....	64
4.3.3	Combined Housing and Transportation Affordability	65
4.3.4	Job Accessibility	66
5	CONCLUSIONS AND RECOMMENDATIONS.....	68
5.1	Concluding Observations	68
5.2	Recommended Policies.....	69
	REFERENCES	72
6	APPENDICES	76
6.1	Data Extraction and Analysis Steps.....	76
6.1.1	Census Tracts by Station and Study Corridor	76
6.2	Housing Affordability.....	76
6.2.1	Types of Data	77
6.2.2	Data Collection.....	79
6.3	Transportation Affordability	80
6.3.1	Types of Data	80
6.3.2	Data Collection.....	80
6.4	Job Accessibility	81
6.4.1	Types of Data	81
6.4.2	Data Collection.....	81
6.4.2.1	Data Extrapolation.....	82
6.5	Corridor Census Tracts.....	84

6.6	Trends in Demographic Characteristics Over Time in the Corridor	85
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LIST OF TABLES

Table 2.1 City of Los Angeles' Transit Corridors Strategy Goals as of June 2012.....	13
Table 2.2 City of Los Angeles' Transit Corridors Strategy Values as of June 2012.....	14
Table A.1 Census Information Sources	84
Table A.2 Census Tracts Defined by the Corridor.....	84
Table A.3 Age Distribution by Year in the Corridor	85
Table A.4 Race Distribution by Year in the Corridor	85
Table A.5 Ethnicity by Year in the Corridor	85
Table A.6 Income Distribution by Year in the Corridor.....	86
Table A.7 Housing Occupancy by Year in the Corridor	86
Table A.8 Occupied Housing by Year in the Corridor	87
Table A.9 Household Types by Year in the Corridor	87
Table A.10 Householder Race Distribution by Year in the Corridor	87
Table A.11 Householder Ethnicity by Year in the Corridor.....	87
Table A.12 Age Distribution of Housing Stock by Year in the Corridor	88
Table A.13 Housing Value Distribution by Year in the Corridor	88
Table A.14 Mortgage Status and Monthly Cost by Year in the Corridor.....	89
Table A.15 Monthly Cost % of Income Distribution by Year in the Corridor	89
Table A.16 Gross Rent Distribution by Year in the Corridor	89
Table A.17 Rent % of Income Distribution by Year the Corridor	90
Table A.18 Vehicle Availability Distributions by Year in the Corridor	90
Table A.19 2000-2010 Commuting to Work	90
Table A.20 Annual Percent Growth: Total Jobs	90
Table A.21 Annual Percent Growth: Jobs by Worker Age	91
Table A.22 Annual Percent Growth: Jobs by Worker Earnings	91
Table A.23 Annual Percent Growth: Jobs by Worker Race	91
Table A.24 Annual Percent Growth: Jobs by Worker Race	91
Table A.25 Annual Percent Growth: Labor Market Size	91
Table A.26 Annual Percent Growth: Employment Efficiency.....	91
Table A.27 Annual Percent Growth: In-Labor Force Efficiency.....	91
Table A.28 Raw Employment Data	92
Table A.29 2002-2010 Home Destination Analysis	93
Table A.30 2002-2010 Work Destination Analysis.....	93
Table A.31 2002-2010 Employment Data: Comparison Table.....	94
Table A.32 2002-2010 Housing Data: Comparison Table	95
Table A.33 2002-2010 Commute to Work Data: Comparison Table	96

LIST OF FIGURES

Figure 1.1 Site of Study: LRT Stations and Transit Corridor with One-Mile Buffer	4
Figure 2.1 US Proportions of Income Spent on Transportation.....	21
Figure 4.1 2000-2010 Trend in Job Density in the Study Corridor vs. the County	27
Figure 4.2 2002 Job Density in the Study Corridor	28
Figure 4.3 2010 Job Density in the Study Corridor	29
Figure 4.4 Population Distributions by Age and Year in the Study Corridor	31
Figure 4.5 Population Distributions by Age and Year in the County	31
Figure 4.6 2000-2010 Trends in Total Jobs by Age Group in the Study Corridor	32
Figure 4.7 Distributions of Family Incomes by Year in the Study Corridor.....	33
Figure 4.8 Distributions of Household Incomes by Year in the Study Corridor	34
Figure 4.9 Distributions of Household Incomes by Year in the County	34
Figure 4.10 2000-2010 Trends in Total Jobs by Earnings Categories in the Study Corridor	35
Figure 4.11 Population Distributions by Race and Year in the Study Corridor.....	37
Figure 4.12 Population Distributions by Race and Year in the County	37
Figure 4.13 Racial Distributions of Householders in the Study Corridor	38
Figure 4.14 2000-2010 Trends in Total Jobs by Race in the Study Corridor	39
Figure 4.15 Ethnicity by Year in the Study Corridor.....	41
Figure 4.16 Ethnicity by Year in the County	41
Figure 4.17 Ethnicity of Householder by Year in the Study Corridor.....	42
Figure 4.18 2000-2010 Trends in Total Jobs by Ethnicity in the Study Corridor.....	42
Figure 4.19 Housing Occupancy in the Study Corridor	43
Figure 4.20 Tenure of Occupied Housing Units in the Study Corridor.....	44
Figure 4.21 Distributions of Housing Values by Year in the Study Corridor	46
Figure 4.22 Distributions of Housing Values by Year in the County	46
Figure 4.23 Distributions of Monthly Mortgage Costs by Year in the Study Corridor	47
Figure 4.24 Distributions of Monthly Mortgage Costs by Year in the County.....	47
Figure 4.25 Distributions of Gross Rent in the Study Corridor	48
Figure 4.26 Distributions of Gross Rent in the County	48
Figure 4.27 Distributions of Monthly Owner Cost as Percent of Income in the Corridor	50
Figure 4.28 Distributions of Monthly Owner Cost as Percent of Income in the County	50
Figure 4.29 Distributions of Monthly Rental Cost as Percent of Income in the Corridor	51
Figure 4.30 Distributions of Monthly Rental Cost as Percent of Income in the County	51
Figure 4.31 Distributions of Housing Stock by Period Built	52
Figure 4.32 Housing Cost vs. Housing & Transportation Cost as Percent of Income	54
Figure 4.33 Transportation Cost vs. Housing & Transportation Cost as Percent of Income	55
Figure 4.34 Employment Access Index	55
Figure 4.35 Distributions of Number of Vehicles Available per Housing Unit.....	56
Figure 4.36 Distributions of Means of Transportation to Work.....	57
Figure 4.37 2002 In-Out Employment Flows.....	58
Figure 4.38 2010 In-Out Employment Flows.....	59
Figure 4.39 2000 to 2010 Trends in Inflow and Outflow Job Counts	59
Figure 4.40 2002 Origins of Those Who Worked in Study Corridor	60

Figure 4.41 2010 Origins of Those Who Worked in Study Corridor	61
Figure 4.42 2002 Work Destination Analysis	62
Figure 4.43 2010 Work Destination Analysis	62

1 INTRODUCTION

1.1 Introduction to the General Topic

The goal of station area planning for transit-oriented development (TOD) is to facilitate the movement of people between origins and desired activity locations; and to make travel convenient without the use of the automobile. However, just because there are more options for public transportation and living does not mean that everyone has choices. For example, lower-income residents, who often are people of color, are disproportionately dependent on transit (Belzer et al., 2006). A look into station area planning, its principles, and how the principles are accomplished versus how they will be accomplished can provide insight into opportunities for improving transportation, creating affordable and accessible living, and maintaining local economic diversity.

Station Area Planning involves policy that enables light rail transit (LRT) and other forms of public transportation to better support: compact, walkable, mixed-use neighborhoods; functional competitive job centers; increased transit access and ridership; and well-integrated transit stations (Los Angeles Department of City Planning [DCP], 2012). According to the Federal Railroad Administration of the U.S. Department of Transportation, station area planning is used to achieve an optimal integration of the station in its context—to ensure ridership growth and capture, livability, sustainability, and economic benefits (United States Department of Transportation [US DOT], 2011). Principles and strategies for station area planning are derived from the concept of transit-oriented development (TOD), where there is compact development *and enhanced access to public transportation, and from the need to address Senate Bill* (SB) 375 that establishes guidelines to help regional and local governments achieve statewide greenhouse gas reduction goals related to the Global Warming Solutions Act of 2006, also

known as Assembly Bill (AB) 32. Assembly Bill 32 set into law the 2020 greenhouse gas emissions reduction goal to reduce emissions to 1990 levels. It directs the California Air Resources Board to develop discrete actions to reduce greenhouse gases and to prepare plans to identify how to best reach those targets (California Environmental Protection Agency [EPA], 2013). In fact, SB 375 was created because it was found that without improved land use and transportation policy and the connection between the two, California would not be able to achieve the goals of AB 32.

In 2007, Reconnecting America's Center for Transit-Oriented Development created a station area planning manual for the Metropolitan Transportation Commission that explains the main principles of station area planning. Main principles of station area planning are to:

- Maximize ridership through appropriate development
- Design streets for all users
- Create opportunities for affordable & accessible living
- Make great public places
- Manage parking effectively
- Capture the value of transit
- Generate meaningful community involvement
- Maximize neighborhood & station connectivity
- Implement the plan and evaluate its success

In practice, station area planning in Los Angeles, also referred to as transit-oriented district planning, has been done on a station-by-station basis. Later in this paper there is discussion on how station area planning is evolving and how the principles are being maintained at a wider, corridor level.

1.2 Purpose of Study and Study Specifications

Good station area plans are meant to increase transit ridership, increase pedestrian activity, increase economic development, and offer other benefits such as affordable market-rate housing and increase in employment. Monitoring and evaluating plans can be done through follow-ups indicated through metrics to evaluate success. For the purposes and parameters of this study, the indicators of transit affordability, cost of living affordability, and distribution of jobs are analyzed through various metrics to evaluate the success of station area planning. This study focuses attention on how under-served populations are affected.

This study evaluates the conditions within a transit corridor with four selected station areas defined by a one-mile radius from each station. The stations that make up the transit corridor are along the Los Angeles Metro Green Line that runs east west between Redondo Beach and Norwalk. A mile radius buffer was chosen to fully capture the spacing between the stations linearly and use that to define the corridor's primary area of influence as shown in Figure 1.1. Relevant data is analyzed for the corridor over the period between the year 2000 and the year 2010.

Figure 1.1 Site of Study: LRT Stations and Transit Corridor with One-Mile Buffer

Source: http://www.metro.net/riding_metro/maps/images/rail_map.pdf

The four stations were selected from those identified in the 2007 Green Line Access Plan as located in low-income neighborhoods in the South Bay (Odyssey Consulting, 2007). The Los Angeles County Metropolitan Transportation Authority (2007) identified the stations' ridership and proximity to residential neighborhoods as being predominately low-income. All of the stations opened in 1995; however, a baseline year of 2000 was chosen to capture the maturity of the line's utilization. Also for the purpose of this study, the Harbor Station was omitted from the analysis because 1) the station intersects two major freeways, 2) has an environment unlike the others, and 3) the data will be captured in the corridor because it lays between the Vermont and Avalon stations. The following are some study station characteristics.

1.2.1 Hawthorne Station

The station is located at 11230 S. Acacia Street in Inglewood. There are 623 free parking spaces on-site. The station also accommodates 4 bike rack spaces.

1.2.2 Crenshaw Station

The station is located at 11901 S. Crenshaw Boulevard in Hawthorne. The station includes 513 free parking spaces on-site. There are 12 bike rack spaces along with 4 bike lockers for long-term storage.

1.2.3 Vermont Station

The station is located at 11603 S. Vermont Avenue in Los Angeles. There are 155 free parking spaces on-site.

1.2.4 Avalon Station

The station is located at 11667 S. Avalon Boulevard in Los Angeles. The station has 158 free parking spaces on-site. It also has 12 bike rack spaces on-site.

1.3 Hypotheses

The hypotheses of this study are that the station areas within the corridor developed into TODs, travel in the corridor should be more affordable since the line's opening, there should be a growth in affordable housing in the corridor since the line's opening, and that job accessibility should increase since the line's opening. The following three main questions will be used as the framework for evaluating the study corridor:

- How has transportation affordability changed in the corridor over a ten-year span?
- How has housing affordability changed in the corridor over a ten-year span?
- How has job accessibility changed in the corridor over a ten-year span?

1.4 Specification of Final Product

A “findings and recommendations” section summarizes lessons from past research and from this evaluation of the corridor. The section includes recommended strategies to improve what has transpired from 2000 to 2010. The methodology created for this study can be used to do periodic evaluations of the station areas and corridor in the future.

2 BACKGROUND

2.1 Brief History of Transit in Los Angeles

Los Angeles County has been served by public transit since 1873 (Los Angeles County Metropolitan Transportation Library [Metro], 2013). Modes of transit, between 1873 and now included horse cars, cable cars, incline railways, steam trains, electric streetcars, interurban cars, trolley buses, and gas or diesel powered buses. In 1873 the Los Angeles City Council authorized David B. Waldron of the Main Street Railroad Company, to “lay down and maintain two iron railroad tracks, thereon propelled by horses or mules, and to carry passengers thereon...” From here, the enterprise did not become much of a reality until in 1874 when the Spring and West 6th Street Railroad was issued to Judge Robert M. Widney. The company served the downtown Los Angeles area on a single-track horse car. This service line began public transit in Los Angeles. The first suburban line was the Main Street and Agricultural Railroad in 1876 that expanded from downtown to what is now called Exposition Park near the University of Southern California. The first ever line to be dedicated “exclusively to public transit” was chartered in 1883 and was driven by a horse. Incorporated in 1887, the Los Angeles Cable Railway was the largest transit venture in the city and the last city line to convert to electrification. Later it was sold to Henry E. Huntington and renamed the Pacific Railway Company. In 1896, many of the major horse-drawn and cable cars converted to electrical power and then the Los Angeles Consolidated Electric Railway was chartered in 1890.

As more and more railway companies consolidated, the formation of robust transit systems began. Between the years of 1895 and 1945, the Los Angeles Railway (also known as the Yellow Cars of Los Angeles) was a local streetcar transit system that connected the city center to local neighborhoods within a six-mile radius. Henry E. Huntington became the owner

in 1898 and maintained interest in running the city lines. The service slowly converted to a bus system until the last streetcar went out of service in 1963. It was only after about 27 years that the light rail transit scene came back to Los Angeles, starting with the opening of the Metro Blue Line in 1990. However, during the time between 1898 and 1990 other railway companies made great strides toward moving goods and people about the City of Los Angeles. The first interurban rail line, developed by Huntington and later sold to Southern Pacific, was completed in 1902. Los Angeles' Pacific Electric Subway opened in 1925 and then later was crippled by the automobile. Finally, in 1951, the Los Angeles County Metropolitan Transit Authority (LAMTA) was formed as a transit-planning agency by the State of California. It was created to formulate plans and policy for a publicly owned and operated mass rapid transit system that would replace the failing infrastructure of privately owned and operated systems.

Once having a thriving transportation system, Los Angeles County is constantly working to fix problems of urban sprawl that was created from the radial rail patterns of the Pacific Electric Railway built in 1891. It is argued that Pacific Electric "established traditions of suburban living long before the automobile arrived" (Snell, 2001). In 1993, the California State Legislature created the Los Angeles County Metropolitan Transportation Authority (LACMTA) with the merger of the Los Angeles County Transportation Commission and the Southern California Rapid Transit District (Los Angeles Metro, 2013). The Southern California Rapid Transit District (SCRTD), developed in 1964, was created to serve the entire Southern California region. The region included Los Angeles, Orange, Riverside, and San Bernardino Counties. It was mandated to improve bus systems and design and build a transit system for Los Angeles. The Los Angeles County Transportation Commission (LACTC) was an agency created in 1976 that oversaw public transit (bus and rail, shuttles, dial-a-ride, para-transit) and highway policy in

the County. LACTC was credited for the construction of the Los Angeles County Metro Rail System (Metro) Blue Line, Metro Green Line and for completing construction of the Metro Red Line. Now in 2013, LACMTA is still an agency that encompasses both of its predecessor agencies' responsibilities (Los Angeles Metro, 2013). It is responsible for operating clean air CNG-powered Metro bus fleet, Rapid Bus lines, and Metro's Blue Line, Red Line, Gold Line, and Green Line.

2.2 History of the Metro Green Line

2.2.1 Early Years

Four years before the creation of the LACTC, in 1972, Caltrans approved the construction of the strongly opposed Interstate Highway 105 (I-105), also known as the Century Freeway. The I-105 project was planned to serve the communities of Norwalk, Downey, Lynwood, Watts, Inglewood, Lennox, El Segundo, Manhattan Beach, and Redondo Beach. That same year in 1972, the Carlyle Hall law firm filed a landmark suit that delayed and threatened the future of the freeway's completion (Weinstein, 1993). From the lawsuit came an Environmental Impact Statement that required reducing the size of the freeway and many other environmental conditions. Along with the lawsuit, community opposition also delayed this project, eventually incurring costs that rendered this freeway the most expensive project in the nation's history (Weinstein, 1993; Faigin, 2013). As a condition of approval of I-105, there was to be a transit corridor of some type down the freeway's median, as long as there was public support and funding available. Later on in the 1980s, the original Rail master plan designated the transit corridor as a light rail line. The project for the line's construction began in 1975 when Caltrans's Norwalk-El Segundo Freeway-Transitway Environmental Impact Statement for I-105 was approved (Los Angeles Metro, 2013). All stations opened in 1995.

2.2.2 Infrastructure Setbacks

The transit proposal initiated resulted from a long-running litigation between Caltrans and the local communities that would be affected, and ultimately the communities that would be split in half by the I-105 construction. In 1979, it was agreed that a number of mitigation measures would be required. One measure was the construction of mass rapid transit in the I-605 freeway median, a freeway that would be affected by the Metro Green Line at the Norwalk Station. With the passing of the 2½ cent sales tax increases for transportation improvements through Proposition A in 1980 and 1990 by Los Angeles County voters, construction of the I-105 began in 1982 and it was opened in 1993. The construction of the Green Line began in 1987 and cost approximately \$718 million and the Metro Green Line opened in 1995. Between the year 1982 and 1995, the corridor of the Metro Green Line experienced shifts in population growth.

2.2.3 Issues of Social Equity

One of the main reasons for the construction of the line was that it would serve the Cold War industries in the El Segundo area, specifically in the aerospace sector. However, after the Cold War, communities in the area began to rapidly lose the population of middle class workers, predominately Whites and Blacks that worked in the aerospace sector. Soon to fill the area was the working class and poor Hispanics, who had no real connection to the existing environment and the aerospace sector. Later down the road, the Bus Riders Union, the County's largest grassroots mass transit advocacy organization rooted in civil rights and environmental justice, contented that MTA focused its efforts on serving the middle-class working Whites and not the working-class minorities (The Labor/Community Strategy Center, 2013). As a result, ridership was shifted to numbers below the previously projected estimates, averaging approximately 44,000 daily weekday boardings in June 2008 (Los Angeles Metro, 2013).

2.2.4 Missing Connections and Future Extensions

The Green Line currently extends from Norwalk to Redondo Beach. It also is the closest LRT line to the Los Angeles World Airports (LAWA) airport, also known as LAX; however, it does not connect to LAX. The western alignment of the Green Line was originally planned and partially constructed to connect to LAX but, concerns about the overhead lines of the rail interfering with the landing paths of airplanes, opposition from neighboring communities over expansion, and competition from the line on nearby airport parking lot owners halted the extension. As a result of concerns, opposition, and competition, now a free shuttle from the Aviation LRT station transports passengers to the airport instead of the initial Green Line extension. The eastern terminus also posed a disappointment because it stopped 2 miles short of the much-used Norwalk/Santa Fe Springs Metrolink station. The gap is now substituted with a local bus service. Consequently, critics label the Green Line as a train that goes from “nowhere to nowhere” (Los Angeles Metro, 2013).

Studies have been done to come up with future improvements to the Green Line; however, the possibility of an extension is a low priority. Proposals have been made, including an extension to Loyola Marymount University, the South Bay Galleria, and the Norwalk/Santa Fe Springs station. The most promising proposals have been the extension from South Bay to the city of Torrance and the connection of the Metro LAX/Crenshaw Line terminus at the Aviation station, which are both, expected to be completed by 2018. As of now, the Metro Green Line is a fully grade-separated light rail line in the Los Angeles County Metro Rail System. Primarily an east-west route extending from Redondo Beach to Norwalk, it runs along and mostly in the median of the Century Freeway (Interstate 105). The portion of the line of particular interest to this study runs along the median of the freeway on elevated rail.

2.3 Station Area Planning

Station Area Planning (SAP) partly functions as a mechanism to address the range of features that are necessary to support transit ridership (Nelson/Nygaard Consulting Associates, 2007). The features uphold the regional interest in planning to maximize transit ridership and efficient use of resources. Moreover, they work for local community decisions without the need for regionally imposed standards. The City of Los Angeles' Department of City Planning (2012) defines the goal of a station area plan as development of new regulations around LRT stations that better support: 1) compact, walkable, mixed-use neighborhoods, 2) functional, competitive job centers, 3) increased transit access and ridership, and 4) well-integrated transit stations. The objectives of the goals include: 1) intensify land use, as appropriate, 2) develop land use incentives, 3) focus on urban form and design, 4) enhance connectivity and use of multiple modes of transportation, 5) institute parking reductions or other transit-supportive parking measures, and 6) modify street standards, as appropriate (Los Angeles Department of City Planning, 2012).

2.3.1 Renovation of Station Area Planning: Corridor Level Planning

Standalone station area plans are argued in the LA Transit Corridors Strategy White Paper (2012), to fail to take advantage of the fundamental accessibility benefits of transit corridors. Station-focused “transit-oriented development” and “transit-oriented district” plans have proved not to always produce the intended benefits such as traffic congestion relief, community open space, improved air quality, affordable housing, and land conservation, in the United States (Carlton, Cervero, Rhodes, and Lavine, 2012). It can be reasoned that station area planning at its core does not reflect the potential for individuals to travel, using LRT, to reach desired livability features in other stations along the transit line or corridor. Features of livability

may be appropriate and feasible in one station area and may be marked as the opposite in another station area. Los Angeles has typically considered planning, such as station area planning, for land use and transit integration at various scales; however, the City has had little progress with planning at the corridor level.

Pre-existing to the idea of corridor level planning, station area plans are thought to be plans for independent nodes that include strategies to include desired livability components of transit-oriented places or developments within each station area. A transit corridor is best defined as the walkable areas around all of the stations along a transit line and is usually defined by a half-mile buffer. Corridor level station area planning acknowledges the discrepancies and incompatibilities and seeks to promote transit-orientation in a larger corridor-based geography (Carlton, Cervero, Rhodes, and Lavine, 2012). Within the Transit Corridors Strategy, four main goals were devised as a template for further transit planning at the corridor level, as shown in Table 2.1. Three of these goals directly address evaluation of social equity, which is the main focus of this study. The goals were derived from the values that were sought to reflect the direction of transportation and land use in the City of Los Angeles, as shown in Table 2.2.

Table 2.1 City of Los Angeles' Transit Corridors Strategy Goals as of June 2012

Goal	Description
Jobs	Foster attractive and diverse employment opportunities in highly accessible locations.
Housing	In highly accessible locations, foster housing options that meet diverse housing needs.
Quality of Life	In high accessible locations, foster the provision of basic services and additional community benefits.
Connectivity	Foster diverse transportation options that reduce overall travel time and out of pocket transportation costs.

Source: Carlton, 2012

Table 2.2 City of Los Angeles' Transit Corridors Strategy Values as of June 2012

Value	Description
Environment	Foster a safe, healthy, and environmentally sustainable region.
Equity	Foster equal access to opportunity and equitable treatment for all.
Engagement	Foster social interaction and community vitality.
Economy	For an economically prosperous and resilient region.

Source: Carlton, 2012

Tactics to achieve the goals were developed in the corridor strategy study. Input on the implementable tactics came from staff, key departments within the City (e.g., Planning Department, Housing Department, etc.), LA Metro, and review of the City's existing policies and procedures. As a starting point, 172 tactics were developed to achieve the goals and values of the strategy for the City.

According to Reconnecting America (2011), corridor level planning is cost-effective and is used to investigate long-range impacts on transit and development, and also to find potential of displacement of low-income residents. The principle of planning at the corridor level is that it enables the fostering of activities such as working, shopping, living, and recreating within the transit shed defined by the corridor. On a corridor level plan, the self-containment of land uses and planned travel patterns creates efficiencies in travel (Carlton, Cervero, Rhodes, and Lavine, 2012). Self-contained corridors should be able to accommodate substantial new employment and housing growth. Most importantly, this level of planning helps planners understand the specific infrastructure or programmatic improvements that are needed to benefit the entire transit system; and the broader context of how transit will influence the TODs, ridership and development of each station.

2.3.2 Policy Driving Station Area Planning in Los Angeles

The following sub-sections are brief overviews of the past and current policies that drive social equity through the lens of housing affordability, job accessibility, and transit affordability. The study corridor, including the 4 station areas is all located in a variety of jurisdictions including the City of Los Angeles and the County of Los Angeles.

2.3.2.1 LA/2B – Policy Goals

The LA/2B (2013) is a project of the Los Angeles Department of City Planning and Transportation to envision a new way of moving around the city. It includes the process to update the Mobility Element of the General Plan. The draft document, as of November 2012, includes 6 main goals. All goals will affect the level and quality of transportation through all modes, but Goal number 3, “Access for all Angelenos”, encompasses the most direct policy pertaining to the three variables used to evaluate social equity. Goal 3: Access for all Angelenos states that:

“Access is the ability to reach desired goals, services, activities, and destination. In transportation, access can be achieved through multiple avenues, including improving the actual movement of people and goods, altering land use patterns, or eliminating the need for physical movement to access good and services, such as through online shopping or telecommunicating” (LA/2B, 2012).

The update to the Mobility Element is projected to be adopted in full in the spring of 2014.

Among the objectives that speak directly to the three variables used to evaluate social equity, the following are the most applicable:

1. Provide all residents, workers, and visitors with efficient, convenient, **affordable**, and attractive transit services.
2. Promote access to **lower cost** transportation options.
3. Improve access to major regional destinations and job centers.

2.3.2.2 Policy on Moving Forward

The transit age for Los Angeles County is in the midst of a boom with President Obama's initiative to provide 80 percent of Americans access to convenient high-speed rail service in 25 years and Mayor of Los Angeles, Antonio Villaraigosa's pro-transit initiatives, like the 10/30 Initiative. The 10/30 Initiative is a concept to use the long-term revenue from the Measure R sales tax as collateral for long-term bonds and a federal loan, which will allow Los Angeles Metro to build 12 key mass transit projects in 10 years, rather than in 30 years (10/30 Initiative, 2011). The goal of this initiative is to achieve substantial cost and time savings while delivering the immediate benefit of 160,000 more jobs to improve the local economy and annual benefits of 77 million more transit boardings, 521,000 fewer pounds of mobile source pollution emissions, 10.3 million fewer gallons of gas consumption, and 191 million fewer vehicle miles travelled.

It is important that with this initiative that social equity through the lens of housing affordability, job accessibility, and transit affordability is both established and preserved. In 2012, Mayor Villaraigosa directed that all City Departments work together in a Transit Corridors Cabinet (TCC) to foster and incentivize a built environment that encourages transit use, optimizes the benefits of transit for all Angelenos, and focuses on development around transit (City of Los Angeles Transit Corridors Cabinet, 2013).

2.4 Literature Review

The following sub-sections are accounts of what experts and literature have to say about the trends of job diversity, housing affordability, and transit affordability in and around station areas and transit corridors.

2.4.1 Social Equity and Transit

Transportation equity refers to a range of strategies and policies aimed to address inequities in transportation planning and project delivery system (Sanchez and Brenman, 2007). Stemming from environmental justice, metropolitan equity, and the just distribution of resources, Sanchez and Brenman (2007) deduced that an equitable transportation should:

- Ensure opportunities for meaningful public involvement in the transportation planning process, particularly for those communities that most directly feel the impact of projects or funding choices
- Be held to a high standard of public accountability and financial transparency
- Distribute the benefits and burdens from transportation projects equally across all income levels and communities
- Provide high-quality services—emphasizing access to economic opportunity and basic mobility—to all communities, but with an emphasis on transit-dependent populations
- Equally prioritize efforts both to revitalize poor and minority communities and to expand transportation infrastructure.

In 2012 Michael Kralovich wrote a paper on developing strategies for equitable TODs and its benefits to society. Moreover, the paper also focuses on displacement, a factor that needs to be considered when planning for transit-rich neighborhoods. In the study the following were found:

- With the addition of transit, housing stock became more expensive, neighborhood residents became wealthier and vehicle ownership become more common
- Neighborhoods with a greater proportion of renters are more susceptible to gentrification and displacement
- Gentrification associated with a new transit station is not necessarily correlated with a change in racial composition
- Gentrification can be a positive force for neighborhood change, but can also have negative, unintended consequences.

Protection of vulnerable populations (residents and workers with lower-incomes, who rent, and who are people of color) is important because they are more likely to make up core transit riders (Kralovich, 2012). In other words promoting and preserving a diverse transit-rich neighborhood is crucial to the success of a public transportation network.

2.4.2 Affordable Housing in TODs

Los Angeles' recent initiatives and policies to renovate transportation and land use, coupled with an increasing demand for transit-adjacent housing, will put pressure on the City's already overstressed housing stock (Kralovich, 2012). In May of 2012, the Los Angeles Housing Department, through Reconnecting America, released a study on *Preservation in Transit-Oriented Districts* with the goal of ensuring that all families and workers are able to continue to live and work in the transit rich neighborhoods. One way to achieve this goal is to preserve the existing affordable housing and rent stabilization ordinance (RSO) housing stock near transit centers (Reconnecting America, 2012). Passed in 1979 by City Council, the RSO covers housing units that were permitted for occupancy prior to October 1, 1978. It limits rent increase to the range of three percent to eight percent every 12 months with the annual percentage

increase in rent based on the Consumer Price Index. Preserving affordable housing near transit is important because:

- “our economic competitiveness relies on offering housing for workers of all incomes,
- low- and moderate-income workers support a successful transit system,
- an opportunity exists today that might not exist tomorrow, and
- more so than ever before or ever again, the City’s affordable housing stock is at risk” (Reconnecting America, 2012).

Based on the study done by Reconnecting America in 2012 for the LA Housing Department, factors used to evaluate affordable housing and RSO-subject housing stocks that are appropriate for this study include median household income, the ratio between renter-occupied and owner-occupied households, and the potential change in the housing market resulting from proximity to major job centers and areas with lower transportation costs. Statistical research behind the transportation cost model, H+T Affordability Index, shows strong relationships between lower transportation costs and higher residential density, high transit connectivity, closer proximity to major job centers, more diverse mix of land uses, and greater walkability (Reconnecting America, 2012).

2.4.3 Affordable Transportation and Housing in TODs

Housing and transportation costs are so high that the traditional rents and home prices are getting out of reach for families who live and work in the Los Angeles area. Six out of ten Angelenos rent as opposed to owning a home, and 176,917 or about 20 percent of them spend more than half of their monthly income on rent; making them vulnerable to displacement (Kralovich, 2012). Transportation is the second largest expense after paying for housing in the

US, where the average family spends about 19 percent of household income on transportation as seen in Figure 2.1 (Center for Transit Oriented Development & [CNT] Technology, 2006; Reconnecting America's Center for Transit-Oriented Development, 2008a). Households in auto-dependent neighborhoods spend about 25 percent and households with good access to transit spend about 9 percent of incomes on transportation. A shift in the housing market is occurring because traffic congestion during the commute to work and back home in the suburbs has become so bad that the commute is no longer desirable or an affordable option. Other reasons include decrease in the traditional family household to less than 25 percent where single-person households will soon form the new majority of households, almost half of the population will be non-white by 2050, and children of the Baby Boomers will total more than 34 percent of the population (Kralovich, 2012). According to Reconnecting America: in 2012, there were 113 existing stations and 38 planned stations; in 2000, there were 1,275,412 households in the City of Los Angeles and in 2030 there will be an estimated 1,708,447 households (a 34 percent increase). Preserving and building affordable housing near transit enables a household to save money on both transportation and housing expenditures (Center for Transit-Oriented Development, 2009). The ideal model to follow is the "Location Efficient Environment" because they are considered to have lower transportation costs than inefficient ones (Center for Neighborhood Technology [CNT], 2012). They are environments where neighborhoods are compact with walkable streets, access to transit, and a variety of amenities. Developed in 1995 by the Institute for Location Efficiency (ILE), location efficient mortgage (LEM) was created to subsidize low-income home buyers who wanted to live near transit centers where development is compact and accessible (CNT, 2013). LEM is a type of mortgage that recognizes the potential costs savings from living near transit (like reduced vehicle use) and therefore allows a home

buyer to purchase a more expensive house than a traditional mortgage would allow. In 2011, it was reported that LEMs were not being offered (CNT, 2013).

Housing is considered affordable if it costs less than 30 percent of household income (CNT, 2012). In the City of Los Angeles in 2006, it was reported that 32 percent of family income is spent on housing, while 27 percent of family income is spent on transportation (Reconnecting America's Center for Transit-Oriented Development, 2008b).

Figure 2.1 US Proportions of Income Spent on Transportation
Source: Station Area Planning: How to Make Great Transit-Oriented Places, 2008

A more complete measure of affordability is that combined housing and transportation costs take up more than 45 percent of a household budget and in 2006 the combined percentage of a household budget took up 59 percent (CNT, 2012). Savings on transportation costs can be a necessity for low-income households who may be spending a greater percentage of their incomes on transportation than other income groups. For these reasons, station area plans should focus

specifically on mixed-income housing. According to Reconnecting America's Center for Transit-Oriented Development (2008b), sixteen percent of household income can be saved on transportation expenses if affordable housing is located near transit stations. Strategies such as inclusionary zoning, which increase density and lower parking requirements for new projects near transit stations can capture the value of transit and create value for developers. Developers can be persuaded with incentives that allow them to build more affordable units or to provide public amenities. A strong integration between land use and transportation can counter many problems such as decentralization of the city, employment sprawl, and rising prices of gasoline; by providing enhanced, low-cost mobility options for residents and workers instead of options for the private motorist (Belzer, Srivastava, Wood, & Greenberg, 2011).

2.4.4 Job Accessibility in TODs

Employment proximity can be attributed to the reduction in vehicle miles travelled (VMT) when transit zones are located close to employment. In some cases, a low VMT place is proximate to ten times more jobs than places with high VMT (Austin et al., 2010). According to Reconnecting America's Center for Transit-Oriented Development (2008b), one of the five essentials for capturing maximum commute trips by transit is making sure employment sites are close to transit and that they meet fundamental location criteria of transit-oriented industries. In the same study, it was found that about 59 percent of transit trips are for the purpose of work (Reconnecting America's Center for Transit-Oriented Development, 2008b). Jobs are difficult to quantify and are highly flexible, however, information on job centrality can relate high-density hubs with high transit ridership (Nelson/Nygaard Consulting Assoc., Inc., 2007). In the study done by Reconnecting America's Center for Transit-Oriented Development in 2008, it was found that transit's share of the commute trip is highly correlated with population and employment

density. Concentrating jobs in closer proximity to transit stations and transit closer to employment cluster may help to diversify employment opportunities for the car-less, low-income workers, and provide better access to job opportunities (Center for Transit-Oriented Development, 2011).

3 METHODOLOGY

This study relied on documented data from the US Census Bureau and other third-party sources to evaluate affordability and accessibility. The study process involved review of relevant literature, extraction of data, analysis of data and derivation of conclusions. These steps are outlined in the following subsections.

3.1 Literature Review

The study began with a review of literature that explored the findings and recommendation from various studies done prior to this thesis, which are referenced in this document and are included in the list of references. Main findings from past research and studies were synthesized and summarized to reflect on historical tendencies and trends that relate to the main topics of this study.

3.2 Corridor Definition

The station area was defined initially as a half-mile radius around each station, but a buffer of one-mile radius captures the entire corridor contiguously. As shown in Figure 1.1 the buffer of one-mile radius around each station provides a complete coverage that captures pertinent data needed to evaluate the corridor along the line.

3.3 Compilation of Census Data

All of the data extracted from the Census was from the following datasets: DP-01, DP-4, DP04, and QT-H1 (Table A.1). For 2000, there were 43 census tracts that made up the corridor; and in 2010, there were 48 census tracts (Table A.2). All tract data was compiled together to extract corridor values. Also, census data through the Longitudinal Employment and Household Dynamics (LEHD) interactive online software was compiled in the same way.

3.3.1 Housing Affordability Data

Questions to help guide data extraction (Appendix Section 6.2) were adopted by the Center for Transit-Oriented Development's document entitled, "The Mixed Income Housing TOD Action Guide." US Census data was collected on housing and organized to highlight data that may give reason as to why housing is affordable or not affordable in the corridor. Using the census tracts in Table A.2, datasets on housing were compiled to highlight the information presented in Section 6.2 of the Appendix.

Furthermore, housing affordability was also assessed by using the Center for Neighborhood Technology's (CNT) Housing and Transportation Affordability Index (H+T Affordability Index). The H+T Affordability Index provides a regional focused map that shows a geospatial representation of housing costs as a percentage of income. By looking at the map a percentage of the corridor can be indicated as affordable or as lacking affordability. Thresholds of affordability were used to assess the data.

3.3.2 Transportation Affordability Data

Transportation affordability was solely assessed by using the CNT's H+T Affordability Index. The H+T Affordability Index provides a regional focused map that shows a geospatial representation of transportation costs as a percentage of income. By looking at the map a percentage of the corridor can be indicated as affordable or as lacking affordability. Thresholds of affordability were used to assess the data.

3.3.3 Job Accessibility Data

Employment data was extracted from LEHD, as explained in Section 6.4 of the Appendix. More specifically, general employment characteristics, job in-and-out flows and employment destinations were used to assess job accessibility. The LEHD data only has data for

every year from 2002 to 2010. For the purposes of this study, 2001 and 2000 data is still needed. Annual percent growth rates were used to extrapolate data for the years 2001 and 2000.

3.4 Analysis of Data

Following all the data collected and compiled, maps were generated and graphs and tables were created. Map images were taken from analyses done by using the “On the Map” application from the LEHD website. Map images showing affordability or lack thereof were generated using the H+T Affordability Index. Data collected from the US Census were made into tables and graphs that provided visuals of the data trends and proportions.

3.5 Derivation of Conclusions

Findings from the data analysis of the data helped to drawn inferences on potential roles of the Metro Green line on affordability and accessibility. The findings from the analysis were confirmed or invalidated through comparisons with findings from the literature review. These findings led to conclusions and helped to guide policy recommendations.

4 ANALYSIS AND FINDINGS

4.1 Defining the Corridor

The partial corridor under analysis is physically defined by four stations along the LA Metro Green Line and is buffered by a mile sphere of influence. Each of the four stations is defined as a transit oriented development (TOD) by the Center for Transit-Oriented Development (CTOD). According to the CTOD (2011), in association with defining a TOD, concentrated employment uses have been more closely associated to transit ridership than dense residential uses. As seen in Figure 4.1, job density, or concentrated employment has grown between the years 2000 and 2010, thus becoming more TOD-like. In comparison to the County, job density is nearly two times as high in the corridor (Figure 4.2). Figure 4.2 and Figure 4.3 also depict the growth in job density between 2002 and 2010.

Figure 4.1 2000-2010 Trend in Job Density in the Study Corridor vs. the County

Source: lehd.ces.census.gov, 2002-2010

The study corridor covers about 11.8 square miles. In 2010, the job density was 1,625 jobs per square mile compared to about 1,453 jobs per square mile in 2000. This growth in job density yielded a 1.16 percent annual growth rate (Table A.20). In comparison, Los Angeles County, which covers 4,751 square miles, had 3,444,502 jobs in 2000 and had 3,683,563 jobs in 2010, thus yielding about 725 jobs per square mile and 775 jobs per square miles, respectively (LEHD, 2002-2010). Compared to the region, the study corridor has two times the job density. As stated in the literature, concentrating jobs in close proximity to transit stations and transit close to employment clusters may help to diversify employment opportunities for the car-less, low-income workers, and provide better access to job opportunities (Center for Transit-Oriented Development, 2011).

Figure 4.2 2002 Job Density in the Study Corridor

Source: lehd.ces.census.gov, 2002

Figure 4.3 2010 Job Density in the Study Corridor

Source: *lehd.ces.census.gov*, 2010

Although jobs are a more recent and robust indicator of TOD-like characteristics, housing density is also a necessary indicator of TODs. TODs are characterized by having moderate to higher density development located within the corridor. Usually the development consists of a mix of residential, employment, and shopping opportunities (National Cooperative Highway Research Program, 2005). In 2000, there were about 5,145 housing units per square mile. About 4,845 units were occupied and about 299 were vacant. 2010 saw a modest increase with about 5,252 housing units per square mile of which 317 were vacant. The homeowner vacancy rate from 2000 to 2010 decreased at about 4 percent every year (Table A.7). Compared to the County's 660 housing units per square mile in 2000 and 682 housing units per square mile, the corridor had a much higher housing density. Besides housing and job density, other trends in demographic characteristics in the corridor can reveal sub-indicators of the corridor's success in promoting and preserving housing affordability, transit affordability, and employment diversity.

4.2 Trends in Demographic Characteristics over Time in the Corridor

4.2.1 Age

4.2.1.1 Age Distribution

Between 2000 and 2010, the corridor's age and population ratio stayed the same for the most part. The population between age 25 and 54 is the biggest group while those aged 55 and over constitute the smallest group as shown in Figure 4.4, however, those aged 55 and over had the highest annual growth rate of about 4 percent (Table A.3). This same trend is found in the County between 2000 and 2010 (Figure 4.5).

4.2.1.2 Age Trends

Figure 4.6 presents the ten-year trend in jobs by age groups that may be termed, youth (age 29 and younger), middle age (age 30 to 54) and seniors (age 55 and over). The number of employed youth remained the same while those of middle age population saw a slight uptick. Although still the smallest working population by age, seniors aged 55 and older grew at about an annual growth rate of 6 percent per year (Table A.21). This can be attributed to the aging of the "baby boom" population.

Figure 4.4 Population Distributions by Age and Year in the Study Corridor

Source: DP-1, Profile of General Demographic Characteristics: 2000, Census 2000 Summary File 100% Data; DP-1, Profile of General Population and Housing Characteristics: 2010, 2010 Census Summary File 1

Figure 4.5 Population Distributions by Age and Year in the County

Source: DP-1, Profile of General Demographic Characteristics: 2000, Census 2000 Summary File 100% Data; DP-1, Profile of General Population and Housing Characteristics: 2010, 2010 Census Summary File 1

Figure 4.6 2000-2010 Trends in Total Jobs by Age Group in the Study Corridor

Source: lehd.ces.census.gov, 2002-2010

4.2.2 Income

4.2.2.1 Income Distribution

Income, as defined by the U.S. Census Bureau is divided into two types, family and household. A family consists of two or more people (one of whom is the householder) who are related and may be living in the same home. A household consists of all people who occupy a housing unit regardless of relationship.

Figures 4.7 and 4.9 show similar distributions in household and family incomes. Between 2000 and 2010, the number of residents in the lowest income groups (below \$35,000) declined while those in the higher income groups increased. The number of residents with incomes of \$75,000 or more increased the most. Those within the income range of \$75,000 to \$99,000 increased 6 to 7 percent per year, those within the income range of \$100,000 to \$149,000

increased about 11 percent per year, and those within the income range of \$150,000 to \$199,000 increased 11 to 12 percent per year, as shown in Table A.6. This growth in nominal household and family income may be indicative of a wealthier population, it could possibly be due to better access to employment opportunities, and it could possibly be due to some gentrification or displacement.

Although there was a distinct growth in higher income residents, the majority of residents fall within the income range of \$25,000 to \$99,000, as seen in Figures 4.7 and 4.8. In comparison to the County, the corridor had more households with lower incomes than in the County, as shown between Figure 4.8 and Figure 4.9, while the corridor had more households with higher incomes than in the County.

Figure 4.7 Distributions of Family Incomes by Year in the Study Corridor

Source: DP-3, Profile of Selected Economic Characteristics: 2000, Census 2000 Summary File 3; DP03, Selected Economic Characteristics, 2006-2010 American Community Survey 5-Year Estimates

Figure 4.8 Distributions of Household Incomes by Year in the Study Corridor

Source: DP-3, Profile of Selected Economic Characteristics: 2000, Census 2000 Summary File 3; DP03, Selected Economic Characteristics, 2006-2010 American Community Survey 5-Year Estimates

Figure 4.9 Distributions of Household Incomes by Year in the County

Source: DP-3, Profile of Selected Economic Characteristics: 2000, Census 2000 Summary File 3; DP03, Selected Economic Characteristics, 2006-2010 American Community Survey 5-Year Estimates

4.2.2.2 Wage Trends

Figure 4.10 shows the ten-year trend in numbers of jobs within the study corridor that paid monthly wages in three different categories that may be referred to as low wage (\$1,250 or lower) middle wage (\$1,251 to \$3,333) and upper wage (more than \$3,333). Over the years, there has been a steady increase in nominal worker earnings for all earning categories. Workers earning more than \$3,333 per month grew the most at a rate of 4 percent (Table A.22) between 2000 and 2010.

It is worth noting that both nominal incomes and nominal wages within the corridor depicted increases over the 2000 to 2010 decade. This observation is positive although real incomes could have decreased. Yet there is no indication of deterioration in income or wages that could be subscribed to the TODs in the corridor.

Figure 4.10 2000-2010 Trends in Total Jobs by Earnings Categories in the Study Corridor
Source: lehd.ces.census.gov, 2002-2010

4.2.3 Race and Ethnicity

Besides incomes and earnings, race and ethnicity are other indicators of diversity within the corridor. The following sub-sections analyze minority populations and how the Green Line may have affected them.

4.2.3.1 Race Distribution

From 2000 to 2010, the Black population registered a noticeable drop in residents that was replaced by a noticeable increase in the White population, as seen in Figure 4.11. The White population's growth of nearly 10,000 people over the decade represented nearly an equal drop in the Black population (Table A.4). A similar trend in the corridor is mirrored in the race of the householders over the years (Figure 4.11). In comparison to the County, the corridor had a bigger proportion of a Black population, a smaller proportion of a White population, and a smaller proportion of an Asian population (Figure 4.12). In the County, there was little increase or decrease in any racial population between 2000 and 2010. In the corridor, the number of residents in all other races changed very little, as shown in Figure 4.11. While this could be a sign of some gentrification or displacement, it could also be a sign of upward mobility of the Black population out of the area.

Figure 4.11 Population Distributions by Race and Year in the Study Corridor

Source: DP-1, Profile of General Demographic Characteristics: 2000, Census 2000 Summary File 100% Data; DP-1, Profile of General Population and Housing Characteristics: 2010, 2010 Census Summary File 1

Figure 4.12 Population Distributions by Race and Year in the County

Source: DP-1, Profile of General Demographic Characteristics: 2000, Census 2000 Summary File 100% Data; DP-1, Profile of General Population and Housing Characteristics: 2010, 2010 Census Summary File 1

Figure 4.13 Racial Distributions of Householders in the Study Corridor

Source: QT-HI, General Housing Characteristics: 2000, Census 2000 Summary File 1 (SF 1) 100-Percent Data; QT-HI, General Housing Characteristics: 2010, 2010 Census Summary File 1

4.2.3.2 Race Trends

There is little difference in the change of total jobs held by specific races between 2000 and 2010. Not seen easily in Figure 4.14, workers who are identified as ‘American Indian or Alaska Native Alone’ and ‘Native Hawaiian or Other Pacific Islander Alone’ have had the greatest changes over the ten years. ‘American Indian or Alaska Native Alone’ has an annual change of -7.75 percent and ‘Native Hawaiian or Other Pacific Islander Alone’ has an annual growth of 5.5 percent (Table A.23). Despite the White population having increased as much as the Black population decreased, the Black population had a greater growth in the total jobs held

by its population than the White population. This could possibly mean the opening of the LA Metro Green Line may have contributed to equality of access to jobs for all races.

Figure 4.14 2000-2010 Trends in Total Jobs by Race in the Study Corridor

Source: *lehd.ces.census.gov, 2002-2010*

4.2.3.3 *Ethnicity*

Between the years 2000 and 2010 the Hispanic population changed more than the non-Hispanic population, as seen in Figure 4.15. In comparison to the County, there is a higher proportion of a non-Hispanic population in the County than in the corridor (Figure 4.16). The increase in Hispanic population is matched by the decrease in the non-Hispanic population and mirrors the trend in the ethnic composition of householders as shown in Figure 4.17. Between 1982 and 1995, the literature says that in the midst of the LA Metro Green Line opening there was an outflow of White and Black middle-class workers who worked in the aerospace sector and an influx of working class and poor Hispanics, who had no real connection to the existing environment and aerospace sector (Los Angeles Metro, 2013). This trend still continued with an annual growth rate of .42 percent (Table A.5), slightly out-growing the population identified as ‘Non-Hispanic or Latino.’ The trend is slightly different when comparing the ethnicity of workers the corridor; there is a faster increase in Non-Hispanic workers compared to Hispanics as shown in Figure 4.18.

Figure 4.15 Ethnicity by Year in the Study Corridor

Source: DP-1, Profile of General Demographic Characteristics: 2000, Census 2000 Summary File 100% Data; DP-1, Profile of General Population and Housing Characteristics: 2010, 2010 Census Summary File 1

Figure 4.16 Ethnicity by Year in the County

Source: DP-1, Profile of General Demographic Characteristics: 2000, Census 2000 Summary File 100% Data; DP-1, Profile of General Population and Housing Characteristics: 2010, 2010 Census Summary File 1

Figure 4.17 Ethnicity of Householder by Year in the Study Corridor

Source: QT-H1, General Housing Characteristics: 2000, Census 2000 Summary File 1 (SF 1) 100-Percent Data; QT-H1, General Housing Characteristics: 2010, 2010 Census Summary File 1

Figure 4.18 2000-2010 Trends in Total Jobs by Ethnicity in the Study Corridor

Source: lehd.ces.census.gov, 2002-2010

4.2.4 Housing

Although it looks like the number of vacant houses is small in comparison to the number of occupied houses (Figure 4.19), there was a slight increase in the corridor's vacancy rate over the decade. In 2000, the vacancy rate was 5.8 percent and in 2010, the vacancy rate was about 6 percent (Table A.7). The rate increases at an annual percentage growth rate of about 2.26 percent (Table A.7). It is notable that the corridor has a history the majority of its housing stock defined as renter-occupied, as shown in Figure 4.20.

Figure 4.19 Housing Occupancy in the Study Corridor

Source: QT-H1, General Housing Characteristics: 2000, Census 2000 Summary File 1 (SF 1) 100-Percent Data; QT-H1, General Housing Characteristics: 2010, 2010 Census Summary File 1

Figure 4.20 Tenure of Occupied Housing Units in the Study Corridor

Source: QT-H1, General Housing Characteristics: 2000, Census 2000 Summary File 1 (SF 1) 100-Percent Data; QT-H1, General Housing Characteristics: 2010, 2010 Census Summary File 1

4.2.4.1 Values of Housing Stock

According to the data, the housing stock of high valued housing units skyrocketed between 2000 and 2010. For example, as shown in Figure 4.21, the housing stock valued between \$500,000 and \$999,999 went from about zero percent to twenty-six percent. In 2000, there were very few units valued \$300,000 or more and in 2010, a very big proportion of the units available were valued \$300,000 or more. The County experienced the same value trends, but not as dramatic as what occurred in the corridor between 2000 and 2010 (see Figure 4.22). The median housing unit value more than doubled in nominal dollars from \$148,449 in 2000 to \$386,102 in 2010 (Table A.13). Of the housing units that are mortgaged between the year 2000 and 2010 (Figure 4.23), the units with monthly mortgages in the ranges of “less than \$300” to

“\$700 to \$999” decreased anywhere from 5 to 8 percent per year (Table A.14). The units with monthly mortgage range of “\$2,000 or more” increased by 66.47 percent per year (Table A.14). The County experienced the same trends, moreover, the monthly mortgage range of “\$2,000 or more” had a smaller proportion than in the corridor (Figure 4.24). Just as monthly mortgages increased between the years 2000 and 2010, shown in Figure 4.25 and 4.26, the units with ranges of gross rent of “less than \$200” and \$300 to \$749 decreased by annual percentage rates of 6 and 7 percent. In the same span of time, the units with gross rent range of “\$1,000 to \$1,499” grew at about 33 percent per year and the units with gross rent range of \$1,500 and more” grew about 190 percent (Table A.16). These huge jumps in gross rent indicate that the housing stock was becoming less affordable, which could have resulted in the displacement of lower-income populations, or gentrification of the corridor. This displacement was apparent in the consistent decreases found in the distributions of household incomes below \$50,000 and increases in the household incomes above \$50,000 shown previously in Figure 4.7.

Figure 4.21 Distributions of Housing Values by Year in the Study Corridor

Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

Figure 4.22 Distributions of Housing Values by Year in the County

Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

Figure 4.23 Distributions of Monthly Mortgage Costs by Year in the Study Corridor

Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

Figure 4.24 Distributions of Monthly Mortgage Costs by Year in the County

Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

Figure 4.25 Distributions of Gross Rent in the Study Corridor

Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

Figure 4.26 Distributions of Gross Rent in the County

Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

4.2.4.2 *Housing Affordability*

As defined by the H+T Affordability Index, if housing costs exceed 30 percent of income then there exists a lack of affordability. In 2000, 35 percent owner-households paid more than 35 percent of their incomes in mortgage and in 2010 the proportion grew to 45 percent of households, as seen in Figure 4.27. The annual percent growth rate for households paying more than 35 percent of their incomes in mortgage equated to about 5 percent (Table 6.15). In the case of the County, in 2000, 27 percent owner-households paid more than 35 percent of their incomes in mortgage and in 2010 the proportion grew to 45 percent of households, as seen in Figure 4.28. A nearly majority of renters' gross rent as a percent of income is more than 35 percent, as seen in Figure 4.29 and 4.30. The proportion of households paying more than 35 percent of their incomes in rent grew about 3 percent every year from 2000 to 2010 (Table A.17).

In 1979, Los Angeles passed a rent stabilization ordinance (RSO) that limits rent increase to three to eight percent every year. It is a piece of policy that helps preserve affordable housing. According to the analysis, RSO-eligible housing decreased at an annual rate of about two percent between 2000 and 2010 (Table A.12). The growth in owner and rental costs that exceed the affordability threshold and the decrease in RSO-eligible housing are all indicative of decrease in housing affordability in the study corridor.

Figure 4.27 Distributions of Monthly Owner Cost as Percent of Income in the Corridor

Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

Figure 4.28 Distributions of Monthly Owner Cost as Percent of Income in the County

Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

Figure 4.29 Distributions of Monthly Rental Cost as Percent of Income in the Corridor

Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

Figure 4.30 Distributions of Monthly Rental Cost as Percent of Income in the County

Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

4.2.4.3 Age of Housing Stock

In 2000 and 2010, the highest share of the housing stock was built between 1940 and 1959, as seen in Figure 4.31). Combined with the housing stock built earlier than 1940, the statistics indicate that most (52%) of the housing stock in the study corridor is more than 50 years old 2013. This suggests that a large proportion of the housing stock should be undergoing rehabilitation to extend their lives and render them energy efficient.

Figure 4.31 Distributions of Housing Stock by Period Built

Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

4.2.5 Combined Housing and Transportation Affordability

The percentage of household income spent on transportation and housing is indicative of whether or not an area is affordable. As explained by the Center for Neighborhood Technology (CNT) in their “Housing + Transportation Affordability Index”, traditionally, a home is considered affordable when the cost consumes no more than 30 percent of household income. However, there is a better way of understanding affordability by taking into account both the cost of housing and the cost of transportation associated with the location of the home. CNT divides both costs by the representative income and has come up with a combined cost threshold of affordability defined as no more than 45 percent of income. Based on past research the CNT found that about 15 percent of a household income spent on transportation is a reasonable amount; and 15 percent plus the 30 percent from housing makes 45 percent. Figure 4.32 shows the visual differences between housing costs only as a percentage of income versus the combined housing and transportation costs as a percentage of income. Figure 4.33 shows the visual differences between transportation costs only as a percentage of income versus the combined housing and transportation costs as a percentage of income. In both maps, the color blue signifies a lack of affordability. Separately, about 20 percent of the corridor lacks affordability in housing (Figure 4.32) and almost the entire corridor lacks transportation affordability (Figure 4.33). Figures 4.32 & 4.33 have data from 2011 because it is the most up-to-date data that the Index shows as of June 2013. The Index of affordability is used to find discrete statistics. From examining the combined housing and transportation cost thresholds, one can deduce that almost 78 percent of the corridor lacks affordability.

In order to measure and model transportation costs the CNT uses characteristics of the built environment like density, average block size, transit connectivity, and job density. To

assess job accessibility, as shown in Figure 4.34, an index was created based on job density and the distance from origin to destination. As found earlier in the analysis, the corridor's job density grew between the year 2000 and 2010 at a rate of 1.16 percent a year. Therefore it can only be assumed that job accessibility has increased at the same rate over the years between 2000 and 2010.

Figure 4.32 Housing Cost vs. Housing & Transportation Cost as Percent of Income

Source: <http://htaindex.cnt.org/map/> (2011)

Figure 4.33 Transportation Cost vs. Housing & Transportation Cost as Percent of Income
Source: <http://htaindex.cnt.org/map/> (2011)

Figure 4.34 Employment Access Index
Source: <http://htaindex.cnt.org/map/> (2011)

4.2.6 Vehicle Availability and Mode of Access to Work

The majority of housing units have at least one vehicle available. In comparing 2000 and 2010, the number of housing units with no cars available decreased from 18 percent to 12 percent while the number of housing units with at least one car increased, as seen in Figure 6.35.

Most modes of transportation for commuting to work saw increases over the ten years, however, carpooling as a form of commuting to work saw a decreasing annual rate of about 3 percent (Figure 6.36 and Table A.31). While driving an individual car had the largest share (about 70 percent) and grew the most at 3.56 percent, commuting by public transportation had the second highest annual percent growth at 3.44 percent and third highest share (about 10%, which is more than double the national average). These statistics may suggest that job accessibility, by driving alone and by use of public transportation, increased between 2000 and 2010. It is also interesting to note that within the ten year span there was a 9.12 percent annual growth in residents who worked from home (Table A.19).

Figure 4.35 Distributions of Number of Vehicles Available per Housing Unit

Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

Figure 4.36 Distributions of Means of Transportation to Work

Source: DP-3, Profile of Selected Economic Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP03, SELECTED ECONOMIC CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates

4.2.7 Employment Characteristics over Time

4.2.7.1 Total Jobs

Total jobs and job density have increased at an annual growth rate of about 1.2 percent between 2000 and 2010. In 2000, there were about 17,138 jobs and in 2010, it grew to 19,176 jobs. In 2000, the job density was about 1,453 jobs per square mile and in 2010 the density grew to 1,625 jobs per square mile. There is a unique drop in total jobs in 2005 that can possibly be attributed to an economic downturn between 2005 and 2007.

4.2.7.2 Job Inflow and Outflow

In 2002, the earliest employment data available in LEHD, there were 20,660 people employed in the corridor who lived elsewhere, 2,166 employed in the corridor that lived in the corridor, and 58,830 that lived in the corridor but were employed elsewhere (Figure 4.37). In 2010 there were 23,521 people employed in the corridor who lived elsewhere, 2,616 employed in

the corridor that lived in the corridor, and 58,207 that lived in the corridor but were employed elsewhere (Figure 4.38). Employees who lived and worked in the corridor grew by 450 persons from 2000 to 2010. This is a 0.06 percent annual growth rate. Figure 4.39 depicts the small year-by-year changes in the net inflow and outflow of jobs in the study area.

Figure 4.37 2002 In-Out Employment Flows
Source: lehd.ces.census.gov, 2002-2010

Figure 4.38 2010 In-Out Employment Flows

Source: lehd.ces.census.gov, 2002-2010

Figure 4.39 2000 to 2010 Trends in Inflow and Outflow Job Counts

Source: lehd.ces.census.gov, 2002-2010

4.2.7.3 Job Destinations

4.2.7.3.1 Where Workers Live who are Employed

Table A.29 in the Appendix shows the top 10 cities where employees come from who work in the corridor. The top three cities include Los Angeles, Hawthorne, and Inglewood. About one-third of the employees who work in the corridor are from Los Angeles. Between 2002 and 2010, employees who lived in Los Angeles and worked in the corridor grew by the annual percent growth rate of about 3 percent each year. Figures 4.40 and 4.41 include the shares of employees from key residential origins. This increase in workers from Los Angeles may be attributable to the Green Line, which may have improved job accessibility to the study area. It is noticeable in Table A.30 that the employees who lived in Westmont and worked in the corridor had grown about 5 percent each year. This increase in workforce from Westmont may be indicative of some relocation of employees to be close to the workplace.

Figure 4.40 2002 Origins of Those Who Worked in Study Corridor

Source: lehd.ces.census.gov, 2002-2010

Figure 4.41 2010 Origins of Those Who Worked in Study Corridor

Source: lehd.ces.census.gov, 2002-2010

4.2.7.3.1 Where Workers are Employed Who Live

Between 2002 and 2010, there was a slight drop in employees who lived in the corridor and worked elsewhere. Figures 4.42 and 4.43 show key destinations where residents from the corridor went to work. The destination where the largest share of study area residents went to work remained steadfastly the City of Los Angeles. This choice may have been sustained by the presence of the Green Line in the face of mounting traffic congestion on roadways. The greatest increase in the workforce from the corridor was to Culver City (see Table A.29). Gardena, which is adjacent to the study corridor, registered one of the largest decreases in job destinations (at an annual rate of -3.14 percent per year). This may be explained by the growth of jobs in the study corridor precluding the need to travel elsewhere.

Figure 4.42 2002 Work Destination Analysis

Source: lehd.ces.census.gov, 2002-2010

Figure 4.43 2010 Work Destination Analysis

Source: lehd.ces.census.gov, 2002-2010

4.3 Main Effects of the Green Line on Demographic, Social, & Economic Trends

The goal of this study is to evaluate the changes in housing affordability, transportation affordability and job accessibility within the Metro Green Line corridor between the year 2000 and 2010. To study the corridor, 4 transit stations adjacent to each other were studied as a partial corridor. More often a ½ mile radius from a corridor's center is a measure of walkability. However, to capture the entire connectivity of the study corridor a 1-mile buffer was used for the analysis. Trends in the corridor revealed that over a ten-year span, the corridor saw shifts in demographic composition, growth in job and housing densities and increases in the cost of housing. Some trends presented themselves as being unique to the Green Line and its history of implementation.

4.3.1 Demographic Trends

The distributions of the population by age reflect the phenomenon of the aging “baby boom” generation. Although, the smallest population between the years 2000 and 2010, the population aged 55 and over had increased the most. This trend can foreshadow how the housing market may shift influenced by the need to provide more specialized housing for elders.

Generally, the number of residents in the lower income brackets (below \$35,000) declined while those in higher income brackets grew. This growth in nominal household and family income may be indicative of a wealthier population, it could possibly be due to better access to employment opportunities, and it could possibly be due to some gentrification or displacement. Nominal incomes generally increased over the years, meaning there was no deterioration of income that could be ascribed to the presence of the TODs in the corridor.

Between the years 2000 and 2010 there was a decrease in the number of Black residents, mirrored by the increase in White residents. Consequently, this trend is depicted in the racial

composition of householders. This could be a sign of some gentrification or displacement, or it could be a sign of upward mobility of the Black population out of the corridor. Either way in a study by Michael Kralovich (2012), it was found that the implementation of a new transit station is not necessarily correlated to change in racial composition so other outside factors may have produced this shift in racial composition. While there is little observed discrepancy in the racial composition of workers from 2000 to 2010, there were certain big changes: the ‘American Indian or Alaska Native Alone’ worker population, dropped about 8 percent over the ten years; and the ‘Native Hawaiian or Other Pacific Islander Alone’ worker population increase at 6 percent each year. Further research on worker dynamics may be able to shed some light on this phenomenon.

The Hispanic population increased over the years more while the non-Hispanic population decreased. Between 1982 and 1995, the literature says that in the midst of the LA Metro Green Line opening there was an outflow of White and Black middle-class workers who worked in the aerospace sector and an influx of working class and poor Hispanics, who had no real connection to the existing environment and aerospace sector (Los Angeles Metro, 2013). Unpredicted population shifts can drastically shift transit ridership expectations as in the case of the Green Line.

4.3.2 Housing Affordability

Housing affordability is greater in the corridor compared to the County. In 2011, CNT classified about 47 percent of Los Angeles County housing as affordable and about 80 percent of the housing in the study corridor as affordable. However, housing affordability decreased in the corridor over the span of ten years, between 2000 and 2010. As defined by the H+T Affordability Index, if housing costs exceed the cost of 30 percent of income then there exists a lack of affordability. In the corridor, the annual percent growth rate for households paying more than 30

percent of their incomes on housing equated to about 3 to 4 percent (Table A.15) between the years 2000 and 2010. In the County, by comparison, housing affordability decreased about 3 to 5 percent, considering both mortgages and gross rents as a percentage of household income (Table A.32).

The decrease in housing affordability occurred despite a 0.38 percent increase in the proportion of renter-occupied housing in both the corridor and the County. In a study done on developing strategies for equitable TODs, it was noted that neighborhoods with a greater proportion of renters are more susceptible to gentrification and displacement. Housing value along with higher rents and mortgages grew faster in the corridor than in the County. Most of the growth occurred largely in the house value range of \$500,000 to \$999,999, which increased about 1,651 percent each year between 2000 and 2010 in the corridor. Compared to the County, the housing value range of \$500,000 to \$999,999 grew about 46 percent annually (Table 6.32) between 2000 and 2010. This huge increase may not be a product of diverse housing that meets the needs of diverse populations. Promoting and preserving a diverse transit-rich neighborhood is crucial to the success of public transportation.

4.3.3 Combined Housing and Transportation Affordability

Separately, about 20 percent of the corridor lacks affordability in housing and almost 100 percent of the corridor lacks affordability in transportation. The percentage of household income spent on transportation and housing combined is indicative of whether or not a transit area is affordable. By examining housing and transportation together, almost 54 percent of the corridor lacks affordability. In comparison, about 78 percent of Los Angeles County is considered as lacking affordable housing and transportation.

4.3.4 Job Accessibility

Job accessibility has increased over the span of ten years in the corridor between 2000 and 2010. As the job density increased (annually at 1.16 percent), it can be assumed by standards of the H+T Affordability Index that job accessibility also increased between 2000 and 2010. In comparison, the County only had a 0.7 percent annual growth rate. Therefore job density and job accessibility grew faster in the corridor than in the County. Limitations to this assumption can be based on other such variables as education levels, job wages, car availability, income, and other variables. The number of people living in the area that are employed elsewhere far exceeds the number of people who are employed in the area that live elsewhere. Employees who lived and worked in the corridor grew by 450 persons from 2000 to 2010. This is a 0.06 percent annual growth rate, which does not meet the population annual percent growth rate of 0.10 percent. Compared to the County, there is a 0.26 percent annual growth rate of jobs that barely meets the 0.31 percent annual percent growth rate of the population.

Overall, the number of employees coming to work in the corridor from elsewhere has grown. On the contrary, the number of residents in the corridor who work elsewhere has slightly decreased between 2002 and 2010. In general, over the ten years there was a growth in employment coverage along the corridor. Also, the Green Line may have contributed to job accessibility by providing and encouraging more connections. The use of public transportation to commute to work had increased at a similar rate as the increase in the rate of those who drove alone. Public transit as a means of getting to work has increased faster in the corridor than the County by 1.17 percent each year (Table A.33). Job accessibility, considering the growth in job density, coverage and commute to work by use of public transportation, has increased in the corridor and can be attributed to some extent to the presence of the Green Line.

The findings of this study are consistent with those by others (Sanchez and Brenman, 2007; and Michael Kralovich, 2012) who found the following with transit-oriented planning:

- With the addition of transit, housing stock became more expensive, neighborhood residents became wealthier and vehicle ownership become more common
- Neighborhoods with a greater proportion of renters are more susceptible to gentrification and displacement
- Gentrification associated with a new transit station is not necessarily correlated with a change in racial composition
- Gentrification can be a positive force for neighborhood change, but can also have negative, unintended consequences.

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Concluding Observations

The ideal community model that balances housing and transportation affordability with job accessibility is the “Location Efficient Environment” because it has a lower transportation costs than inefficient ones (Center for Neighborhood Technology, 2012). In such environments, neighborhoods are compact with walkable streets, access to transit, and easy access to a variety of amenities. Over the ten years, the corridor has not yet developed to the standards of a location efficient environment shown in Figure 2.1. However, ten years is not considered a long period when planning for development. Further research, for example, for 2020 would provide more insight on how the corridor has developed towards becoming a location efficient environment.

The underlying value of achieving a location efficient environment is *Equity*. To ensure social equity is achieved, future development policy for the Metro Green Line corridor should follow recommendations from Sanchez and Brenman (2007) and Michael Kralovich (2012) as follows:

- Provide high-quality services – emphasizing access to economic opportunity and basic mobility – to all communities, but with an emphasis on transit-dependent populations
- Equally prioritize efforts both to revitalize poor and minority communities and to expand transportation infrastructure.
- Distribute the benefits and burdens from transportation projects equally across all income levels and communities
- Ensure opportunities for meaningful public involvement in the transportation planning process, particularly for those communities that most directly feel the impact of projects or funding choices
- Be held to a high standard of public accountability and financial transparency

Protection of vulnerable populations such as the high proportion of renter-occupied housing units is important because they are more likely to make up core transit riders that need public transportation. Preserving and building affordable housing near transit would enable households to save money on both transportation and housing expenditures and can work towards making the corridor more affordable. By understanding the three main variables studied within the context of social equity, a decision-maker can avoid the potential of negative gentrification, displacement, and promote economic viability in the corridor.

5.2 Recommended Policies

Based on the research done in this study, the following guiding policy is recommended for future extensions of the Green Line. Also, the variables in this study are recommended to be analyzed to better assess values and goals of future extensions.

Goal 1: Job Diversity and Accessibility in the Corridor

Objective: Improve access to major regional destinations and job centers.

Objective: Centralize job hubs within the corridor

Policy: Create an economic revitalization policy

Policy: Rezone existing economic hubs to allow more density

Policy: Investigate further into commute patterns and why driving alone still is increasing faster than public transportation as a means of getting to work

Goal 2: Preservation and Promotion of Housing Options that Meet Diverse Housing Needs in the Corridor

Objective: Preserve the existing affordable housing and rent stabilization ordinance (RSO) housing stock near transit centers

Policy: Develop a financial strategy to preserve RSO subject housing units and re-evaluate RSO threshold

Objective: Focus LAHD resources and build new owner-occupied affordable housing units in the corridor

Policy: Develop program to provide grants for affordable housing projects (e.g., Location Efficient Mortgage)

Objective: Better balance the affordable owner-occupied housing units with renter-occupied units

Objective: Provide housing for all workers of all incomes

Objective: Guide Growth and Development to Help Understand Potential Market Reactions to Transit

Objective: Focus future housing development more so on mixed-income housing

Policy: Develop a Mixed-Income TOD Strategy for the Corridor

Goal 3: Preservation and Promotion of Combined Transportation and Housing Affordability in the Corridor

Objective: Provide all residents, workers, and visitors with efficient, convenient, affordable, and attractive transit services

Policy: Explicitly consider equity when allocating City transportation funds (City of Los Angeles Transit Corridors Cabinet, 2013)

Policy: Require new developments to provide transit passes to residents and workers

Policy: Establish and better promote employee incentives to shift from single-occupancy vehicles to public transportation

Objective: Promote access to lower cost transportation options

Policy: Create inclusionary zoning that will increase density and lower parking requirements for new projects near transit stations so that it can capture the value of transit and create value for developers

Policy: Implement a program to recapture the value added to existing properties as a result of the LRT line and transit centers

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6 APPENDICES

6.1 Data Extraction and Analysis Steps

6.1.1 Census Tracts by Station and Study Corridor

To collect the US Census Bureau tracts that are relevant to the four stations and the study corridor, follow the below instructions:

- Go to <http://www.census.gov>
 - Click on “Geography”
 - Click on “Maps & Data”
 - Click on “Reference Maps”
 - Click on “Census Reference Maps”
 - Go to “Tract Maps”
 - Click on *2010*
 - Click on *California*
 - Click on *Los Angeles*
- Find the tracts that are within the buffer zone created in LEHD (refer to the next section on LEHD “on the Map” data extraction), including tracts that touch the buffer border but are not necessarily all in the buffer zone
- Hint: click on the first map at the top to see *parent map*
- Repeat the same method for the year 2000

All census tracts for the corridor for year 2000 and year 2010 can be seen in the Table A.1.

6.2 Housing Affordability

The framework for the data collection and organization was adopted from the Center for Transit-Oriented Development’s document entitled, “The Mixed Income Housing TOD Action Guide.” The following questions and topics were considered in deciding on what data to analyze.

6.2.1 Types of Data

1. Demographic

- a. Who currently resides in and near the transit zone?
 - i. What incomes are currently represented?
 - ii. What share of household incomes are resident spending on housing and transportation?
 - iii. What are the household types?
 - iv. What is the distribution of ages?
 - v. The distribution of incomes for households in the transit district and surrounding areas
 - vi. The percentage of housing income spent either on rent or mortgages
 - vii. The percentage of households composed of individuals and families, and of those the percentages that include children
 - viii. The distribution of ages, including the percentage of children and seniors
 - ix. *How has this changed over time?*
 - x. *Compare to the County*

2. Housing Stock

- a. Housing + Transportation Affordability Index
- b. What is the mix of single- vs. multi-family dwellings?
- c. What is the mix of rental vs. owner-occupied housing?
- d. What is the mix of unit sizes in the transit zone? (1-bedroom; etc.)
- e. What is the age of the housing stock? (SRO eligible?)
- f. What is the extent of subsidized housing in the transit zone?
- g. What is the vacancy rate of the housing stock?
- h. What is the physical condition of the housing stock?
- i. The percentage share of the housing composed of single-family houses and of higher-density, multi-family housing
- j. The mix of dwelling unit size, in terms of number of bedrooms
- k. The percentage share of the rental and owner –occupied housing stock
- l. The age of housing stock
- m. The quality and condition of the housing stock

- n. The number of units subsidized, affordable housing that are currently in or near the transit district
 - o. *How has this changed over time?*
 - p. *Compare to the County*
3. Housing Market Conditions
- a. What is the prevailing cost of housing, including both rental and homeownership units?
 - b. How pervasive are foreclosures within, and in the areas surrounding, the transit district? (Rate?)
 - c. What is the cost of development within the transit district?
 - d. How much development has there been in recent years? How much is planned?
 - e. What is the composition of local employment?
 - f. How strong is recent regional job growth?
 - g. Cost of land in transit district?
 - h. Cost of new construction in transit district?
 - i. A list of developments that are under construction or have applied for permits including the number of units
 - j. Data on composition and growth regionally
 - k. *How has this changed over time?*
 - l. *Compare to the County*
 - i. *Rent data, including distribution, average, and change over time*
 - ii. *Housing price data, including distribution, average, and change over time*
4. Policy Environment
- a. Is there an inclusionary housing ordinance in place? (RSO?)
 - i. If so, what percentage of new units must be affordable?
 - ii. To which income groups must new units be affordable?
 - iii. Must units be built on site, or is there an option for in-lieu fees?
 - iv. How many units have been created through the inclusionary policy?
 - v. How much revenue has been collected?
 - b. Are there protections in place for current renters?
 - i. Is there a “just-cause” eviction policy?

- ii. Is there rent control?
 - iii. Are there condominium conversion restrictions?
- c. Is the district within a Redevelopment Area?
- d. How many units of housing must the jurisdiction accommodate under its Regional Housing Needs Assessment (RHNA) allocation?
 - i. What progress has been made toward these benchmarks?
- e. What is the zoning of land within the station area?
 - i. What are the height and density limits for this area?
 - ii. What is the precedence for variances, in terms of density, height, parking, and use?
- f. What are the parking requirements for housing built in the jurisdiction?
 - i. What about parking requirements in transit zones?
 - ii. Do requirements exceed one space per unit?
 - iii. Are there reductions allowed for smaller units or affordable units?

6.2.2 Data Collection

- Go to <http://www.census.gov>
 - Click on the “Data” tab
 - Click on “American FactFinder”
 - Click on “Advanced Search” and “show me all”
 - Go to “Topics” and choose “Year”
 - Click on the year “2000”
 - Go to “Geographies”
 - Click on the “List” tab
 - “Select a geographic type”: “Census Tract – 140”
 - “Select a state”: “California”
 - “Select a county”: “Los Angeles”
- Click on all of the census tracts for the year 2000
- Repeat procedure for the year
- Choose appropriate datasets (Table A.2)

6.3 Transportation Affordability

The framework for the data collection and organization was adopted from the Center for Transit-Oriented Development's document entitled, "The Mixed Income Housing TOD Action Guide." The following questions and topics were considered in deciding on what data to analyze. Due to the complexity of assessing transportation affordability, most of the following types of data were not analyzed. Instead, the H+T Affordability Index was used to assess transportation affordability.

6.3.1 Types of Data

1. Demographics: station area vs. surrounding neighborhood
 - a. Proportion of population with cars and other forms of transportation
 - b. What is the car availability per household?
 - c. What types of modes of transportation are used to commute to work?
 - d. What are the main trip purposes for transit trips?
 - e. What are the main trip purposes for all mode of travel?
 - f. What are the average transit costs:
 - i. Per different levels of household incomes
 - ii. Per different levels of housing
 - iii. Per different race/ethnicities
2. Housing + Transportation Affordability Index

6.3.2 Data Collection

The following instructions are directions on how to get geospatial maps:

- Go to <http://htaindex.cnt.org>
- Click on "Use the H+T Index"
- Search "Los Angeles, CA"
 - Zoom into corridor area
 - Use drop down menus to look at data representation that is desired

6.4 Job Accessibility

Using the variables presented in the LEHD detailed report described in the “data collection” section, the framework for the data collection and organization was created. The following topics were considered in deciding on what data to analyze.

6.4.1 Types of Data

Employment data was found, using LEHD’s “On the Map” tool, by capturing the following employment data from a mile radius buffer around each station, based on where workers work:

1. Total Number of All Jobs
2. Job Density: Jobs per Square Miles
3. Jobs by Worker Age
4. Jobs by Earnings
5. Jobs by NAICS Industry Sector
6. Jobs by Worker Race
7. Jobs by Worker Ethnicity
8. Jobs to Housing Balance (ratio)
9. Population Commuting to Work by Varying Modes of Transportation

6.4.2 Data Collection

The following instructions are for the purposes of LEHD’s “On the Map” data extraction:

- Go to <http://lehd.ces.census.gov>
- Click on “OnTheMap”
 - Drop down menu to “Los Angeles”
 - Drop down menu to “Census Tracts”
 - Click “search”
 - Close the analysis box
 - Click on the “selection” tab
 - Draw a “point”
 - “Confirm Selection”
 - “Perform Analysis”
 - Click on the following:

- “Work” (work area)
 - “Area Profile”
 - “All Workers”
 - “Year”
 - Click on all years 2002-2010
 - “Job Type”
 - “All Jobs”
 - “GO”
- Go to “Detailed Report”
 - Export to XLS

Do this for all stations and then a separate one for the corridor too. DO NOT just add the four stations together to make the corridor because, the buffers overlap.

6.4.2.1 Data Extrapolation

The Longitudinal Employer-Household Dynamics data only has data for every year from 2010 to 2002. For the purposes of this study, 2001 and 2000 data is still needed. Furthermore, data on “jobs by worker race” and “jobs by worker ethnicity,” data was only available for 2010 and 2009. [Economic Census blurb in the “Database Methodology” doc] Annual percent growth rates were used to extrapolate data for the years 2001 and 2000; and also, for the data on “jobs by worker race” and “jobs by worker ethnicity” for the years 2008 to 2000.

For the “Total Work-Based Jobs for 2010-2002” data, 2002 was the last data available. To estimate the data for the years 2001 and 2002 data was extrapolated by calculating an annual percent growth rate. Percent growth rate equals the present value minus the past value, divided by the past value. To get a percentage, divide the calculated value by the number of years and then multiply by 100 to get the percent rate.

$$PR = \frac{(V_{Present} - V_{Past})}{V_{Past}} \times 100$$

To find the past values of the years that are not available:

$$\text{Extrapolated } V_{\text{Past}} = \text{Last } V_{\text{Past}} - (\text{Last } V_{\text{Past}} * \text{PR})$$

For the extrapolated values that came out to be a negative number, it was interpreted as a value of zero (0).

6.5 Corridor Census Tracts

Table A.1 Census Information Sources

Table	Title	Sub-Title	Date Retrieved
DP-1	Profile of General Demographic Characteristics: 2000	Census 2000 Summary File 1 (SF 1) 100-Percent Data	5/10/13
DP-1	Profile of General Population and Housing Characteristics: 2010	2010 Census Summary File 1	5/10/13
DP-3	Profile of Selected Economic Characteristics: 2000	Census 2000 Summary File 3 (SF 3) - Sample Data	5/10/13
DP03	SELECTED ECONOMIC CHARACTERISTICS	2006-2010 American Community Survey 5-Year Estimates	5/10/13
DP-4	Profile of Selected Housing Characteristics: 2000	Census 2000 Summary File 3 (SF 3) - Sample Data	5/10/13
DP04	SELECTED HOUSING CHARACTERISTICS	2006-2010 American Community Survey 5-Year Estimates	5/10/13
QT-H1	General Housing Characteristics: 2000	Census 2000 Summary File 1 (SF 1) 100-Percent Data	5/10/13
QT-H1	General Housing Characteristics: 2010	2010 Census Summary File 1	5/10/13

Table A.2 Census Tracts Defined by the Corridor

2000 Census Tracts		2010 Census Tracts	
2408	6015.02	2408	6006.01
2409	6016	2409	6006.02
2410	6017	2410.01	6015.01
2411.1	6018.01	2410.02	6015.02
2411.2	6018.02	2411.1	6016
2412	6019	2411.2	6017
2413	6020.02	2412.01	6018.01
2414	6020.03	2412.02	6018.02
2426	6020.04	2413	6019
2911.1	6021.03	2414	6020.02
2911.2	6021.04	2426	6020.03
5407	6021.05	2911.1	6020.04
5408	6021.06	2911.2	6021.03
5409.01	6022	5407	6021.04
5409.02	6025.01	5408	6021.05
6002.02	6026	5409.01	6021.06
6003.01	6027	5409.02	6022
6003.02	6028	6002.02	6025.08
6004	6029	6003.02	6025.09
6005.01	-	6003.03	6026
6005.02	-	6003.04	6027
6006.01	-	6004	6028.01
6006.02	-	6005.01	6028.02
6015.01	-	6005.02	6029

6.6 Trends in Demographic Characteristics Over Time in the Corridor

Table A.3 Age Distribution by Year in the Corridor

Population	2000	2010	Annual Percent Growth Rate
Total population	203,828	205,884	0.10%
Under 5 years	20,375	17,358	-1.48%
5 to 9 years	22,655	16,586	-2.68%
10 to 14 years	19,911	17,585	-1.17%
15 to 19 years	16,674	18,716	1.22%
20 to 24 years	15,862	16,943	0.68%
25 to 34 years	33,052	30,439	-0.79%
35 to 44 years	29,189	28,390	-0.27%
45 to 54 years	19,988	26,183	3.10%
55 to 59 years	7,028	9,673	3.76%
60 to 64 years	5,831	7,538	2.93%
65 to 74 years	7,856	9,887	2.59%
75 to 84 years	4,162	4,849	1.65%
85 years and over	1,245	1,737	3.95%
Median age (years)	27	30	0.88%
Source: DP-1, Profile of General Demographic Characteristics: 2000, Census 2000 Summary File 100% Data; DP-1, Profile of General Population and Housing Characteristics: 2010, 2010 Census Summary File 1			

Table A.4 Race Distribution by Year in the Corridor

Race	2000	2010	Annual Percent Growth Rate
One race	195,621	197,799	0.11%
White	40,866	51,900	2.70%
Black or African American	82,544	71,406	-1.35%
American Indian and Alaska Native	1,487	1,337	-1.01%
Asian, Native Hawaiian and Other Pacific Islander	5,067	4,877	-0.37%
Some other race	66,901	66,711	-0.03%
Two or more races	8,207	8,085	-0.15%
Source: DP-1, Profile of General Demographic Characteristics: 2000, Census 2000 Summary File 100% Data; DP-1, Profile of General Population and Housing Characteristics: 2010, 2010 Census Summary File 1			

Table A.5 Ethnicity by Year in the Corridor

Ethnicity	2000	2010	Annual Percent Growth Rate
Hispanic or Latino (of any race)	106,159	121,488	1.44%
Not Hispanic or Latino	97,669	84,396	-1.36%
Source: DP-1, Profile of General Demographic Characteristics: 2000, Census 2000 Summary File 100% Data; DP-1, Profile of General Population and Housing Characteristics: 2010, 2010 Census Summary File 1			

Table A.6 Income Distribution by Year in the Corridor

Income	2000	2010	Annual Percent Growth Rate
Households	57,146	59,224	0.36%
Less than \$10,000	9,717	5,986	-3.84%
\$10,000 to \$14,999	5,104	4,966	-0.27%
\$15,000 to \$24,999	9,374	8,748	-0.67%
\$25,000 to \$34,999	8,561	7,454	-1.29%
\$35,000 to \$49,999	8,842	9,200	0.40%
\$50,000 to \$74,999	8,501	10,155	1.95%
\$75,000 to \$99,999	3,649	6,137	6.82%
\$100,000 to \$149,999	2,422	5,011	10.69%
\$150,000 to \$199,999	491	1,022	10.81%
\$200,000 or more	485	545	1.24%
Median household income (dollars)	30,725.28	38,754.61	2.61%
Families	44,749	44,203	-0.12%
Less than \$10,000	7,147	4,173	-4.16%
\$10,000 to \$14,999	3,865	2,662	-3.11%
\$15,000 to \$24,999	7,185	6,282	-1.26%
\$25,000 to \$34,999	6,641	5,601	-1.57%
\$35,000 to \$49,999	7,193	7,008	-0.26%
\$50,000 to \$74,999	6,942	7,923	1.41%
\$75,000 to \$99,999	3,028	4,973	6.42%
\$100,000 to \$149,999	1,979	4,229	11.37%
\$150,000 to \$199,999	408	935	12.92%
\$200,000 or more	361	417	1.55%
Median family income (dollars)	32,306.42	42,461.31	3.14%
<i>Source: DP-3, Profile of Selected Economic Characteristics: 2000, Census 2000 Summary File 3; DP03, Selected Economic Characteristics, 2006-2010 American Community Survey 5-Year Estimates</i>			

Table A.7 Housing Occupancy by Year in the Corridor

Housing Occupancy	2000	2010	Annual Percent Growth Rate
Total housing units	60,716	61,985	0.21%
Occupied housing units	57,189	58,241	0.18%
Vacant housing units	3,528	3,744	0.61%
Homeowner vacancy rate (percent)	3.94	2.28	-4.22%
Rental vacancy rate (percent)	4.55	5.58	2.26%
<i>Source: DP-1, Profile of General Demographic Characteristics: 2000, Census 2000 Summary File 100% Data; DP-1, Profile of General Population and Housing Characteristics: 2010, 2010 Census Summary File 1; QT-H1, General Housing Characteristics: 2000, Census 2000 Summary File 1 (SF 1) 100-Percent Data; QT-H1, General Housing Characteristics: 2010, 2010 Census Summary File 1</i>			

Table A.8 Occupied Housing by Year in the Corridor

Housing Tenure	2000	2010	Annual Percent Growth Rate
Occupied housing units	57,194	58,241	0.18%
Owner-occupied housing units	22,817	22,553	-0.12%
Renter-occupied housing units	34,377	35,688	0.38%
Vacant housing units	3,622	3,744	0.34%
<i>Source: QT-H1, General Housing Characteristics: 2000, Census 2000 Summary File 1 (SF 1) 100-Percent Data; QT-H1, General Housing Characteristics: 2010, 2010 Census Summary File 1</i>			

Table A.9 Household Types by Year in the Corridor

Household by Type	2000	2010	Annual Percent Growth Rate
Total households	57,094	58,241	0.20%
Family households (families)	44,444	44,766	0.07%
Nonfamily households	12,650	13,475	0.65%
Average household size	3.65	3.54	-0.32%
Average family size	4.02	3.90	-0.30%
<i>Source: DP-1, Profile of General Demographic Characteristics: 2000, Census 2000 Summary File 100% Data; DP-1, Profile of General Population and Housing Characteristics: 2010, 2010 Census Summary File 1</i>			

Table A.10 Householder Race Distribution by Year in the Corridor

Race of Householder	2000	2010	Annual Percent Growth Rate
One race	55,000	41,307	-2.49%
White	10,640	12,842	2.07%
Black or African American	29,024	26,578	-0.84%
American Indian and Alaska Native	357	345	-0.32%
Asian, Native Hawaiian and Other Pacific Islander	1,371	1,542	1.25%
Some other race	13,608	14,911	0.96%
Two or more races	2,195	2,023	-0.78%
<i>Source: QT-H1, General Housing Characteristics: 2000, Census 2000 Summary File 1 (SF 1) 100-Percent Data; QT-H1, General Housing Characteristics: 2010, 2010 Census Summary File 1</i>			

Table A.11 Householder Ethnicity by Year in the Corridor

Ethnicity of Householder	2000	2010	Annual Percent Growth Rate
Hispanic or Latino (of any race)	22,486	26,795	1.92%
Not Hispanic or Latino	34,708	31,446	-0.94%
<i>Source: QT-H1, General Housing Characteristics: 2000, Census 2000 Summary File 1 (SF 1) 100-Percent Data; QT-H1, General Housing Characteristics: 2010, 2010 Census Summary File 1</i>			

Table A.12 Age Distribution of Housing Stock by Year in the Corridor

Year Structure Built	2000	2010	Annual Percent Growth Rate
Total housing units	60,626	63,162	0.42%
Built 2005 or later	0	667	-
Built 2000 to 2004	0	1,451	-
Built 1990 to [March 2000/1999]	3,105	3,052	-0.17%
Built 1980 to 1989	4,777	4,315	-0.97%
Built 1970 to 1979	8,334	6,517	-2.18%
Built 1960 to 1969	11,608	10,328	-1.10%
Built 1940 to 1959	27,354	29,222	0.68%
Built 1939 or earlier	5,448	7,610	3.97%
<i>Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates</i>			

Table A.13 Housing Value Distribution by Year in the Corridor

Housing Value	2000	2010	Annual Percent Growth Rate
Total housing units	20,487	23,287	1.37%
Less than \$50,000	252	678	16.90%
\$50,000 to \$99,999	1,354	259	-8.09%
\$100,000 to \$149,999	6,972	613	-9.12%
\$150,000 to \$199,999	8,743	802	-9.08%
\$200,000 to \$299,999	2,674	3,704	3.85%
\$300,000 to \$499,999	377	10,923	279.73%
\$500,000 to \$999,999	37	6,147	1651.35%
\$1,000,000 or more	78	161	10.64%
Median (dollars)	155,084	392,751	15.33%
<i>Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates</i>			

Table A.14 Mortgage Status and Monthly Cost by Year in the Corridor

Mortgage Status and Selected Monthly Owner Costs	2000	2010	Annual Percent Growth Rate
Total Housing Units	20,487	23,287	1.37%
Housing units with a mortgage	16,366	18,421	1.26%
Less than \$300	87	9	-8.97%
\$300 to \$499	508	122	-7.60%
\$500 to \$699	1,174	391	-6.67%
\$700 to \$999	2,651	1,140	-5.70%
\$1,000 to \$1,499	6,917	3,572	-4.84%
\$1,500 to \$1,999	3,862	4,263	1.04%
\$2,000 or more	1,167	8,924	66.47%
Median (dollars)	1,283	1,951	5.21%
Not mortgaged	4,121	4,866	1.81%
Median (dollars)	276	318	1.54%
<i>Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates</i>			

Table A.15 Monthly Cost % of Income Distribution by Year in the Corridor

Monthly Owner Costs as % of Household Income	2000	2010	Annual Percent Growth Rate
Housing units	20,487	23,092	1.27%
Less than 20.0 percent	7,102	6,517	-0.82%
20 to 24 percent	2,155	2,091	-0.30%
25 to 29 percent	2,016	1,987	-0.14%
30 to 34 percent	1,701	2,040	1.99%
35 percent or more	7,166	10,457	4.59%
Not computed	347	195	-4.38%
<i>Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates</i>			

Table A.16 Gross Rent Distribution by Year in the Corridor

Gross Rent	2000	2010	Annual Percent Growth Rate
Occupied Units Paying Rent	33,754	35,313	0.46%
Less than \$200	1,311	479	-6.35%
\$200 to \$299	1,106	802	-2.75%
\$300 to \$499	6,534	1,931	-7.04%
\$500 to \$749	16,057	5,246	-6.73%
\$750 to \$999	5,988	11,476	9.16%
\$1,000 to \$1,499	2,539	10,996	33.31%
\$1,500 or more	219	4,383	190.14%
No cash rent	489	624	2.76%
Median (dollars)	615	964	5.68%
<i>Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates</i>			

Table A.17 Rent % of Income Distribution by Year the Corridor

Gross Rent as a % of Household Income	2000	2010	Annual Percent Growth Rate
Housing units	34,243	34,395	0.04%
Less than 15 percent	4,387	2,511	-4.28%
15 to 19 percent	3,944	3,023	-2.34%
20 to 24 percent	3,779	3,716	-0.17%
25 to 29 percent	3,201	3,502	0.94%
30 to 34 percent	2,794	3,115	1.15%
35 percent or more	14,091	18,528	3.15%
Not computed	2,047	1,542	-2.47%
<i>Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates</i>			

Table A.18 Vehicle Availability Distributions by Year in the Corridor

Vehicle Availability	2000	2010	Annual Percent Growth Rate
Occupied housing units	54,896	58,217	0.60%
None	10,055	7,168	-2.87%
1	21,698	23,268	0.72%
2	15,124	17,235	1.40%
3 or more	8,019	10,546	3.15%
<i>Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates</i>			

Table A.19 2000-2010 Commuting to Work

Commuting to Work	2000	2010	Annual % Growth Rate
Workers 16 years and over	63,763	78,543	2.32%
Car, truck, or van -- drove alone	40,988	55,590	3.56%
Car, truck, or van -- carpooled	12,658	9,438	-2.54%
Public transportation (including taxicab)	6,052	8,132	3.44%
Walked	1,515	1,592	0.51%
Other means	1,349	1,495	1.08%
Worked at home	1,201	2,296	9.12%
<i>Source: DP-3, Profile of Selected Economic Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP03, SELECTED ECONOMIC CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates</i>			

Table A.20 Annual Percent Growth: Total Jobs

Characteristic	Annual % Growth
Total All Jobs	1.16%
Job Density (sq. mi.)	1.16%

Source: lehd.ces.census.gov, 2002-2010

Table A.21 Annual Percent Growth: Jobs by Worker Age

Characteristic	Annual % Growth
Age 29 or younger	-0.71%
Age 30 to 54	0.90%
Age 55 or older	5.93%

Source: lehd.ces.census.gov, 2002-2010

Table A.22 Annual Percent Growth: Jobs by Worker Earnings

Characteristic	Annual % Growth
\$1,250 per month or less	0.11%
\$1,251 to \$3,333 per month	0.37%
More than \$3,333 per month	4.02%

Source: lehd.ces.census.gov, 2002-2010

Table A.23 Annual Percent Growth: Jobs by Worker Race

Characteristic	Annual % Growth
White Alone	0.27%
Black or African American Alone	0.87%
American Indian or Alaska Native Alone	-7.75%
Asian Alone	0.74%
Native Hawaiian or Other Pacific Islander Alone	5.50%
Two or More Race Groups	0.40%

Source: lehd.ces.census.gov, 2002-2010

Table A.24 Annual Percent Growth: Jobs by Worker Race

Characteristic	Annual % Growth
Not Hispanic or Latino	0.35%
Hispanic or Latino	0.42%

Source: lehd.ces.census.gov, 2002-2010

Table A.25 Annual Percent Growth: Labor Market Size

Characteristic	Annual % Growth
Employed in the Selection Area	1.08%
Living in the Selection Area	-0.13%
Net Job Inflow (+) or Outflow (-)	-0.74%

Source: lehd.ces.census.gov, 2002-2010

Table A.26 Annual Percent Growth: Employment Efficiency

Characteristic	Annual % Growth
Living in the Selection Area	-0.13%
Living and Employed in the Selection Area	2.77%
Living in the Selection Area but Employed Outside	-0.23%

Source: lehd.ces.census.gov, 2002-2010

Table A.27 Annual Percent Growth: In-Labor Force Efficiency

Characteristic	Annual % Growth
Employed in the Selection Area	1.08%
Employed and Living in the Selection Area	2.77%
Employed in the Selection Area but Living Outside	0.89%

Source: lehd.ces.census.gov, 2002-2010

Table A.28 Raw Employment Data

	Raw Data												Extrapolated Data											
	2010						2009						2008						2007					
	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share
Total All Jobs	19,178	23.29%	19,032	23.29%	17,689	21.60%	18,185	22.40%	17,168	21.10%	16,234	20.00%	17,044	20.80%	17,544	21.30%	17,340	21.10%						
Job Density (sq. mi.)	1,625	1.613	1,489	1.541	1,464	1.376	1,445	1,444	1,487	1,470	1,453													
Jobs by Worker Age	2010						2009						2008						2007					
	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share
	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share
Age 25 or younger	4,447	23.29%	4,561	24.50%	4,863	27.50%	5,159	28.50%	4,949	28.80%	4,571	25.20%	4,571	25.20%	4,571	25.20%	4,571	25.20%	4,571	25.20%	4,571	25.20%	4,571	25.20%
Age 30 to 54	11,159	58.20%	11,053	58.10%	9,866	56.10%	10,124	55.10%	9,700	56.50%	9,347	57.60%	9,347	57.60%	9,347	57.60%	9,347	57.60%	9,347	57.60%	9,347	57.60%	9,347	57.60%
Age 55 or older	3,670	19.50%	3,316	17.40%	2,970	16.80%	2,822	16.10%	2,507	14.60%	2,216	13.30%	2,440	14.30%	2,440	14.30%	2,440	14.30%	2,440	14.30%	2,440	14.30%	2,440	14.30%
Jobs by Earnings	2010						2009						2008						2007					
	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share
	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share
\$1,250 per month or less	5,967	31.1%	6,418	33.7%	5,825	32.9%	6,470	35.6%	5,265	30.7%	5,243	32.3%	5,594	32.6%	5,620	33.0%	5,914	33.7%	5,907	34.0%	5,907	34.0%	5,907	34.0%
\$1,251 to \$3,333 per month	7,616	39.7%	7,707	40.5%	7,292	41.2%	7,453	41.6%	7,490	43.7%	7,051	43.4%	7,407	43.5%	7,304	43.0%	7,304	43.0%	7,304	43.0%	7,304	43.0%	7,304	43.0%
More than \$3,333 per month	5,593	29.2%	4,907	25.8%	4,372	25.8%	4,262	23.4%	4,401	25.7%	3,940	24.3%	4,073	23.9%	4,002	24.0%	4,233	24.1%	4,063	23.4%	3,900	22.1%	3,900	22.1%
Jobs by Worker Race	2010						2009						2008						2007					
	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share
	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share
White Alone	11,978	62.50%	11,812	62.80%	11,880	62.80%	11,848	62.72%	11,816	62.72%	11,765	62.82%	11,763	62.86%	11,721	62.89%	11,690	62.91%	11,658	62.92%	11,627	62.92%	11,627	62.92%
Black or African American Alone	4,582	22.60%	4,507	22.60%	4,270	22.52%	4,232	22.40%	4,165	22.40%	4,159	22.17%	4,123	22.05%	4,087	21.85%	4,051	21.80%	4,015	21.67%	3,981	21.54%	3,981	21.54%
American Indian or Alaska Native Alone	218	1.10%	268	1.40%	278	1.47%	300	1.59%	323	1.93%	348	1.89%	375	2.00%	404	2.17%	435	2.34%	469	2.53%	505	2.75%	505	2.75%
Asian Alone	213	1.10%	268	1.40%	278	1.47%	300	1.59%	323	1.93%	348	1.89%	375	2.00%	404	2.17%	435	2.34%	469	2.53%	505	2.75%	505	2.75%
Native Hawaiian or Other Pacific Islander Alone	111	0.58%	100	0.50%	95	0.50%	89	0.47%	84	0.47%	84	0.47%	85	0.47%	71	0.38%	67	0.38%	64	0.34%	60	0.33%	60	0.33%
Two or More Race Groups	376	2.00%	373	2.00%	372	1.96%	370	1.96%	369	2.30%	367	1.96%	366	1.96%	364	1.96%	363	1.95%	361	1.95%	360	1.95%	360	1.95%
Jobs by Worker Ethnicity	2010						2009						2008						2007					
	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share
	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share	Count	Share
Not Hispanic or Latino	10,865	56.70%	10,790	56.70%	10,753	56.71%	10,715	56.70%	10,678	56.70%	10,641	56.70%	10,604	56.76%	10,567	56.80%	10,530	56.82%	10,494	56.83%	10,457	56.85%	10,457	56.85%
Hispanic or Latino	8,311	43.30%	8,242	43.30%	8,208	43.29%	8,173	43.27%	8,139	43.25%	8,105	43.24%	8,071	43.22%	8,037	43.20%	8,004	43.16%	7,970	43.17%	7,937	43.19%	7,937	43.19%

Source: lehd.ces.census.gov, 2002-2010

Table A.29 2002-2010 Home Destination Analysis

City	2002		2010		Annual % Growth
	Count	Share	Count	Share	
Los Angeles city, CA	6,836	30.40%	8,441	33.00%	2.93%
Hawthorne city, CA	1,106	4.90%	970	3.80%	-1.54%
Inglewood city, CA	995	4.40%	927	3.60%	-0.85%
Long Beach city, CA	723	3.20%	616	2.40%	-1.85%
Torrance city, CA	631	2.80%	552	2.20%	-1.56%
Carson city, CA	397	1.80%	413	1.60%	0.50%
Gardena city, CA	389	1.70%	411	1.60%	0.71%
Lennox CDP, CA	428	1.90%	403	1.60%	-0.73%
Compton city, CA	338	1.50%	382	1.50%	1.63%
Westmont CDP, CA	231	1.00%	334	1.30%	5.57%
All Other Locations	10,410	46.30%	12,128	47.40%	2.06%

Source: lehd.ces.census.gov, 2002-2010

Table A.30 2002-2010 Work Destination Analysis

City	2002		2010		Annual % Growth
	Count	Share	Count	Share	
Los Angeles city, CA	22,910	37.90%	22,877	38.00%	-0.02%
Torrance city, CA	2,451	4.10%	1,953	3.20%	-2.54%
Inglewood city, CA	1,778	2.90%	1,874	3.10%	0.67%
Hawthorne city, CA	1,702	2.80%	1,401	2.30%	-2.21%
Long Beach city, CA	1,248	2.10%	1,321	2.20%	0.73%
Culver City, CA	941	1.60%	1,193	2.00%	3.35%
El Segundo city, CA	1,422	2.40%	1,137	1.90%	-2.51%
Carson city, CA	1,373	2.30%	1,127	1.90%	-2.24%
Santa Monica city, CA	1,006	1.70%	1,018	1.70%	0.15%
Gardena city, CA	1,299	2.20%	973	1.60%	-3.14%
All Other Locations	24,246	40.20%	25,345	42.10%	0.57%

Source: lehd.ces.census.gov, 2002-2010

Table A.31 2002-2010 Employment Data: Comparison Table

	Annual % Growth		
	Corridor	County	Difference
Total Jobs			
Job Density (11.797 sq. ft., 4,757.079 sq. ft.)	1.16%	0.69%	0.47%
Jobs by Worker Age			
Age 29 or younger	-0.71%	-1.48%	0.77%
Age 30 to 54	0.90%	0.57%	0.33%
Age 55 or older	5.93%	5.50%	0.43%
Jobs by Earnings			
\$1,250 per month or less	0.11%	-2.67%	2.79%
\$1,251 to \$3,333 per month	0.37%	-0.93%	1.30%
More than \$3,333 per month	4.02%	5.62%	-1.60%
Jobs by Worker Race			
White Alone	0.27%	1.00%	-0.73%
Black or African American Alone	0.87%	1.78%	-0.91%
American Indian or Alaska Native Alone	-7.75%	0.93%	-8.68%
Asian, Native Hawaiian or Other Pacific Islander Alone	1.08%	0.01%	1.08%
Two or More Race Groups	0.40%	1.15%	-0.74%
Jobs by Worker Ethnicity			
Not Hispanic or Latino	0.35%	0.86%	-0.51%
Hispanic or Latino	0.42%	0.98%	-0.56%

Source: lehd.ces.census.gov, 2002-2010

Table A.32 2002-2010 Housing Data: Comparison Table

	Annual Percent Growth Rate		
	Corridor	County	Difference
Housing Occupancy			
Total housing units	0.21%	0.53%	-0.32%
Occupied housing units	0.18%	0.34%	-0.16%
Vacant housing units	0.61%	4.87%	-4.25%
Homeowner vacancy rate (percent)	-4.22%	0.62%	-4.84%
Rental vacancy rate (percent)	2.26%	7.58%	-5.32%
Housing Tenure			
Occupied housing units	0.18%	0.34%	-0.16%
Owner-occupied housing units	-0.12%	0.30%	-0.42%
Renter-occupied housing units	0.38%	0.38%	0.00%
Vacant housing units	0.34%	4.87%	-4.53%
Housing Value			
Less than \$50,000	16.90%	7.16%	9.74%
\$50,000 to \$99,999	-8.09%	-5.02%	-3.07%
\$100,000 to \$149,999	-9.12%	-8.68%	-0.44%
\$150,000 to \$199,999	-9.08%	-8.80%	-0.28%
\$200,000 to \$299,999	3.85%	-5.65%	9.50%
\$300,000 to \$499,999	279.73%	12.71%	267.02%
\$500,000 to \$999,999	1651.35%	45.56%	1605.79%
\$1,000,000 or more	10.64%	41.95%	-31.31%
Median (dollars)	15.33%	14.31%	1.02%
Monthly Owner Costs as % of Household Income			
Less than 20.0 percent	-0.82%	-5.13%	4.31%
20 to 24 percent	-0.30%	-1.35%	1.06%
25 to 29 percent	-0.14%	-0.33%	0.18%
30 to 34 percent	1.99%	-1.69%	3.68%
35 percent or more	4.59%	44.55%	-39.95%
Not computed	-4.38%	-9.81%	5.43%
Gross Rent as a % of Household Income			
Less than 15 percent	-4.28%	-3.67%	-0.61%
15 to 19 percent	-2.34%	-2.12%	-0.22%
20 to 24 percent	-0.17%	-0.95%	0.78%
25 to 29 percent	0.94%	0.70%	0.24%
30 to 34 percent	1.15%	1.07%	0.08%
35 percent or more	3.15%	2.99%	0.16%
Not computed	-2.47%	-1.58%	-0.88%
Source: DP-1, Profile of General Demographic Characteristics: 2000, Census 2000 Summary File 100% Data; DP-1, Profile of General Population and Housing Characteristics: 2010, 2010 Census Summary File 1			
Source: QT-H1, General Housing Characteristics: 2000, Census 2000 Summary File 1 (SF 1) 100-Percent Data; QT-H1, General Housing Characteristics: 2010, 2010 Census Summary File 1			
Source: DP-4, Profile of Selected Housing Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP04, SELECTED HOUSING CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates			

Table A.33 2002-2010 Commute to Work Data: Comparison Table

	Annual % Growth		
	Corridor	County	Difference
Commute to Work			
Workers 16 years and over	2.32%	1.40%	0.92%
Car, truck, or van -- drove alone	3.56%	1.69%	-5.26%
Car, truck, or van -- carpooled	-2.54%	-1.44%	-4.32%
Public transportation (including taxicab)	3.44%	2.27%	-3.40%
Walked	0.51%	1.13%	12.31%
Other means	1.08%	5.05%	36.63%
Worked at home	9.12%	4.89%	-4.64%
<i>Source: DP-3, Profile of Selected Economic Characteristics: 2000, Census 2000 Summary File 3 (SF 3) - Sample Data; DP03, SELECTED ECONOMIC CHARACTERISTICS, 2006-2010 American Community Survey 5-Year Estimates</i>			