WCCTAC
West Contra Costa Transportation Advisory Committee

West Contra Costa High-Capacity Transit Study

Final Technical Memorandum #6
Existing and Future Land Use Conditions

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PARSONS BRINCKERHOFF

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Economic & Planning Systems (EPS)

Document Review

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Document Sign-off

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Acronyms and Abbreviations

ABAG	Association of Bay Area Governments
ACE	Altamont Commuter Express
AC Transit	Alameda-Contra Costa Transit District
Alameda CTC	Alameda County Transportation Commission
BART	Bay Area Rapid Transit
BAAQMD	Bay Area Air Quality Management District
BNSF	Burlington Northern Santa Fe Railroad
Caltrans	California Department of Transportation
CCTA	Contra Costa Transportation Authority
CCJPA	Capitol Corridor Joint Powers Authority
CMA	Congestion Management Agency
EDD	California Employment Development Department
FTA	Federal Transit Administration
HCT	High Capacity Transit
LAFCO	Local Agency Formation Commission
LOS	Level of Service
MTC	Metropolitan Transportation Commission
NAICS	North American Industry Classification System
NETS	National Establishment Times-Series
NTD	National Transit Database
PDA	Priority Development Area
QWI	Quarterly Workforce Indicators
RTAZ	Regional Travel Analysis Zone
SIC	Standard Industrial Classification
SJRRC	San Joaquin Regional Rail Commission
SRTP	Short-Range Transit Plan
SSA	Subregional Study Area
STA	State Transit Assistance
STMP	sub-regional transportation mitigation fee program
TAZ	Traffic Analysis Zone
TOD	transit-oriented development
UPRR	Union Pacific Railroad
WCCTA	Western Contra Costa Transit Authority (WestCAT)
WCCTAC	West Contra Costa Transportation Advisory Committee

WCCUSD	West Contra Costa Unified School District
WETA	Water Emergency Transportation Authority

1 EXECUTIVE SUMMARY

This Technical Memorandum documents existing and future land use conditions in West Contra Costa County (West County, particularly as they pertain to existing and future transit services located along the West Contra Costa/I-80 corridor. West County includes the cities of El Cerrito, Hercules, Pinole, Richmond, and San Pablo and the unincorporated communities of Bayview, Crockett, East Richmond Heights, El Sobrante, Kensington, Montalvin Manor, North Richmond, Port Costa, Rodeo, Rollingwood, and Tara Hills. **Figure 1-1** provides a map of West County showing location of the West County travel corridor and the local jurisdictions.

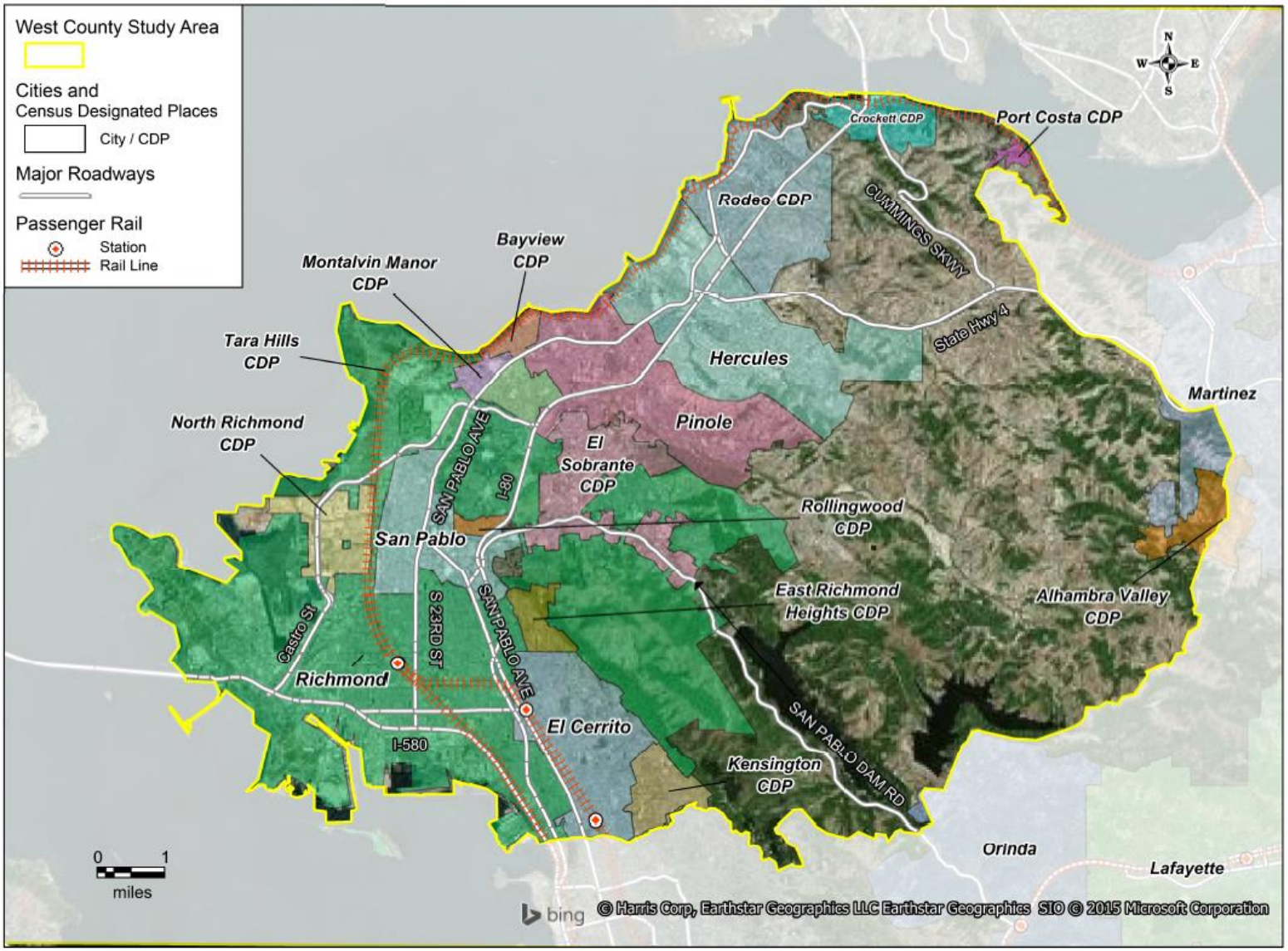
1.1 Study Area Characteristics

The West County Study Area comprises those parts of Contra Costa County on, or nearest San Francisco and San Pablo Bays, and is about 112 square miles in area. The West County shoreline extends in a clockwise direction from south to north from Point Isabel Regional Shoreline and Richmond Inner Harbor around San Francisco Bay to the west, San Pablo Bay to the northwest, and the Carquinez Strait to the north and northeast, ending at the Carquinez Strait Regional Shoreline.

The Study Area is characterized as an historical and ongoing location of waterfront industries, presently dominated by oil refining. Union Pacific Railroad Mainline, which is located generally along the Bayfront, and Interstate 80 transect the full length of the Study Area and San Pablo Avenue provides a nearly continuous commercial corridor running parallel to I-80. Over the past century suburban communities have developed in West County, attracted by the local employment opportunities and the relatively easy commuting to more central portions of the Bay Area. In recent years the older suburban development have been augmented with new commercial development and new residential development taking advantage of vacant and underutilized sites and increasing demand for higher density development.

The ports along the West County bay front include the Port of Richmond, Northern California's most diversified cargo handler and the State of California's third-largest port in terms of total tonnage moved. The Ports and major refineries and petrochemical and manufacturing areas in and between Richmond and Rodeo are connected to the national goods-movement land network via rail (the Union Pacific Mainline) and by truck via I-580 and I-80 and State Route 4, and the Richmond-San Rafael and Carquinez bridges. The Hayward Fault runs through the Study Area from Kensington through Point Pinole, placing existing and future development at risk during earthquakes, and imposing the necessity of seismic retrofit for existing infrastructure and seismic readiness of future infrastructure. The extensive waterfront requires appropriate planning for protection and mitigation of the impacts of climate change.

Figure 1-1 West Contra Costa County High Capacity Transit Study Area



1.2 Existing Population, Housing, Jobs, and Land Use

Population in the West County Study Area was approximately 250,890 persons in 2010, occupying about 88,540 households (See **Table 1-1**). West County accounted for nearly 24% of Contra Costa County's total population and households at that time, and contained about 3.5% of the Bay Area's total population and about 3.4% of all Bay Area households.

The West County Study Area had about 62,580 jobs in 2010, and an estimated 104,710 employed residents, i.e., a ratio of only 0.60 local jobs per employed resident, which results in a large net outflow of working commuters to workplaces outside the Study Area. The rest of Contra Costa County had a ratio of about 0.84 local jobs to employed residents circa 2010, again requiring the net outflow of workforce to worksites outside of the County. The Bay Area as a whole had a ratio of about 1.04 local jobs to employed residents in 2010, requiring the net inflow of workforce into the region.

West County accounted for about 18% of all Contra Costa County jobs in 2010, and nearly 24% of the County's employed residents. In the Bay Area context, West County held slightly less than 2% of the region's jobs and accommodated slightly more than 3% of its employed workforce.

Study Area residents considered as a whole, and on average, have lower household incomes and less educational attainment than the Bay Area averages, but both measures are well above national averages, and there is considerable variation among the West County communities. Housing prices in West County are generally more affordable than along the San Francisco Peninsula and in the South Bay, although both housing prices and rents have been increasing rapidly since the end of the Great Recession (2008).

Working households in the Study Area are well-situated and concentrated along San Pablo Avenue and Interstate 80 and along the existing BART route to make use of existing and future transit in commuting to workplaces in the East Bay Corridors, San Francisco and (as BART service is extended) Silicon Valley.[1]

[1] The East Bay Corridors are defined by ABAG as the area between Rodeo and Union City, "organized around BART stations and multi-jurisdiction main streets served by existing or planned frequent bus service: San Pablo Avenue, International Boulevard, East 14th Street, and Mission Boulevard". From: PDA Implementation: East Bay Corridors memorandum from ABAG Regional Planning Director Miriam Chion and Senior Regional Planner Mark Shorett to the Regional Planning Committee, May 27, 2015.

Workplaces and jobs in the Study Area are not as tightly concentrated along San Pablo Avenue or I-80, reflecting in part the historical and ongoing importance of manufacturing and logistics jobs in and near the ports and refineries.

However, the fifteen Priority Development Areas (PDAs) within West County are defined both for transit effectiveness and anticipated as the focal points for future housing and job growth within the Study Area, anchored by the major development forecasts for the Richmond and Hercules PDAs under Plan Bay Area.

1.3 Population and Employment Forecasts

Projected future development in West County as envisioned under the Association of Bay Area Government's (ABAG) Plan Bay Area/Projections 2013 growth scenario is summarized in **Table1-1.** In percentage terms, West County projected growth in population and households from 2010 to 2040 are is similar to the projections for the Bay Area and somewhat higher than the percentage growth projected for the rest of the County. The West County percentage change in employed residents from 2010 to 2040 is similar to that for the rest of the County and the Bay Area, but the 36% growth in jobs for West County and the rest of Contra Costa County is larger than the 33% growth in jobs projected by ABAG for the Bay Area as a whole.[2]

Table 1-1 West Contra Costa County High Capacity Transit Study Area

	West County Study Area				Contra Costa County			
	2010	2040	# Change	Percent Change	2010	2040	# Change	Percent Change
Total Population	250,890	324,460	73,570	29%	1,049,030	1,338,400	289,380	28%
Households	88,540	111,310	22,770	26%	375,360	464,150	88,790	24%
Total Jobs	62,580	85,200	22,630	36%	344,920	467,390	122,470	36%
Employed Residents	104,710	139,350	34,640	33%	455,540	592,060	136,520	30%

Sources: ABAG Projections 2013; EPS

All of the 2010-2040 comparisons are complicated to the extent 2010 conditions were affected by unusually high rates of housing vacancy and unemployment following the Great Recession. More detailed explanations of projected growth in population, households, jobs and employed residents are provided in following sections of this memorandum, with breakdowns of projected growth by subarea and by type, and comparisons of the projected future of West County in relation to the future forecast for the rest of the County and the Bay Area.

[2] See also **Table 5-10.**

1.4 Factors Influencing Future Land Use Patterns

There are a variety of factors that will influence land use patterns in the West Contra Costa Study Area and the related travel demand and transit mode splits. These factors include large projects and industries within the Study Area and also more external factors:

- The timing and the manner in which the UC Global Campus to be located at the UC Richmond Field Station in Richmond develops over time; with a planned 5.5 million square feet of research and development space, the Campus would become the highest concentration of employment in the Study Area. The exact timing of Campus development remains uncertain.
- The future of the oil industry and its impact on Chevron Corporation operations in the Study Area; there are both potential for expansion (due to refining increasing quantities of North American-sourced crude oil) and contraction (due to corporate restructuring and centralization of operations). These changes to the extent they occur would affect employment levels and related commuting patterns.
- Development of the 15 Priority Development Areas (PDA) as designated by *Plan Bay Area* in the Study Area; a substantial portion of new development in the Study Area is projected by ABAG to occur in theses PDAs. While this development has been determined to be feasible over the next 25 years the actual level and timing of this development will remain uncertain.
- A major regional transportation improvement connecting Brentwood to Tracy, SR 239, could influence regional travel patterns including increased traffic flows on Highway 4 leading into the Study Area and perhaps improving access to the I-5 Corridor in the Central Valley. Ongoing goods movement studies and travel demand analysis will help determine the potential effects of SR 239, should it be implemented.
- The agency that operates the San Francisco Bay ferry system, the Water Emergency Transportation Authority (WETA) is planning to expand ferry service to the Study Area, first to Richmond and subsequently to Hercules. The ferry terminals, when operational, will become an attraction to commuters seeking to avoid the I-80 rush hour into San Francisco.

2 INTRODUCTION

This technical memorandum documents existing and future land-use conditions in the West County Study Area (Study Area) as defined for the West Contra Costa High-Capacity Transit Study (HCT Study). This discussion and documentation of land use conditions provides a broad overview of demographic, workforce, and land use conditions in the Study Area and also provides detailed small area data for use in subsequent travel demand and transit system specifications.

Following the Executive Summary and this Introduction section, are four sections presenting the land use changes envisioned from existing conditions as estimated for 2010 in the Study Area to future conditions projected at 2040 under the adopted ABAG Plan Bay Area and Projections 2013 growth scenario.

Section 3 provides a general overview of Study Area demographics and workforce in the context of Contra Costa County and the Greater Bay Area.

Section 4 provides a description of existing land use conditions on a Study Area sub-area basis.

Section 5 describes the methodology for allocating projections of future conditions to 2040 for the Study Area and the Bay Area, compliant with Projections 2013 and with the zone structure and input requirements of the CCTA transportation model. .

Section 6 identifies land use and transportation projects and activities that might affect development feasibility and market conditions within the Study Area which could cause actual changes in land use to differ from the future projected by Plan Bay Area/Projections 2013.

Section 7 summarizes the future land use conditions projected for the Study Area in 2040, comparing those conditions with projections for the rest of the County and the Bay Area region, and providing breakdowns within the Study Area by ABAG Sub-regional Study Area (SSA) and for the defined PDAs

Three attachments to the Technical Memorandum provide detailed methodological descriptions and data sets. **Attachment A** presents the detailed geographic description of the Study Area boundary. **Attachment B** presents the growth projections for the Study Area, Contra Costa County, and the Bay Area by decade (adding 2020 and 2030 to the 2010 and 2040 'bookend' Base Year and Horizon Year estimates and projections discussed in the body of the memorandum). **Attachment C** contains data dictionaries for the Regional Transportation Analysis Zone (RTAZ) and CCTA Traffic Analysis Zone (TAZ) datasets prepared for the CCTA, allocating Projections 2013 to the CCTA current transportation model zone structure and socioeconomic input requirements.

3 STUDY AREA CHARACTERISTICS AND REGIONAL CONTEXT

The West Contra Costa Study Area encompasses the western portion of Contra Costa County generally fronting on San Pablo Bay and the Carquinez Straight of the Sacramento River. The Study Area is characterized as an historical and ongoing location of waterfront industries, presently dominated by oil refining and shipping. Interstate 80 and the Union Pacific Mainline transect the full length of the Area and San Pablo Avenue provides a nearly continuous commercial corridor. Over the past century suburban communities have developed in West County, attracted by the local employment opportunities and the relatively easy commuting to more central portions of the Bay Area. In recent years the older suburban development has been augmented with new commercial and residential development taking advantage of vacant and underutilized sites and increasing demand for higher density development.

3.1 Demographic Characteristics

The West County resident population is both younger and significantly more diverse than the residents of the rest of Contra County and the Bay Area. The median age of West County residents at 37.7 years is about a year younger than in the rest of the County at about 38.9 and less than half a year less than the Bay Area median of 38.4 years.

In terms of population as classified by race for the 2010 decennial Census, Whites constitute 38% of West County residents, compared to 59% for Contra Costa County as a whole and 53% for the entire Bay Area Region. Asian and Black resident populations each account for approximately 19% of West County's total population, as compared to Asian population shares of 14% for Contra Costa County and 23% for the Bay Region, and Black population shares of 9% for the County and 7% for the region.

Educational attainment for West County residents is on average less than for the rest of the Bay Area, with about 80% of West County adult residents having graduated high school, compared to 89% for Contra Costa County as a whole or 86% for the Bay Area. This may explain in part why financial and professional service jobs in West County represent currently about 16% of total employment by place-of-work, while such jobs comprise 24% of total employment in the rest of Contra Costa County and about 23% of total jobs across the Bay Area.

West County still has a significantly higher percentage of residents with some college or higher educational achievement, at 62%, than the national average of 57%. Nascent plans for the emerging biotechnology industry cluster and for a new UC Berkeley World Global Campus at the Richmond Field Station location may improve opportunities for financial and professional service employment in West County in the future.

3.2 Housing Conditions

The historically high foreclosure rates and historically low housing starts circa 2010 make comparisons of housing prices at that time difficult to make. Current estimated median housing values in the Study Area range from $313,400 and $320,500 for San Pablo and Richmond to $715, 900 for El Cerrito, with most of the housing markets with the Study Area having median housing values less than the current Contra Costa County median of $493,700. Estimated housing values in the Study Area are significantly lower than the $738,000 estimated for the San Francisco Metro market area and offer a sharp contrast to the median housing value estimated for the City and County of San Francisco at $1,045,000.[3]

3.3 Workforce Composition

West County workers (i.e., those employed at local worksites) have current ratios of blue collar (33%) and white collar (67%) occupations similar to the County and the Bay Area ratios (both having about 32% blue collar and 68% white collar occupations). However, median household income in the Study Area, estimated at about approximately $64,900 in 2012, is well below the comparable estimates of median household incomes for Contra Costa County (about $80,000) or the Bay Area Region (about $78,100).

A breakdown of estimated 2010 jobs by type for the Study Area as compared to the rest of Contra County and the Bay Area region is provided in **Table 3-1**, with the percentage shares by job type within each geographic division shown in **Table 3-2**, and the percentage shares of regional jobs by type across all geographic divisions shown in **Table 3-3**. Each of these three tables provides separate breakdowns for the North American Industry Classification System NAICS-based job groupings currently used by ABAG and MTC, and the Standard Industrial Classification (SIC)-based groupings used by the CCTA in its current transportation demand model[4].

[3] Zillow, May 2015. The Zillow-defined San Francisco Metro market area includes the cities of San Francisco and San Mateo, Oakland, Berkeley, Concord, Fremont, San Leandro, Hayward and Antioch.

[4] For transportation modeling purposes, the most important difference between NAICS and SIC classification is the definition of 'Retail' jobs. The SIC classification system and the CCTA transportation model assigns 'Retail' sector coding to a larger selection of industries than does NAICS, most significantly to eating and drinking places and food services that the NAICS system assigns to Accommodation and Food Services, and ABAG and MTC assign to their models' Health, Educational and Recreational Services job group.

Table 3-1 Estimated 2010 Existing Jobs by Type, by Subregion

Classification Type/Group and Agencies Using	Study Area	Other CCC*	Total CCC*	Other Bay Area	Total Bay Area
North American Industry Classification System (NAICS)					
ABAG and MTC					
Agriculture and Natural Resources	160	830	990	23,620	24,620
Manufacturing, Wholesale and Transportation	10,350	26,480	36,830	522,050	558,880
Retail	8,750	35,690	44,430	291,520	335,950
Financial and Professional Services	10,260	66,410	76,670	706,130	782,800
Health, Educational and Recreational Services **	18,490	81,790	100,280	820,390	920,670
Other	14,580	71,120	85,700	676,700	762,400
OR					
Standard Industrial Classification (SIC)					
CCTA and Other Congestion Management Agencies					
Agriculture and Natural Resources	150	830	980	23,610	24,590
Manufacturing	5,750	14,250	20,000	345,830	365,830
Retail Trade **	12,400	50,580	62,980	457,430	520,410
Wholesale Trade	2,960	9,730	12,690	143,990	156,680
Services	21,380	106,360	127,740	1,200,180	1,327,920
Other	19,940	100,580	120,520	869,440	989,960
Total Jobs	**62,580**	**282,330**	**344,910**	**3,040,440**	**3,385,350**

*Contra Costa County

** Includes eating and drinking places (restaurants, café's, bars and taverns, etc.), and other food services (fast-food outlets, specialty snack shops, etc.)

Sources: ABAG Projections 2013; Plan Bay Area Draft Preferred Land Use Scenario; Applied Geographics Solutions; EPS

The difference between NAICS and SIC classifications of 'Retail' for the Projections 2013 estimates of 2010 Jobs as shown in **Table 3-1** is estimated at more than 40% for the Study Area and Contra Costa County, and approximately 55% for the entire Bay Region, which has higher-than-national-average concentrations of restaurants, convenience- and specialty-food outlets, and food service providers. As the trip-generation factors for retail sites are relatively high, it is crucial that the input of retail jobs to transportation models matches the NICS or SIC typology each individual model was designed to use.

Table 3-2 Percentage Distribution of 2010 Existing Jobs by Subregion

Classification Type/Group and Agencies Using	Study Area	Other CCC*	Total CCC*	Other Bay Area	Total Bay Area
North American Industry Classification System (NAICS)					
ABAG and MTC					
Agriculture and Natural Resources	0%	0%	0%	1%	1%
Manufacturing, Wholesale and Transportation	17%	9%	11%	17%	17%
Retail	14%	13%	13%	10%	10%
Financial and Professional Services	16%	24%	22%	23%	23%
Health, Educational and Recreational Services **	30%	29%	29%	27%	27%
Other	23%	25%	25%	22%	23%
OR					
Standard Industrial Classification (SIC)					
CCTA and Other Congestion Management Agencies					
Agriculture and Natural Resources	0%	0%	0%	1%	1%
Manufacturing	9%	5%	6%	11%	11%
Retail Trade **	20%	18%	18%	15%	15%
Wholesale Trade	5%	3%	4%	5%	5%
Services	34%	38%	37%	39%	39%
Other	32%	36%	35%	29%	29%
Total Jobs	**100%**	**100%**	**100%**	**100%**	**100%**

*Contra Costa County

** Includes eating and drinking places (restaurants, café's, bars and taverns, etc.), and other food services (fast-food outlets, specialty snack shops, etc.)

Sources: ABAG Projections 2013; Plan Bay Area Draft Preferred Land Use Scenario; Applied Geographics Solutions; EPS

As shown in **Table 3-2**, the percentage share of retail jobs in the Study Area was about 14% (NAICS) or 20% (SIC) of total jobs circa 2010, slightly higher than the corresponding percentage shares in the rest of Contra Costa County and significantly higher than the corresponding percentage shares for the rest of the Bay Area. The proportion of Study Area jobs in Agriculture and Natural Resources industries (including mining but not petrochemical processing) was, like Contra Costa County overall, lower than the Bay Area average, but these industries generally represent only about a 1% share of regional employment. Manufacturing, Wholesale and Transportation industries in the Study Area represent a larger share of local total jobs then in the rest of Contra Costa County and are more similar overall to the shares in the rest of the Bay Area. Service industry employment overall represents a lower share of local total jobs in the Study Area than in the rest of the County or the Bay Region, but the NAICS breakout shows a significant distinction within Services by industrial sector. The Study Area has a larger share of its local jobs in Health industries than does the rest of the County or Bay Region, but this is offset by the significantly lower proportion of Study Area jobs in the Financial and Professional Services sectors.

Table 3-3 Percentage Distribution of 2010 Existing Jobs across Bay Area, by Type

Classification Type/Group and Agencies Using	Study Area	Other CCC*	Total CCC*	Other Bay Area	Total Bay Area
North American Industry Classification System (NAICS)					
ABAG and MTC					
Agriculture and Natural Resources	1%	3%	4%	96%	100%
Manufacturing, Wholesale and Transportation	2%	5%	7%	93%	100%
Retail	3%	11%	13%	87%	100%
Financial and Professional Services	1%	8%	10%	90%	100%
Health, Educational and Recreational Services **	2%	9%	11%	89%	100%
Other	2%	9%	11%	89%	100%
OR					
Standard Industrial Classification (SIC)					
CCTA and Other Congestion Management Agencies					
Agriculture and Natural Resources	1%	3%	4%	96%	100%
Manufacturing	2%	4%	5%	95%	100%
Retail Trade **	2%	10%	12%	88%	100%
Wholesale Trade	2%	6%	8%	92%	100%
Services	2%	8%	10%	90%	100%
Other	2%	10%	12%	88%	100%
Total Jobs	**2%**	**8%**	**10%**	**90%**	**100%**

*Contra Costa County

** Includes eating and drinking places (restaurants, café's, bars and taverns, etc.), and other food services (fast-food outlets, specialty snack shops, etc.)

Sources: ABAG Projections 2013; Plan Bay Area Draft Preferred Land Use Scenario; Applied Geographics Solutions; EPS

Overall and as shown in **Table 3-3**, the Study Area contained only about 2% of the Bay Region's jobs circa 2010, but contained more than 3.2% of the Bay Region's employed residents. This is explored in more detail in **Section 4** of this report. The Study Area has historically been and is now a net exporter of workforce to the Bay Region. As discussed in **Section 5** of this report, Plan Bay Area projections forecast some improvement to 'Jobs-Housing' balance for the Study Area by 2040.

3.4 Major Industries

The ports along the Study Area shoreline include the Port of Richmond, Northern California's most diversified cargo handler and the State of California's third-largest port in terms of total tonnage moved. The Port of Richmond ranks first among all San Francisco Bay ports in liquid bulk shipping (particularly petrochemicals) and automobile tonnage handled. The Port is also the site of Eagle Rock Aggregates receiving, storage, and distribution facility, currently permitted to handle up to 1.5 million tons of construction aggregates per year. Eagle Aggregates is a subsidiary of Polaris Materials Corporation, the principal source of high-quality Canadian construction aggregates for the Bay Area and California.

The Port of Richmond's strong petrochemical shipping status is a reflection of the major importance of oil refineries and related industries in the West County. Chevron Corporation, the largest corporation in the Bay Area, is also the largest employer for all of West Contra Costa County, and in the city of Richmond. Chevron's world headquarters is located in San Ramon and its major refinery at Point Richmond has been in operation for more than a century. With the Phillips 66 refinery in Rodeo and other refinery and petrochemical establishments, West County oil-related industries are of importance not only in the Bay Area and for the West Coast, but nationally.

Biomedical industries also have a significant and growing presence in West County, with existing employers such as Bio-Rad in Hercules and Sangamo Biosciences in the Point Richmond Tech Center II.

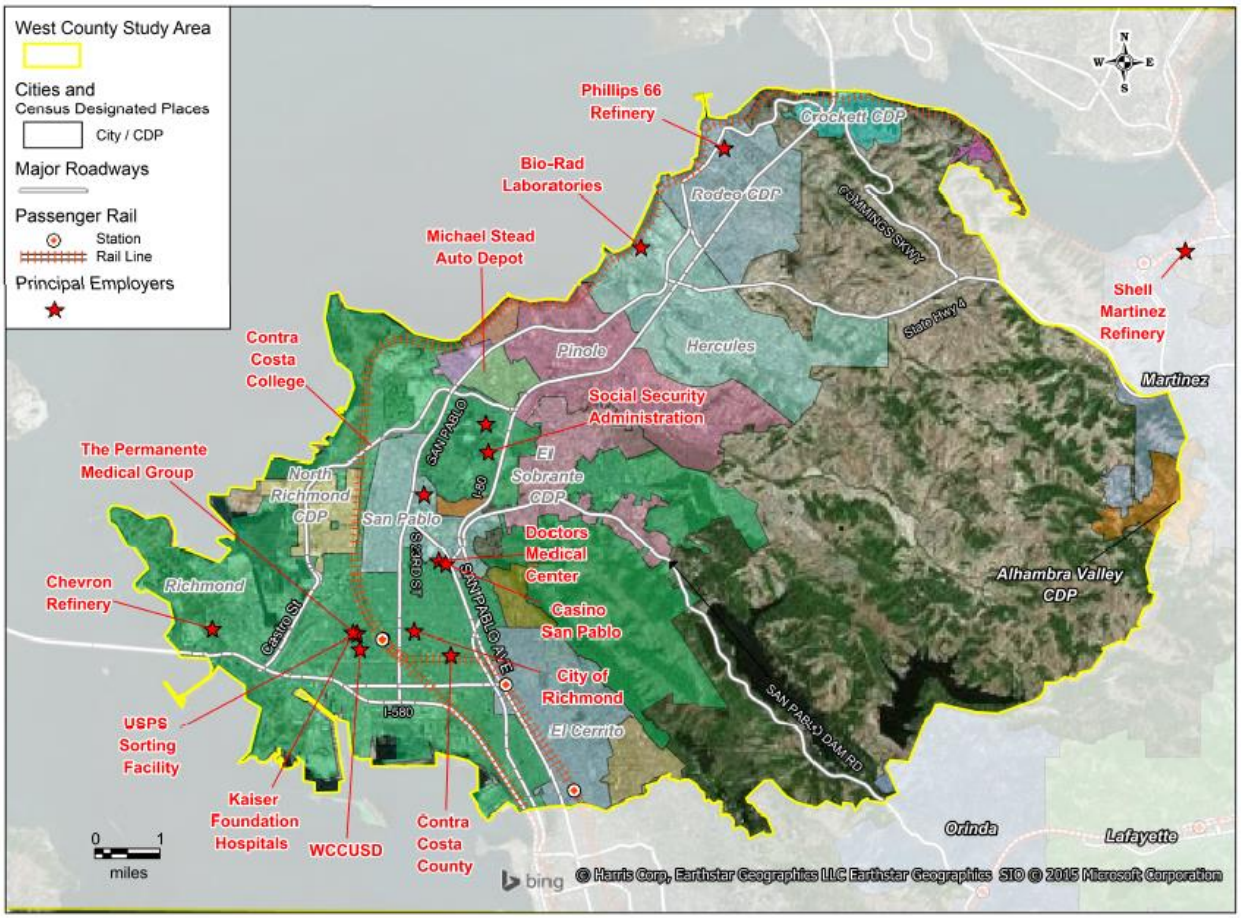
Principal employers, i.e., those employing the largest number of workers at workplaces in and near the Study Area, are listed in **Table 3-4.** The locations of these principal employers are shown in **Figure 3-1**.

Table 3-1 Principal Employers in and near the Study Area

Employer	Employees (Local, est.)	City
Chevron Corp	3,500	San Ramon
Chevron Refinery	2,190	Richmond
Bio-Rad Laboratories Inc	1,720	Hercules
West Contra Costa Unified School District (WCCUSD)	1,580	Richmond
Social Security Administration	1,260	Richmond
U.S. Postal Service Sorting Facility	1,050	Richmond
Doctors Medical Center	990	San Pablo
Contra Costa County	840	Richmond
City of Richmond	780	Richmond
Contra Costa College	770	San Pablo
Shell Martinez Refinery	700	Martinez
The Permanente Medical Group	690	Richmond
Tesoro Golden Eagle Refinery	650	Pacheco
Casino San Pablo	490	San Pablo
Michael Stead Auto Depot and Sales	470	Richmond
Phillips 66 Refinery	450	Rodeo
Kaiser Foundation Hospitals	430	Richmond

Sources: California Employment Development Department (EDD) ; San Francisco Business Journal Book of Lists; Hercules, Richmond and San Pablo Comprehensive Annual Financial Reports (CAFR); Employer Web Sites; EPS

Figure 3-1 Principal Employers in and near the Study Area



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Given the logistics and goods-movement advantages of its ports, the major freight-movement connections via rail and by truck via I-580 and I-80 and State Route 4, and the Richmond-San Rafael and Carquinez bridges, it is not surprising that the West County has a larger percentage of local jobs in the manufacturing sector, 9% (SIC), than the rest of Contra Costa County, 5% (SIC – see **Table 3-2**). Grouped together with the wholesale and transportation sectors, these jobs account for about 17% (NAICS) of West County total employment by place-of-work, approximately the same ratio as for the Bay Area region as a whole.

While some shift from manufacturing, wholesale, and transportation employment to service occupations is anticipated for West County as a function of societal, economic, and technology trends active at the national and regional levels, the strong positions and locational advantages of manufacturing and allied industries within West County indicate these sectors will continue to grow in absolute employment numbers and retain much of their current share of the local economy.

3.5 Retail and Commercial Services

The Study Area generally has ample retail, food service and restaurants and business and professional services located within each of the jurisdictions. Hilltop Shopping Center provides traditional regional shopping opportunities drawing customers from with the Study Area and beyond. Smaller sub-regional centers exist in Pinole (Pinole Vista Shopping Center) and El Cerrito (El Cerrito Plaza). The San Pablo Corridor for much of its length provides a range of community and neighborhood shopping centers along with service commercial and auto-related services. Study Area average asking rent per square foot of retail space was estimated at about $24.50 circa the third quarter of 2014, lower than the approximately $30.80 retail asking rent price in Central Costa County to the east or the approximately $26.60 asking rental price per square foot of retail space in the Oakland and Alameda areas to the south. The average asking rent for the East Bay (generally understood to include Alameda and Contra Costa Counties) retail space was about $20.70, and for the San Bay Area about $25.15.

4 EXISTING LAND USE PATTERN

4.1 Sources and Organization of Existing Conditions Data

Existing land use condition estimates for the West County Study Area discussed in this memorandum are for the Year 2010, which is the Base Year for *Plan Bay Area* and *Projections 2013* and is also the Base Year for the current CCTA transportation demand model. While the conditions in 2010 are largely based upon the decennial census of 2010, additional information derived from more recent estimates is available from the Census Bureau and the California Department of Finance.[5] The Base Year 2010 job estimates for the Study Area and surrounding Bay Area are based upon multiple sources, including the detailed National Establishment Times-Series (NETS) database, and provide the most recent set of well-founded estimates of existing employment by place-of-work.

The Projections 2013 2010 demographic data (population and households) estimates were taken directly from the U.S. Census. The Projections 2010 employment estimates were derived from California County-Level Economic Forecast, 2011-2040 California Department of Transportation; Bay Area Job Growth to 2040: Projections and Analysis, Center for Continuing Study of the California Economy; 1989-2009 National Establishment Times-Series (NETS) Database, Walls & Associates using Dun and Bradstreet data; and labor force data from U.S. Bureau of Labor Statistics and the U.S. Census Bureau's 2005-2009 American Community Survey.[6]

In allocating MTC Regional Traffic Analysis Zone (RTAZ)-level population and household tabulations for 2010 to the smaller CCTA Traffic Analysis Zones (TAZs, Census 2010 block counts were used and where necessary, reference was made to overlays of Census 2010 block maps on recent satellite photography integrated with a desktop GIS platform. In order to assure consistency between the RTAZ level geography and the smaller CCTA TAZ geography, a method for sub-allocating the data was used. In this case the allocation of RTAZ-level employment (jobs by place of work) for 2010 to smaller CCTA TAZ zones was accomplished by proportionately distributing employment based on the CCTA Current Regional Plans Scenario developed in 2011 by CCTA. This employment allocation process also required the conversion of NAICS-based

[5] United States Census Bureau: American Community Survey 1-Year Estimates for 2011 to 2013, 3-Year Estimates 2011-2013, and 5-Year Estimates 2009-13; California Department of Finance, Demographic Research Unit: E-5 Population and Housing Estimates for Cities, Counties, and the State, 2010-2015.

[6] ABAG Projections 2013 Bay Area Regional Projections Summary Table

grouping of jobs as used by ABAG and MTC to the SIC-based grouping of jobs used by CCTA for the CMA transportation demand model[7].

4.2 Existing Conditions in the Bay Region Context

The West County Study Area resident population was approximately 250,890 persons in 2010, occupying about 88,540 households. As shown in **Table 4-1** and **Table 4-2,** the Study Area accounted for nearly 24% of the total population and households in Contra Costa County, about 3.5% of the Bay Area's total population and about 3.4% of Bay Area households in 2010.

The Study Area had about 62,575 jobs in 2010, and an estimated 104,710 employed residents, suggesting a net outflow of working commuters to workplaces outside the Study Area. Among other sources, this net outflow of Study Area workforce to external jobsites is confirmed by Quarterly Workforce Indicator data.[8] This net outflow of workers is typical of the Bay Area's suburban communities.

The Study Area accounted for about 18% of Contra Costa County jobs in 2010, and nearly 24% of the County's employed residents. In the Bay Area context, the Study Area held slightly less than 2% of the region's jobs and slightly more than 3% of its employed workforce. Measures of existing 'Jobs-Housing Balance' (see **Table 4-3**) indicate the Study Area has a higher ratio of persons per household than does the County or the entire Bay Area. The Study Area and Contra Costa County on average had about 7% lower average ratios of employed workers per household than the rest of the Bay Area. Estimates of employed residents for 2010 may be skewed due to the impacts of the Great Recession.

The ratio of local jobs per employed resident is a better indicator of pressures for commute inflow or outflow than the ratio of local jobs per household over time, because local labor participation rates and average workers per household are not constant from household to household or across communities or neighborhoods. In areas having concentrations of younger adults and fewer children and elders, and where shelter costs are high in relation to personal

[7] NAICS-to-SIC conversions were accomplished using a conversion matrix derived from census block-group-level and block-level estimates of existing Bay Area jobs by detailed NAICS and SIC classifications, licensed from Applied Geographic Solutions and the Tetrad Corporation and processed by EPS.

[8] Quarterly Workforce Indicator (QWI) indicator data provided by the Local Employment Dynamics (LED) Partnership and managed, processed and made available by the Census Bureau indicates about 82% of all employed workers residing in the Study Area circa 2010 were employed outside of the Study Area, and approximately 67% of Study Area jobs were held by workers living outside of the Study Area. Source: LODES data and the interactive OnTheMap data retrieval tool; EPS.

incomes, there may be multiple workers living in many or most households, with the average number of employed residents significantly greater than 1.0.

In retirement communities, or neighborhoods with concentrations of senior homes, seasonal housing, or second homes, the average number of employed residents per household may be less than 1.0, which is the implicit 'balance' point (i.e., having one job per each household, with

Table 4-1 Study Area comparison with 2010 Existing Regional Land Use and Demographics

	Study Area	Other CCC	Total CCC	Other Bay Area	Total Bay Area
Total Population	250,890	798,160	1,049,040	6,101,700	7,150,740
Households	88,540	286,820	375,360	2,232,660	2,608,020
Total Jobs	62,580	282,330	344,900	3,040,410	3,385,310
Employed Residents	104,710	337,590	442,300	2,826,420	3,268,730

Sources: ABAG Projections 2013; Plan Bay Area Draft Preferred Land Use Scenario; EPS

Table 4-2 Study Area Share of 2010 Existing Regional Land Use and Demographics

	Study Area	Other CCC	Total CCC	Other Bay Area	Total Bay Area
Total Population	3.5%	11%	15%	85%	100%
Households	3.4%	11%	14%	86%	100%
Total Jobs	1.8%	8%	10%	90%	100%
Employed Residents	3.2%	10%	14%	86%	100%

Sources: ABAG Projections 2013; Plan Bay Area Draft Preferred Land Use Scenario; EPS

Table 4-3 Comparable Measures of "Jobs-Housing Balance" in 2010

	Study Area	Other CCC	Total CCC	Other Bay Area	Total Bay Area
Total Persons per Household	2.83	2.78	2.79	2.73	2.74
Local Jobs per Household	0.71	0.98	0.92	1.36	1.30
Local Jobs per Employed Resident	0.60	0.84	0.78	1.08	1.04
Employed Residents per Household	1.18	1.18	1.18	1.27	1.25

Sources: ABAG Projections 2013; Plan Bay Area Draft Preferred Land Use Scenario; EPS

all households averaging one employed resident) assumed in the jobs-households ratio measure. In a 2008 presentation, the California Planning Roundtable described the jobs per employed resident ratio as "[G]enerally superior to the other two measures described [Jobs-households ratio and Jobs-housing units ratio], and is easier to understand because parity can

be expressed as a one-to-one ratio, i.e., one local job to one local worker, notwithstanding that there will be a small proportion of multiple job holders."[9]

For West County the local jobs per employed residents was 0.60 in 2010, indicating a high level of out-commuting. This ratio was lower than it was for the rest of Contra Costa County at 0.84 and for the Bay Area as a whole, which at 1.04 shows a net in-commute. The Study Area, and to a somewhat lesser degree, the rest of Contra Costa County, are net exporters of workforce to the rest of the Bay Area. The Bay Area as a whole is a net importer of workforce from the surrounding region. Major Bay Area job centers such as San Jose, San Francisco and Oakland and job corridors such as Silicon Valley and the East Bay Corridor between Rodeo and Union City attract workers not only from nearby areas like West Contra Costa County, but also attract long-distance commuters who reside outside of the nine-County Bay Region.

4.3 Existing Conditions by West County Subareas

The Subregional Study Areas (SSA) of the Bay Area are defined by ABAG and in general correspond to or approximate the Local Agency Formation Commission (LAFCO) Spheres of Influence (SOI) for land use planning. SSA boundaries do not typically conform well to MTC Regional Travel Analysis Zones, and may not always correspond to whole elements of Census geography, but do represent "the probable ultimate physical boundaries and service area of a local agency." As the incorporated limits of cities and towns change relatively often, ABAG uses SSAs to present its growth projections in a form that will have consistent boundaries over time.

The West County Study Area encloses the El Cerrito, Hercules, Pinole, Richmond, Rodeo-Crockett and San Pablo Subregional Study Areas entirely, and also encloses a large portion of the Contra Costa Remainder SSA and a small piece of the Martinez SSA[10] (See also **Attachment A, Figure A-2.**)

The core measures of existing conditions in the Study Area -- Total Population, Total Households, Total Jobs, and Employed Residents, are shown by Subregional Sub Area (SSA) in **Table 4-4** and **Table 4-5.**[11] **Table 4-4** also shows the ratios of Total Persons per Household, Local Jobs per Household, Local Jobs per Employed Resident and Employed Residents per Household.

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[9] *Deconstructing Jobs-Housing Balance*, California Planning Roundtable, December 2008, Page 8.

[10] The small section of the Martinez SSA represents a negligible share of existing and anticipated future development for the Study Area, and is therefore not explicitly broken out in the analysis or summary tables for this report.

[11] ABAG Subregional Study Area boundaries in the Study Area generally represent local jurisdictions' Spheres of Influence, but do not always nest neatly with RTAZ or TAZ boundaries, or with Census 2010 geography. EPS in this

The Richmond subarea currently accounts for approximately half of the Study Area's population, households and employed residents and nearly 60% of the Study Area's jobs (see **Table 4-5**) While the ratio of the Richmond subarea jobs per employed resident in 2010 was about 0.74, actual worker inflow and outflow are proportionally higher. Only about 12% of employed residents living in the Richmond subarea also worked there circa 2010, and only about 17% of all jobs located in the Richmond subarea employed residents living in that subarea[12]. As is typical in the Bay Area, the commute origins and destinations of Richmond subarea workers and employed residents are characterized by multiple significant cross-county flows.

The Quarterly Workforce Indicators QWI data for 2010 indicate percentage shares for Richmond subarea residents commuting to workplaces in Contra Costa and Alameda Counties were both around 27%, with approximately 17% commuting to San Francisco. In comparison, QWI data for 2010 indicate approximately 43% of Richmond subarea jobs were held by Contra Costa County residents, with about another 17% of Richmond's jobs employing workers commuting from Alameda County.

While the Study Area as a whole has an average household size (total persons-per-household ratio) higher than that of the rest of Contra Costa County or the Bay Area (See **Table 4-3**), there is significant variation of this ratio across the Study Area, as shown in **Table 4-4**, with the El Cerrito subarea having the lowest average household size and San Pablo the highest. There is also significant variation in the average number of employed residents per household, with the El Cerrito subarea again having the lowest ratio in the Base Year 2010, but the Hercules subarea having the highest.[13]

With the Chevron refinery in Richmond and the Phillips 66 refinery in Rodeo, and bioscience companies such as Bio-Rad in Hercules and Sangamo Biosciences in the Point Richmond Tech Center II, the West County Study Area had a larger percentage of local jobs in the manufacturing sector circa 2010 than the rest of Contra Costa County (see **Table 3-2**). Grouped together with the wholesale and transportation sectors (NAICS), these jobs account for about

memorandum has estimated SSA characteristics as aggregates of the nearest-fit corresponding whole CCTA TAZs, and the results may therefore vary from estimates in other summaries of Plan Bay Area and Projections 2013.

[12] Quarterly Workforce Indicators (QWI) data from the Bureau of Labor Statistics and the Census Bureau

[13] Care must be taken in evaluating 2010 employment and jobs data, as the Bay Area was just beginning to come out of the Great Recession at that time, and job reductions and unemployment rates were both high and unevenly distributed.

Table 4-4 2010 Existing Land Use and Demographics by SSA within Study Area

Subregional Study Area	2010 Existing Conditions				Total Persons per Household	Local Jobs per Household	Local Jobs per Employed Resident	Employed Residents per Household
	Total Population	Households	Total Jobs	Employed Residents				
El Cerrito **	29,060	12,600	6,310	13,140	2.31	0.50	0.48	1.04
Hercules **	23,890	8,060	4,450	11,070	2.96	0.55	0.40	1.37
Pinole **	27,940	9,770	7,260	11,750	2.86	0.74	0.62	1.20
Richmond **	123,190	43,080	36,830	50,000	2.86	0.85	0.74	1.16
Rodeo-Crockett **	12,080	4,490	2,000	5,540	2.69	0.45	0.36	1.23
San Pablo **	33,340	10,000	5,590	12,540	3.34	0.56	0.45	1.26
County Remainder (Portion)	1,400	550	150	670	2.56	0.27	0.22	1.21
Total	**250,890**	**88,540**	**62,580**	**104,710**	**2.83**	**0.71**	**0.60**	**1.18**

**Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations; may differ from figures in other analyses and reports.

Sources: ABAG Projections 2013; Plan Bay Area Draft Preferred Land Use Scenario; EPS

Table 4-5 Distribution of Study Area 2010 Demographics by SSA

Subregional Study Area	2010 Existing Conditions			
	Total Population	Households	Total Jobs	Employed Residents
El Cerrito **	12%	14%	10%	13%
Hercules **	10%	9%	7%	11%
Pinole **	11%	11%	12%	11%
Richmond **	49%	49%	59%	48%
Rodeo-Crockett **	5%	5%	3%	5%
San Pablo **	13%	11%	9%	12%
County Remainder (Portion)	1%	1%	0%	1%
Total	**100%**	**100%**	**100%**	**100%**

**Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations

Sources: ABAG Projections 2013; Plan Bay Area Draft Preferred Land Use Scenario; EPS

17% of the Study Area's total employment by place-of-work, approximately the same ratio as for the Bay Area region as a whole.

Study Area Manufacturing, Wholesale and Transportation jobs account for only about 2% of the Bay Region's total jobs (see **Table 3-3**), but as is reflected in the future land use projections discussed in the following section of this memorandum, these sectors are forecast to remain relatively strong in the Study Area between 2010-2040, in comparison to the overall trend in the rest of the Bay Region, where the number of actual jobs in these sectors are projected to grow at a slower rate and the percentage of these jobs in the mix of total employment is projected to decline more in proportion.

The Study Area's many hospitals, health-related service establishments and schools, as well as eating and drinking places, food service outlets, and hotels and motels account for about 30% of total jobs, a slightly higher ratio than for the rest of Contra Costa County, which in turn has a somewhat higher share, about 29%, of total jobs in these sectors than does the Bay Area as a whole, at about 27%. With the aging of the Boomer population and societal trends for the consumption of more foods not prepared at home, jobs in the Health, Education and Recreational Services group (NAICS) are projected to increase in both actual number and as a percentage of total jobs across the Bay Area over time.

Financial and Professional Service jobs (NAICS) in the Study Area represent a lower share of total jobs, at about 16%, than such jobs in the rest of Contra Costa County, at about 24%, or than in the total Bay Area region, at about 23%. This difference may be attributable in part to the relatively lower average educational attainment level of Study Area residents, 62% having any college or higher education, compared to 69% for all Contra Costa County residents or 68% of all Bay Area residents. However, residents of the Bay Area region and in the Study Area have average college or higher education achievement rates higher than the national average, which is about 57% of persons over 18 years of age.

4.4 Employment Density and Distribution in the Study Area

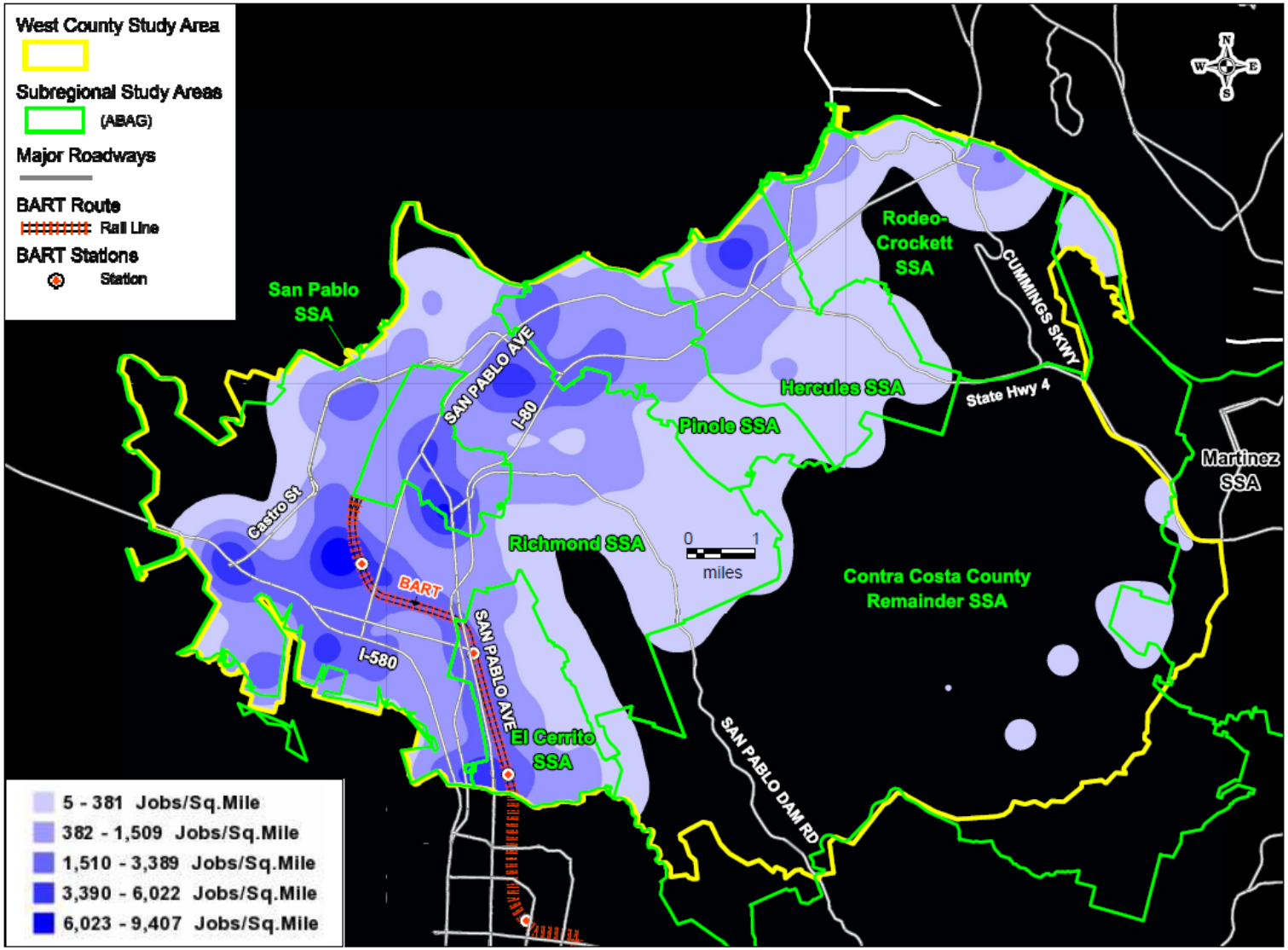
While **Table 4-4** and **Table 4-5** provide a general overview of the distributions of population and jobs within the Study Area, they do not convey the challenges posed or opportunities offered in serving Study Area workplaces and residents by transit.

As shown in **Figure 4-1**, the Study Area has multiple employment centers dispersed all along San Pablo Avenue and Interstate 80, with some workplace 'hot-spots' in locations not easily "walkable" from either route, for example, the Chevron Refinery which is located just north of I-580 in Richmond. The five levels of blue thermal overlay in **Figure 4-1** represent estimated employment densities in the Study Area ranging from 5-381 jobs per square mile (the lightest blue thermals) to 6,023-9,407 jobs per square mile (the darkest blue thermals).[14]

Providing workplace-oriented transit service in contexts like the Study Area, with many relatively low-density job centers distributed along multiple corridors at varying distances from one another is much more challenging than in an area like San Francisco, which has the vast majority of its jobs concentrated in the financial district and along the parallel Market, Mission and Howard Streets corridor, as shown in **Figure 4-2**.

[14] Thermals as produced via OnTheMap and LODES data for All Workers and All Jobs in the Study Area circa 2011.

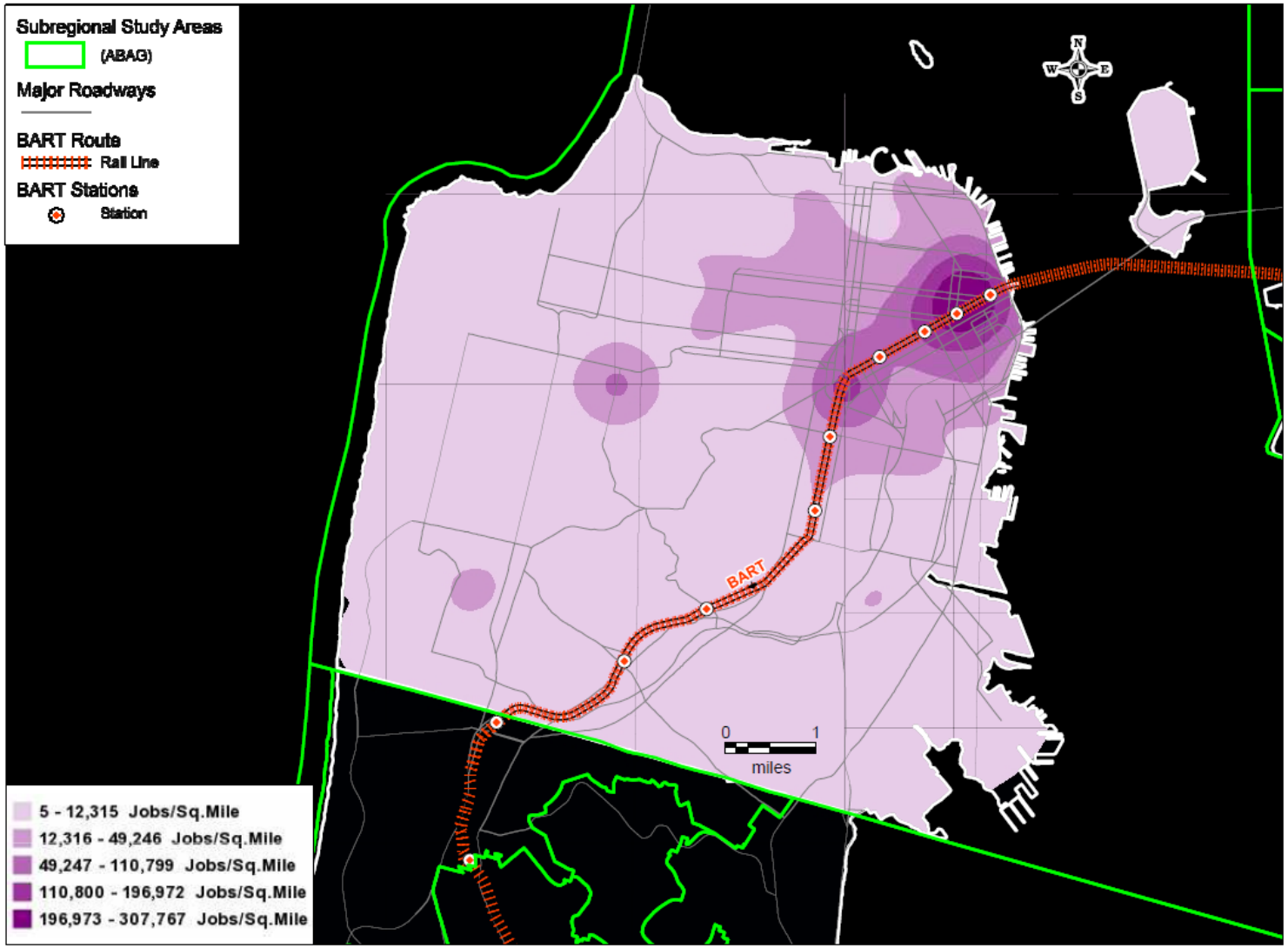
Figure 4-1 Job Density 'Heat Map' for the Study Area



Green: SSAs; Gray: Major Roadways; Orange Rail: BART; Blue: Job Centers; Yellow: Study Area Boundary *P:\141000s\141187WCCTAC_HighCapacityTransit\MapsMapInfo\Figure 6.1rev.wor*

Source: U.S. Census LEHD Origin-Destination Employment Statistics, OnTheMap Work Area Profile, 2011 LODES dataset; EPS

Figure 4-2 Job Density 'Heat Map' for San Francisco



Green: SSAs; Gray: Major Roadways; Orange Rail: BART; Purple: Job Centers *P:\141000s\141187WCCTAC_HighCapacityTransit\Maps\MapInfo\Figure 6.2rev.wor*

Source: U.S. Census LEHD Origin-Destination Employment Statistics, OnTheMap Work Area Profile, 2011 LODES dataset; EPS

For comparative purposes, the five levels of purple thermal overlay in **Figure 4-2** all fall well with the lowest range of estimated employment densities in San Francisco. The San Francisco densities range from 5-12,315 jobs per square mile (the lightest blue thermals) to 196,973-307,767 jobs per square mile (the darkest blue thermals)[15]. If expressed at the same scales, the highest job densities for the Study Area as shown in **Figure 4-1** could all be shown in the lowest density thermal band used for San Francisco in **Figure 4-2**.

The kind of hub and spoke transit network that can deliver commuting workers to the concentrated San Francisco employment center is suited to the distribution and concentration of the Study Area's employed residents along San Pablo Avenue and Interstate 80, as shown in **Figure 4-3**. The five levels of blue thermal overlay in **Figure 4-3** represent estimated employed resident densities in the Study Area ranging from 5-263 resident workers per square mile (the lightest maroon thermals) to 4,141-6,467 resident workers per square mile (the darkest maroon thermals).[16]

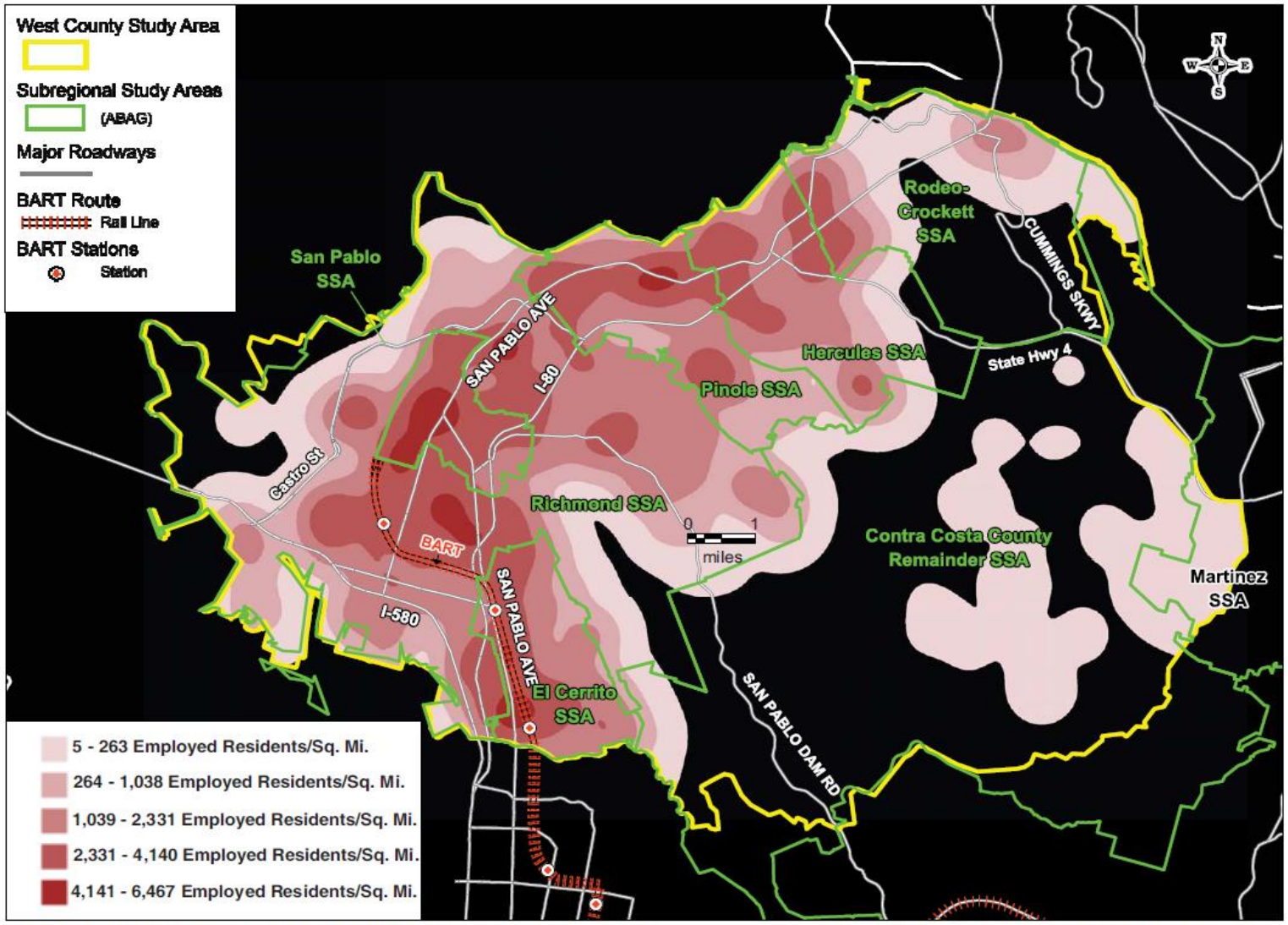
The proximity and concentration of employed residents of West County to the BART routes is important, as the neighborhoods around the existing BART stations in El Cerrito and Richmond have a shorter transit ride to central San Francisco than most neighborhoods in that city, and because extension of BART service to Silicon Valley will increase Study Area Access to regional jobs and attractions.[17]

[15] Thermals as produced via OnTheMap and LODES data for All Workers and All Jobs in San Francisco circa 2011

[16] Thermals as produced via OnTheMap and LODES data for All Workers and Primary Jobs in the Study Area circa 2011

[17] *East Bay Corridors Initiative: Context and Priorities (Draft)*, Association of Bay Area Governments, June 2015

Figure 4-3 Employed Resident 'Heat Map' for the Study Area



Green: SSAs; Gray: Major Roadways; Orange Rail: BART; Maroon: Job Centers; Yellow: Study Area Boundary *P:\141000s\141187WCCTAC_HighCapacityTransit\Maps\MapInfo\Figure 6.3rev2.wor*

Source: U.S. Census LEHD Origin-Destination Employment Statistics, OnTheMap Home Area Profile, 2011 LODES dataset; EPS

5 PROJECTED FUTURE LAND USE

For purposes of this analysis, the assumed amounts and distribution patterns for future land-use changes conform to the ABAG Plan Bay Area/Projection 2013 forecasts.[18] The CCTA TAZ allocations of the Final Plan Bay Area and Projections 2013 existing condition estimates and projected future growth were conducted to be as consistent as effectively possible with Census 2010 population and housing counts and with source authority tabulations at the RTAZ and PDA levels. Following the delivery of the draft and final Plan Bay Area/Projections 2013 allocations in May 2014, the allocation tables were assembled and tested in the CCTA transportation model.

An overview of the Plan Bay Area/Projections 2013 growth projections for the Study Area from 2010 to 2040 is shown in **Table 5-1.** Total population is projected to grow by about 73,570 residents or 29%, from approximately 250,890 persons in 2010 to approximately 324,460 by 2040. Households or occupied dwelling units are projected to increase a bit less than population, with 26% or about 22,770 new households by 2010. The lower proportional increase in households reflects the assumption that historically high vacancy rates for Bay Area housing in 2010, following the collapse of the Housing Bubble and in the wake of many foreclosures, will decrease as existing vacant units are occupied.

The Plan Bay Area and Projections 2013 growth projections were allocated to the county Traffic Analysis Zones (TAZ) required for input to the CCTA's current transportation demand model in late May and early June of 2014. As the Congestion Management Agency, the CCTA staff has continued to manage ongoing adjustments to growth projections at the TAZ level to comply with Plan Bay Area and Projections 2013 control totals.[19]

[18] The CCTA has an alternate growth scenario, the Current Regional Plans (CRP) scenario, which was originally defined prior to Plan Bay Area (as the CCTA P-2011 Scenario) and which has subsequently been updated by EPS to share a common set of Base Year 2010 existing condition estimates with the CCTA allocated version of Projections 2013. CCTA has made TAZ-level comparisons of both the original P-2011 scenario and the current P-2013 scenario available for review as KML (Keyhole Markup Language or 'Google Earth') files on the CCTA Land Use Information System (LUIS) web page: http://www.ccta.net/_resources/detail/17/1

[19] EPS

Table 5-1 West Contra Costa County Study Area Demographic Change Projections

	West County Study Area				Contra Costa County			
	2010	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2040	# Change 2010-2040	Percent Change 2010-2040
Total Population	250,890	324,460	73,570	29%	1,049,030	1,338,400	289,380	28%
Households	88,540	111,310	22,770	26%	375,360	464,150	88,790	24%
Total Jobs	62,580	85,200	22,630	36%	344,920	467,390	122,470	36%
Employed Residents	104,710	139,350	34,640	33%	455,540	592,060	136,520	30%

Sources: ABAG Projections 2013; EPS

Total jobs in the Study Area are projected to grow by about 36% or 22,630, increasing from about 62,575 total jobs circa 2010 to about 85,200 by 2040. The projected proportional increase in Study Area jobs between 2010 and 2040 is greater than the 33% increase in employed residents living in the Study Area over the same interval; about 34, 640 more employed residents for a projected total of 139, 250 by 2040 than the 104,710 estimated for 2010.

More detailed discussion of this brief overview of projected changes in West County Study Area land use is provided later in this memorandum.

5.1 Source Authorities for Allocating Growth Projections

The employment data base was developed by assembling an RTAZ source authority for the Base Year 2010 which combines Employment and Employed Residents RTAZ data from the *Plan Bay Area Draft Preferred Land Use Scenario* datasets with population and housing RTAZ data from the 2013 RTP\SCS Focused Growth Scenario obtained from the MTC/ABAG Analytical Modeling Wiki. The substitution of the Draft Preferred Land Use Scenario Employment and Employed Residents estimates brings the 'hybrid' Base Year 2010 source authority numbers into compliance with the adopted Plan Bay Area and with published Projections 2013 regional and county-level summary tables.[20]

Within RTAZ boundaries, the proportional distribution of 2010-2040 future growth projected among the contained TAZs by the CCTAs P-2011 growth scenario was used to apportion the

[20] The2013 RTP\SCS Focused Growth Scenario RTAZ dataset on the Analytical Modeling Wiki represents an earlier working scenario for 2010 than the adopted Plan Bay Area RTAZ datasets that are in the same Data Depository for the years 2015 – 2040. While the Focused Growth Scenario had effectively identical regional estimates for total employed residents and jobs, the detailed spatial distributions assumed for those Focused Growth Scenario estimates differed from the adopted Plan Bay Area and Projections 2013 at the county level and below. After discussions with ABAG and MTC staff and following direction from the CCTA, EPS assembled a new 'hybrid' RTAZ dataset as described.

initial allocations of RTAZ growth projected by Projections 2013.[21] Where individual CCTA TAZs did not nest completely within an RTAZ boundary, the boundaries were adjusted to allocate growth to the nearest cluster of adjacent RTAZs that conform to adjacent whole CCTA TAZs.

5.2 Future Population and Households

Projected 2010-2040 population growth in the Study Area, assuming Projections 2013 forecasts are realized, will be proportionally greater (29% growth) than in the rest of Contra Costa County (about 26%), but similar to the Bay Area as a whole (about 29%, see **Table 5-2**). The increase of 26% in occupied households for the Study Area is proportionally greater than what is projected for the rest of the County, and slightly less than the 27% increase projected for the entire Bay Area. Because the Study Area is estimated to have had a higher vacancy rate in existing dwelling units than the Bay Area and Contra Costa County average vacancy rates in 2010, proportionally fewer new housing units would need to be built to accommodate the projected growth in resident population.

Table 5-2 Population and Household Growth Projections by Bay Area Subregion

Bay Area Subregion	Total Population***				Total Households			
	2010	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County Study Area	250,900	324,450	73,560	29%	88,550	111,160	22,610	26%
Remainder, Contra Costa County	798,140	1,004,010	205,860	26%	286,820	352,990	66,170	23%
Total, Contra Costa County	1,049,040	1,328,460	279,420	27%	375,360	464,150	88,790	24%
Other Bay Area Counties	6,101,700	7,867,090	1,765,390	29%	2,232,660	2,843,960	611,300	27%
Total Bay Area Region	**7,150,740**	**9,195,550**	**2,044,810**	**29%**	**2,608,020**	**3,308,110**	**700,090**	**27%**

***Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations of P2013 RTAZ tables which exclude some group quarters population segments in future years. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Within Contra Costa County, resident populations are projected to increase at higher rates in the West and East County subareas than in the Central County (see **Table 5-3**.) But the Central County transportation planning subarea, which has the largest numbers of existing residents and households, is projected to add the largest number of new residents and households and

[21] The Authority's P-2011 scenario is based on ABAG's Projections 2011, but incorporated considerable input and refinements from local jurisdictions as to distribution of growth at the CCTA TAZ level. EPS calculated the percentage distribution of P-2011 scenario growth by TAZ by land use type among TAZs corresponding to individual RTAZs, then used those percentage share matrices to make the initial allocations of Projection 2013 future growth projections by RTAZ to CCTA TAZs.

continue to remain the most populous of the County's four traditional transportation planning subareas through 2040 (see **Table 5-3**.)

Table 5-3 Population and Household Growth Projections by CCTA Transportation Planning Subarea

CCTA Transportation Planning Subarea	Total Population***				Total Households			
	2010	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County (Study Area)	250,890	324,460	73,570	29%	88,540	111,310	22,770	26%
Central Contra Costa County	359,590	456,050	96,460	27%	143,070	177,100	34,020	24%
East Contra Costa County	296,710	383,630	86,930	29%	93,430	118,050	24,620	26%
TriValley (Contra Costa County Portion)	141,850	164,310	22,460	16%	50,310	57,890	7,580	15%
Total Contra Costa County	**1,049,030**	**1,328,450**	**279,420**	**27%**	**375,360**	**464,350**	**88,990**	**24%**

****Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations of P2013 RTAZ tables which exclude some group quarters population segments in future years. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

The West County Study Area and the TriValley transportation planning subarea are projected to add more single-family type households from 2010 to 2040, while the opposite is envisioned in the Projections 2013 projections for the East and Central County subareas (see **Table 5-4**). However, the percentage of total households living in multifamily dwelling types is projected to increase for all of the transportation planning subareas by 2040 (see **Table 5-5**). The greatest proportional changes in the mix of dwelling unit types by subarea between 2010 and 2040 are projected for the East and Central subareas.

Table 5-4 Single Family and Multi-Family Household Growth Projections by CCTA Transportation Planning Subarea

CCTA Transportation Planning Subarea	Single Family Households				Multi-Family Households			
	2010	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County (Study Area)	62,550	74,430	11,890	19%	26,000	36,880	10,890	42%
Central Contra Costa County	100,830	114,630	13,800	14%	42,250	62,460	20,210	48%
East Contra Costa County	77,410	88,100	10,690	14%	16,020	29,940	13,920	87%
TriValley (Contra Costa County Portion)	42,580	48,330	5,750	14%	7,740	9,570	1,820	24%
Total Contra Costa County	**283,360**	**325,490**	**42,130**	**15%**	**92,010**	**138,840**	**46,830**	**51%**

Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Table 5-5 Projected Single Family and Multi-Family Household Share of Total Households by CCTA Transportation Planning Subarea

CCTA Transportation Planning Subarea	Single Family Households Share of Subarea Total				Multi-Family Households Share of Subarea Total			
	2010	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County (Study Area)	71%	67%	-4%	-5%	29%	33%	4%	13%
Central Contra Costa County	70%	65%	-6%	-8%	30%	35%	6%	19%
East Contra Costa County	83%	75%	-8%	-10%	17%	25%	8%	48%
TriValley (Contra Costa County Portion)	85%	83%	-1%	-1%	15%	17%	1%	7%
Total Contra Costa County	**75%**	**70%**	**-5%**	**-7%**	**91%**	**110%**	**19%**	**21%**

Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

The net aggregate impacts of these projected household growth and housing tenancy changes would not greatly affect the West County Study Area's forecast shares of countywide single-family and multifamily households. As shown in **Table 5-6**, the Study Area is projected to have a marginally increased share of the County's single-family households in 2040 (about 23%, as compare to about 22% circa 2010) and an only marginally smaller share of countywide multifamily households, about 27% projected in 2040 as compared to the 28% estimated for 2010.

Table 5-6 Projected CCTA Transportation Planning Subarea Shares of Total Single Family and Multi-Family Households

CCTA Transportation Planning Subarea	Single Family Households Share of Subarea Total				Multi-Family Households Share of Subarea Total			
	2010	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County (Study Area)	22%	23%	1%	4%	28%	27%	-2%	-6%
Central Contra Costa County	36%	35%	0%	-1%	46%	45%	-1%	-2%
East Contra Costa County	27%	27%	0%	-1%	17%	22%	4%	24%
TriValley (Contra Costa County Portion)	15%	15%	0%	-1%	8%	7%	-2%	-18%
Total Contra Costa County	**100%**	**100%**			**100%**	**100%**		

Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Both average total persons per household and employed residents per household are projected to be larger in 2010 than as estimated for 2010 for all CCTA Transportation Planning Subareas, including the West County Study Area (see **Table 5-7**.) It is important to remember, however, that East Bay unemployment rates were in the 11-12% range circa 2010, rendering the employed residents per household ratio abnormally and historically low.

Table 5-7 Total Persons per Household and Employed Residents per Household Projections by CCTA Transportation Planning Subarea

CCTA Transportation Planning Subarea	Total Persons per Household***				Employed Residents per Household						
	2010	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2040	# Change 2010-2040	# Change 2020-2040	Percent Change 2010-2040	Percent Change 2020-2040
West Contra Costa County (Study Area)	2.83	2.91	0.08	3%	1.18	1.29	1.25	0.07	-0.04	6%	-3%
Central Contra Costa County	2.51	2.58	0.06	2%	1.12	1.27	1.26	0.14	-0.02	12%	-1%
East Contra Costa County	3.18	3.25	0.07	2%	1.24	1.29	1.26	0.02	-0.03	1%	-2%
TriValley (Contra Costa County Portion)	2.82	2.84	0.02	1%	1.22	1.25	1.20	-0.02	-0.04	-1%	-3%
Total Contra Costa County	**2.79**	**2.86**	**0.07**	**2%**	**1.18**	**1.28**	**1.25**	**0.07**	**-0.03**	**6%**	**-2%**

****Subregional Study Areas ratios estimated as aggregates of CCTA TAZ allocations of P2013 RTAZ tables which exclude some group quarters population segments in future years. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Plan Bay Area and Projections 2013 modeling includes assumptions dealing with both a long term recovery from the impacts of the Great Recession and the long-term impacts of aging populations on labor force participation. When examined at 5-year intervals, the Projections 2013 forecasts for Contra Costa County have employed residents per household ratios peaking around 2020, and declining slowly but steadily thereafter. **Table 5-7** shows the apparent increase in workers per Contra Costa County households from 2010 to 2040 actually contains a decline in the average number of workers per household after 2020. Over time, the Study Area and the Bay Area will require additional dwelling units simply to maintain existing labor force numbers, beyond the new housing needed to accommodate actual economic and employment growth.

Table 5-8 and **Table 5-9** show the distribution of projected population and housing growth in Study Area subareas.

Table 5-8 provides the approximate breakdown by Subregional Study Area (SSA). While the Richmond SSA is projected to experience the greatest nominal growth in population and households between 2010 and 2040 within the Study Area, the Hercules SSA is projected to experience the greatest percentage increase in resident population (about 67% more than in 2010) and households (about 60% more than in 2010). The proportional increase in population and households from 2010 to 2040 for the other Study Area subregions under the Plan Bay Area/Projections 2013 growth scenario generally range between 17% and 29%.[22]

[22] Rodeo-Crockett SSA population and households are projected to grow the least in proportion to 2010 existing conditions as calculated for **Table 5-8**, but other West County SSA summary tabulations of Projections 2013 approximately reverse the 2010-2040 growth allotments for Rodeo-Crockett SSA and the unincorporated County remainder. These differences may be due to differing approaches to rationalizing the different zone boundaries in the vicinity of the Rodeo and Crockett CDPs, and/or the handling of the WCCTAC San Pablo Ave Corridor – CCC Priority Development Area (WCC1_a) which is split into two discrete segments, one in the Rodeo-Crockett SSA and the other in the Pinole SSA.

Table 5-8 Population and Household Growth Projections for West County Subregional Study Areas

Subregional Study Area	Total Population				Total Households			
	2010	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2040	# Change 2010-2040	Percent Change 2010-2040
El Cerrito **	29,060	35,560	6,500	22%	12,600	15,210	2,610	21%
Hercules **	23,890	39,970	16,080	67%	8,060	12,900	4,840	60%
Pinole **	27,940	33,980	6,050	22%	9,770	11,510	1,750	18%
Richmond **	123,190	158,920	35,740	29%	43,080	53,830	10,760	25%
Rodeo-Crockett **	12,080	12,120	40	0%	4,490	4,590	100	2%
San Pablo **	33,340	42,250	8,910	27%	10,000	12,620	2,620	26%
C.C. County Remainder (Part)	1,400	1,660	250	18%	550	650	100	18%
Total	**250,890**	**324,460**	**73,570**	**29%**	**88,540**	**111,310**	**22,770**	**26%**

**Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations; may differ from rounded figures in other tables. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Table 5-9 presents the 2020-2040 population and household growth projections for the PDAs in the Study Area. Note that the San Pablo Avenue Corridor planning area has been subdivided into several segments, by jurisdiction, with each segment constituting an individual PDA. Some of the West County PDA boundaries (shown in **Figure 5-1**) are complex, e.g., the San Pablo Avenue & 23rd Street Corridors – SPA1 PDA and the two separated segments of San Pablo Avenue Corridor jointly defined as the WCCTAC San Pablo Avenue Corridor in Unincorporated County - WCC1_a PDA.

While the West County PDAs represented only about 25% of the Study Area's total population and households in 2010, nearly 60% of all population and household growth projected for the Study Area between 2010 and 2040 is assigned to these PDAs under Plan Bay Area/Projections 2013, which would result in the PDAs containing about 32% of Study Area total population and households by 2010. While the Plan Bay Area/Projections 2013 are generally prescriptive in nature, evaluation of the PDAs conducted for MTC has concluded that over time (through 2040) and assuming realistic efforts to improve development readiness that the projections can be realized.[23]

[23] Priority Development Area Development Readiness Assessment, MTC, 2013

Figure 5-1 Study Area and Priority Development Areas (PDAs)

Table 5-9 Population and Household Growth Projections for West County Priority Development Areas

Jurisdiction	Priority Development Area	Total Population				Total Households			
		2010	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2040	# Change 2010-2040	Percent Change 2010-2040
El Cerrito	San Pablo Avenue Corridor - ELC1_a	1,330	2,490	1,160	87%	630	1,150	510	81%
	San Pablo Avenue Corridor - ELC1_b	1,370	2,700	1,340	98%	590	1,140	550	92%
Hercules	Central Hercules - HER1	1,230	8,830	7,600	617%	400	2,800	2,400	598%
	Waterfront District - HER2	2,040	5,450	3,410	168%	640	1,660	1,020	158%
Pinole	Old Town San Pablo Avenue - PIN1	3,370	3,950	590	17%	1,300	1,470	180	14%
	Appian Way Corridor - PIN2	1,280	2,830	1,550	121%	520	1,110	590	112%
Richmond	Central Richmond - RIC1_a	14,430	17,500	3,070	21%	4,700	5,480	780	17%
	23rd Street - RIC1_b	2,500	6,030	3,530	141%	640	1,460	830	130%
	South Richmond - RIC2	8,000	12,030	4,040	51%	3,250	4,740	1,490	46%
San Pablo	San Pablo Avenue & 23rd Street Corridors - SPA1	7,120	12,010	4,890	69%	2,530	4,110	1,580	63%
Richmond (with Contra Costa County)	North Richmond - CCC2	3,720	5,500	1,780	48%	1,030	1,410	380	37%
Contra Costa County	Downtown El Sobrante - CCC4	4,430	5,990	1,560	35%	1,670	2,190	520	31%
WCCTAC	San Pablo Avenue Corridor - Unincorporated County - WCC1_a	5,030	5,960	930	19%	1,590	1,830	240	15%
	San Pablo Avenue Corridor - Richmond - WCC1_c	4,020	8,150	4,130	103%	1,710	3,350	1,640	96%
	San Pablo Avenue Corridor - Hercules - WCC1_g	2,030	4,600	2,570	127%	600	1,310	710	119%

Sources: ABAG Projections 2013; EPS

5.3 Future Jobs and Employed Residents

Projected 2010-2040 total job growth in the Study Area, under Projections 2013 assumptions, will be slightly higher (36% growth) than in the rest of Contra Costa County (about 35%), and for the Bay Area as a whole (about 33%, see **Table 5-10**). The projected increase of 32% in employed residents living in the Study Area is also similar to the 31% increase projected for the rest of the County, and the 33% increase projected for the entire Bay Area. The East Bay experienced double-digit unemployment rates circa 2010, and it is important to understand that nearly half of the projected Bay Area regional growth in jobs and employed residents is projected to occur by 2020, with about 80% of forecast 2010-2010 job growth actually recovering (in simple numerical terms) employment lost between 2000 and 2010.

These employment and employed resident projections, as realized will tend to support additional transit use.

Table 5-10 Jobs and Employed Residents Growth Projections by Bay Area Subregion

Bay Area Subregion	Total Jobs							Employed Residents						
	2010	2020	2040	# Change 2010-2040	# Change 2020-2040	% Change 2010-2040	% Change 2020-2040	2010	2020	2040	# Change 2010-2040	# Change 2020-2040	% Change 2010-2040	% Change 2020-2040
Study Area	62,580	73,890	85,080	22,500	11,190	36%	15%	105,570	124,080	139,350	33,780	15,270	32%	12%
Remainder, CCC	282,320	333,920	382,260	99,940	48,340	35%	14%	336,740	387,850	440,410	103,670	52,560	31%	14%
Total, CCC	344,900	407,820	467,340	122,440	59,530	36%	15%	442,300	511,920	579,760	137,450	67,830	31%	13%
Other Bay Area	3,040,410	3,579,310	4,037,890	997,480	458,580	33%	13%	2,826,420	3,337,890	3,770,310	943,890	432,420	33%	13%
Total Bay Area	**3,385,310**	**3,987,130**	**4,505,230**	**1,119,920**	**518,100**	**33%**	**13%**	**3,268,730**	**3,849,810**	**4,350,070**	**1,081,340**	**500,250**	**33%**	**13%**

****Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations of P2013 RTAZ tables which exclude some group quarters population segments in future years. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Within Contra Costa County, total jobs are projected to increase more in percentage terms in the West and East County subareas than in the Central County (see **Table 5-11**.) But the Central County subarea has the largest numbers of existing jobs and employed residents, and is projected to add the largest number of new jobs and resident workers and remain the location of nearly half of the County's jobs and the home subarea for more than a third of the County's employed residents through 2040 (see **Table 5-11**.)

Table 5-11 Total Jobs and Employed Residents Growth Projections for CCTA Transportation Planning Subareas

CCTA Transportation Planning Subarea	Total Jobs				Employed Residents			
	2010	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County (Study Area)	62,580	85,200	22,630	36%	104,710	139,350	34,640	33%
Central Contra Costa County	165,840	220,180	54,330	33%	160,220	222,750	62,520	39%
East Contra Costa County	52,010	76,520	24,500	47%	116,000	148,540	32,540	28%
TriValley (Contra Costa County Portion)	64,480	86,190	21,710	34%	61,360	69,600	8,240	13%
Total Contra Costa County	**344,910**	**468,080**	**123,180**	**36%**	**442,290**	**580,240**	**137,940**	**31%**

****Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations of P2013 RTAZ table. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

'Jobs-Housing Balance' for the CCTA Transportation Planning Subareas is generally projected to improve from 2010 to 2040 under the Projections 2013 growth scenario, consistent with one of the goals of Plan Bay Area. **Table 5-12** presents the transportation planning subarea ratios of local jobs per household estimated circa 2010 and projected for 2020 and 2040.

Table 5-12 Average Jobs/Household and Employed Residents/Local Job Projections by CCTA Transportation Planning Subarea

CCTA Transportation Planning Subarea	Local Jobs per Household***				Employed Residents per Local Job			
	2010	2040	# Change 2010-2040	% Change 2010-2040	2010	2040	# Change 2010-2040	% Change 2010-2040
West Contra Costa County (Study Area)	0.71	0.77	0.06	8%	1.67	1.64	-0.04	-2%
Central Contra Costa County	1.16	1.24	0.08	7%	0.97	1.01	0.05	5%
East Contra Costa County	0.56	0.65	0.09	16%	2.23	1.94	-0.29	-13%
TriValley (Contra Costa County Portion)	1.28	1.49	0.21	16%	0.95	0.81	-0.14	-15%
Total Contra Costa County	**0.92**	**1.01**	**0.09**	**10%**	**1.28**	**1.24**	**-0.04**	**-3%**

****Subregional Study Areas ratios estimated as aggregates of CCTA TAZ allocations of P2013 RTAZ tables which exclude some group quarters population segments in future years. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

As the average number of persons and average number of employed residents per household are projected to change over time and differ in both degree and direction of change, the ratio of total local jobs per local employed resident is a better indicator of nominal balance, especially as Jobs per Employed Resident ratios converging on a value of 1.00 suggest

improvements in the raw numbers of local jobs and active workers. Note that the scales of the 2010-2040 changes in jobs per employed resident ratios are potentially misleading to the extent they mask Great Recession job loss recovery anticipated to occur in large measure by 2020, and to the extent that local residents who lost their jobs circa 2010 were not included in estimates of employed residents.

Table 5-13 and **Table 5-14** show the distribution of projected growth in total jobs and employed residents by subareas within the Study Area.

Table 5-13 provides the approximate breakdown by Subregional Study Area (SSA). As explained above, the SSA estimates in **Table 5-13** are based on the 'nearest-fit' aggregation of Projections 2013 allocations to whole CCTA TAZs and may differ somewhat from other summary estimates of Projections 2013 by SSA.

While the Richmond SSA is projected to experience the greatest nominal growth in jobs and employed residents between 2010 and 2040 within the Study Area, the Hercules SSA is projected to experience the greatest percentage increase in total jobs (about 63% more than in 2010) and employed residents (about 57% more than in 2010). The proportional increase in total jobs and employed residents from 2010 to 2040 for the other Study Area subregions under the Plan Bay Area/Projections 2013 growth scenario generally range between 27% and 45%.[24]

Table 5-14 presents the 2020-2040 total jobs and employed resident growth projections for the PDAs in the Study Area. The West County PDAs represented about 58% of the Study Area's total jobs in 2010, but only housed about 24% of the Study Area's employed residents. Nearly 60% of total job growth and almost 50% of the increase in employed residents growth projected for the entire Study Area between 2010 and 2040 is assigned to these PDAs under Plan Bay Area/Projections 2013, which would result in the PDAs containing about 58% of Study Area total jobs and housing about 30% of Study Area employed residents by 2040.

[24] The estimates for the Rodeo-Crockett and County Remainder SSAs differ from other summaries of Plan Bay Area and Projections 2013, most likely due to differing approaches to rationalizing the different zone boundaries in the vicinity of the Rodeo and Crockett CDPs, and/or the allocation of projected growth for the WCCTAC San Pablo Ave Corridor – CCC Priority Development Area (WCC1_a) which is split into two discrete segments, one in the Rodeo-Crockett SSA and the other in the Pinole SSA.

Table 5-13 Jobs and Employed Residents Growth Projections for West County Subregional Study Areas

Subregional Study Area	Total Jobs				Employed Residents			
	2010	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2040	# Change 2010-2040	Percent Change 2010-2040
El Cerrito **	6,310	8,450	2,140	34%	13,140	17,920	4,780	36%
Hercules **	4,450	7,260	2,810	63%	11,070	17,390	6,320	57%
Pinole **	7,260	9,220	1,960	27%	11,750	15,050	3,300	28%
Richmond **	36,830	49,370	12,550	34%	50,000	65,880	15,890	32%
Rodeo-Crockett **	2,000	2,680	680	34%	5,540	6,270	730	13%
San Pablo **	5,590	8,080	2,500	45%	12,540	15,910	3,360	27%
C.C. County Remainder (Part)	150	140	(10)	-7%	670	930	260	40%
Total	**62,580**	**85,200**	**22,630**	**36%**	**104,710**	**139,350**	**34,640**	**33%**

**Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations; may differ from rounded figures in other tables. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Table 5-14 Jobs and Employed Residents Growth Projections for West County Priority Development Areas

Jurisdiction	Priority Development Area	Total Jobs				Employed Residents			
		2010	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2040	# Change 2010-2040	Percent Change 2010-2040
El Cerrito	San Pablo Avenue Corridor - ELC1_a	1,850	2,240	390	21%	750	1,410	660	88%
	San Pablo Avenue Corridor - ELC1_b	1,670	2,110	440	26%	660	1,320	660	100%
Hercules	Central Hercules - HER1	800	1,830	1,030	128%	510	3,730	3,220	631%
	Waterfront District - HER2	1,240	1,890	650	53%	650	1,760	1,100	169%
Pinole	Old Town San Pablo Avenue - PIN1	2,840	3,440	610	21%	1,650	1,960	300	18%
	Appian Way Corridor - PIN2	2,430	3,190	750	31%	660	1,460	800	121%
Richmond	Central Richmond - RIC1_a	6,600	8,670	2,070	31%	5,190	6,280	1,100	21%
	23rd Street - RIC1_b	310	660	350	112%	730	1,740	1,020	139%
	South Richmond - RIC2	7,030	9,360	2,340	33%	3,830	5,810	1,980	52%
San Pablo	San Pablo Avenue & 23rd Street Corridors - SPA1	5,530	7,520	1,980	36%	2,890	4,890	2,000	69%
Richmond (with Contra Costa County)	North Richmond - CCC2	1,490	1,990	500	34%	1,020	1,460	440	43%
Contra Costa County	Downtown El Sobrante - CCC4	940	1,430	490	52%	2,040	2,770	730	36%
WCCTAC	San Pablo Avenue Corridor - Unincorporated County - WCC1_a	680	990	310	46%	2,020	2,400	390	19%
	San Pablo Avenue Corridor - Richmond - WCC1_c	1,790	3,010	1,210	68%	1,850	3,760	1,910	104%
	San Pablo Avenue Corridor - Hercules - WCC1_g	730	1,180	450	62%	620	1,420	800	128%

Sources: ABAG Projections 2013; EPS

The breakdown of projected 2010-2040 job growth by type for the Study Area is provided in **Table 5-15**, with the percentage shares by job type within the Study Area shown in **Table 5-16.** Both of these tables provide separate breakdowns for the NAICS-based job groupings currently used by ABAG and MTC, and the SIC-based groupings used by the CCTA in its current transportation demand model.[25]

[25] The importance of the NAICS vs. SIC classifications differences for land use and transportation modeling is described above, in the Section 3 description of existing job conditions in the Study Area .

Table 5-15 Job Growth Projections by Type for West County Study Area

NAICS Job Groups (used by ABAG and MTC)	Job Projections by NAICS Group				SIC Job Groups (used by CCTA and other CMAs)	Job Projections by SIC Group			
	2010	2040	# Change 2010-2040	Percent Change 2010-2040		2010	2040	# Change 2010-2040	Percent Change 2010-2040
Agriculture and Natural Resources	160	140	(20)	-11%	Agriculture and Natural Resources	150	130	(10)	-10%
Manufacturing, Wholesale and Transportation	10,350	12,150	1,810	17%	Manufacturing	5,750	6,650	900	16%
Retail	8,750	9,400	650	7%	Retail Trade **	12,400	15,120	2,720	22%
Financial and Professional Services	10,260	16,000	5,740	56%	Wholesale Trade	2,960	3,380	410	14%
Health, Educational and Recreational Services**	18,490	29,380	10,890	59%	Services	21,380	33,860	12,480	58%
Other	14,580	18,020	3,440	24%	Other	19,940	25,940	6,000	30%
Total	**62,580**	**85,080**	**22,500**	**36%**	**Total**	**62,580**	**85,070**	**22,500**	**36%**

*ABAG and MTC have used NAICS-based job classifications since Projections 2005; the CCTA and some other Bay Area CMAs continue to use SIC-based classifications.

** Includes 'sit-down' eating and drinking places (restaurants, café's, bars and taverns, etc.), and other food services (fast-food outlets, specialty snack shops, etc.)

Sources: ABAG Projections 2013; MTC RTAZ tabulations; Applied Geographic Solutions employment estimates; EPS

Table 5-16 Projected Job Percentage Distribution by Type, for West County Study Area

NAICS Job Groups (used by ABAG and MTC)	Job Distribution by NAICS Group				SIC Job Groups (used by CCTA and other CMAs)	Job Distribution by SIC Group			
	2010	2040	# Change 2010-2040	Percent Change 2010-2040		2010	2040	# Change 2010-2040	Percent Change 2010-2040
Agriculture and Natural Resources	0.3%	0.2%	-0.1%	-35%	Agriculture and Natural Resources	0.2%	0.2%	-0.1%	-33%
Manufacturing, Wholesale and Transportation	17%	14%	-2%	-14%	Manufacturing	9%	8%	-1%	-15%
Retail	14%	11%	-3%	-21%	Retail Trade **	20%	18%	-2%	-10%
Financial and Professional Services	16%	19%	2%	15%	Wholesale Trade	5%	4%	-1%	-16%
Health, Educational and Recreational Services**	30%	35%	5%	17%	Services	34%	40%	6%	17%
Other	23%	21%	-2%	-9%	Other	32%	30%	-1%	-4%
Total	**100%**	**100%**			**Total**	**100%**	**100%**		

*ABAG and MTC have used NAICS-based job classifications since Projections 2005; the CCTA and some other Bay Area CMAs continue to use SIC-based classifications.

** Includes 'sit-down' eating and drinking places (restaurants, café's, bars and taverns, etc.), and other food services (fast-food outlets, specialty snack shops, etc.)

Sources: ABAG Projections 2013; MTC RTAZ tabulations; Applied Geographic Solutions employment estimates; EPS

Table 5-15 shows the changes in projected Study Area jobs by industrial sector between 2010 and 2040 anticipate increases in the actual number of jobs for all groupings except the NAICS and SIC Agricultural groups, where jobs are forecast to decline in real numbers, as they have been and are expected to continue to do across the Bay Area. **Table 5-16** shows the share of total jobs in the services groups is expected to increase from 2010 to 2040 in the Study Area, again matching the trend to a more service-based economy across the Bay Area over time.

The difference between the larger percentage share decline for 'Retail' jobs as defined in the NAICS-based grouping used in the MTC regional transportation model versus the smaller percentage share decline for 'Retail' jobs as defined in the SIC-based grouping used in the CCTA CMA model does not reflect any difference in the core Projections 2013 job growth assumptions but rather the assignment of eating and drinking places and food service establishments in Health, Educational and Recreational Services group per NAICS classification and in the Retail Trade group per SIC classification.

Table 5-17 and **Table 5-18** show the existing and projected future importance of Manufacturing, Wholesale and Transportation jobs (NAICS) in the West County Study Area, relative to the rest of Contra Costa County and the entire Bay Area region. While the Study

Area had slightly less than 2% of the Bay Area's jobs of this type circa 2010, they represented about 17% of Study Area total jobs at that time. Jobs in this group are projected to still comprise about 14% of all Study Area total jobs in 2040, and to account for slightly more than 2% of the Bay Area's Manufacturing, Wholesale and Transportation jobs.

While Manufacturing, Wholesale and Transportation jobs are projected to decline in their percentage share of total employment across the Bay Area between 2010 and 2040, the actual number of such jobs is projected to increase, albeit less rapidly than jobs in the service sectors. The growth projections assume that employment in Manufacturing, Wholesale and Transportation industries will continue to be proportionally higher in the Study Area than in the rest of Contra Costa County, although the rest of the County will continue to have about 2.5 times as many total jobs in those industries. The importance and proportional share of Manufacturing, Wholesale and Transportation jobs in the Study Area in 2040 is projected to be more similar to existing conditions than are the regional projections for jobs in this group.

Table 5-17 Projected Manufacturing, Wholesale and Transportation Jobs (NAICS) by Subregion

Bay Area Subregion	Manufacturing, Wholesale and Transportation Jobs			
	2010	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County Study Area	10,350	12,150	1,810	17%
Remainder, Contra Costa County	26,480	30,250	3,760	14%
Total, Contra Costa County	36,830	42,400	5,570	15%
Other Bay Area Counties	522,050	541,060	19,000	4%
Total Bay Area Region	**558,880**	**583,450**	**30,140**	**5%**

Sources: ABAG Projections 2013; Plan Bay Area Draft Preferred Land Use Scenario; EPS

Table 5-18 Manufacturing, Wholesale and Trade Jobs (NAICS) as % of Subregional Total Jobs

Bay Area Subregion	Manufacturing, Wholesale and Transportation Jobs Share			
	2010	**2040**	**# Change 2010-2040**	**Percent Change 2010-2040**
West Contra Costa County Study Area	17%	14%	-2.2%	-14%
Remainder, Contra Costa County	9%	8%	-1%	-16%
Total, Contra Costa County	11%	9%	-2%	-15%
Other Bay Area Counties	17%	13%	-4%	-22%
Total Bay Area Region	**17%**	**13%**	**-4%**	**-22%**

Sources: ABAG Projections 2013; Plan Bay Area Draft Preferred Land Use Scenario; EPS

6 LAND USE/TRANSPORTATION PROJECTS THAT MAY POTENTIALLY IMPACT STUDY AREA TRAVEL BEHAVIOR

6.1 Local Land Use Projects and Activities May Potentially Impact Study Area Travel Behavior

Beyond unpredictable changes in the broader National, California, and Bay Area economies or development market forces that might cause future housing and employment growth within the Study Area and across the Region to differ from the trends and distribution assumed in Plan Bay Area/Projections 2013 projections, there are uncertainties in major local projects and industries that may also impact travel behavior in the Study Area one way or the other.

Examples of major land use/transportation projects and linkages potentially affecting the Study Area are provided in this section of this memorandum. Two examples of uncertainty within the Study Area are the ultimate development of the University of Berkeley property at the Richmond Field Station, known as the "Global Campus" and nearby 3200 Regatta property, and future plans for Chevron that could affect the number and location of Chevron employees.

UC Berkeley Global Campus

In 2012, the Lawrence Berkeley National Laboratory (LBNL) selected the Richmond Field Station site as the location for a second technical research campus, at that time envisioned to occupy two million square feet of new office, laboratory and development space and to employ an initial staff of 800 workers onsite. By the close of the following year, 2013, the Department of Energy had decided not to award the LBNL a $1.5 billion contract to construct an advanced X-ray microscope on 200 acres of land that had been set aside for that purpose on University of California land in Berkeley or at the Richmond Field Station (thus freeing the land for other LBNL or U.C. development). The Department of Energy decision on the super-X-Ray microscope project, combined with the cutting of $130 million from the Federal budget for a new bioscience complex at the Richmond site, left the future of the proposed second LBNL campus in doubt.

Currently, the Richmond Bay Campus Long Range Development Plan (LRDP) envisions 5.5 million square feet of development in a new satellite campus at the Richmond Field Station, in the form of a Berkeley Global Campus that will offer advanced degrees host research programs in partnership with technical and other companies and in collaboration with public universities worldwide. The initial stimulus money and long term funding necessary to implement this plan has not yet been identified, although recent newspaper articles report anticipation of initial groundbreaking as early as 2016 or 2017.

Future of the Oil Industry and related rail transportation in the Study Area

Chevron Corporation is one of the Bay Area's largest employers, with an estimated 6,360 Bay Area employees at present.[26] Of these, Chevron has 2,700 company employees and 850 contract workers in the Richmond area alone.[27] Nearly 2,200 of the Richmond area workers are associated with the Chevron Refinery, making it the City of Richmond's largest employer.[28]

Refining began at the Point Richmond site in 1902, and as one of the nation's largest and most important refineries, operations and employment at the Chevron Refinery may be assumed to continue far into the foreseeable future. Chevron, however, is a diversified corporation with many other important business units in the Study Area and across Contra Costa County. The Chevron world headquarters in San Ramon employs approximately 3,900 workers, making it that city's largest employer.[29] Other Chevron business units operating in Contra Costa County include Chevron Business and Real Estate Services (CBRES), Chevron Environmental Management Company (CEMC), Chevron Energy Solutions (CES), and Chevron's Energy Technology Company (ETC).

Chevron's decisions concerning movement of its employees and the opening and closing of facilities, even when small in relation to its worldwide operations, can have significant impacts on Contra Costa's local economies and travel behaviors. Recent examples include the announced Chevron plan to close and sell its Diamond Boulevard campus in Concord and transfer 800 employees to San Ramon by early 2016. While Chevron employed only about 2% of Concord's total workers in 2014, it was the City of Concord's second highest property taxpayer.[30]

Chevron is currently planning to move 400 of its employees from San Ramon to Houston Texas by 2018. The company has stated its long-term plans to remain headquartered in San Ramon, but Chevron also employs about 9,000 company workers and contractors in Houston and is downtown Houston's largest employer. The company has as recently as 2013 planned a new

[26] San Francisco Business Times, 2015 Book of Lists.

[27] Chevron Richmond web site: http://richmond.chevron.com/home/aboutchevronrichmond.aspx

[28] City of Richmond Fact sheet: http://www.ci.richmond.ca.us/DocumentCenter/Home/View/8348

[29] City of San Ramon Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2014: http://www.ci.san-ramon.ca.us/finance/documents/cafr13-14.pdf

[30] City of Concord Ramon Comprehensive Annual Financial Report 2013-2014:

50-story office building in downtown Houston, and has been reported to remain committed to expansion there.[31]

At the same time there has been substantial increase oil delivered to the Chevron Refinery by rail; oil sourced from the northern Plains States and Canada. This increase in oil deliveries is expected to continue as production from these North American fields continues. It is difficult to say how this trend may affect Chevron's business decisions; however, it certainly reinforces the potential that refinery operations will continue there well into the future.

Development of Study Area PDAs

As noted above, the local jurisdictions along the corridor have designated 15 PDAs as part of ABAG's Plan Bay Area. These PDAs are each designated for higher density residential development, generally located in areas served by existing or planned transit services. It is expected that as the PDA's develop they will provide substantial additional demand for transit services in the Corridor. While there is continued uncertainty about the timing and ultimate form of PDA development, it is expected that by the horizon year 2040 much of this development will have occurred.

To the extent that approximately 60% of all 2010-2040 growth in population, households and jobs for the Study Area is assumed to be within the PDAs under Projections 2013, realization of these growth targets would significantly increase transit use and the feasibility of high-capacity transit routes.

The largest of the Study Area's PDAs is the South Richmond PDA that encompasses nearly the entire Richmond Bayfront south of I-580. The City's plans for the area have created capacity for over 4,000 additional housing units, by far the largest concentration of development capacity in the Study Area. ABAG has projected that an additional 1,400 housing units will be built in the South Richmond PDA by 2040. With the Global Campus that is proposed within the area, the South Richmond PDA has potential for being the largest new attractor of employees in the Study Area and at the same time a significant new concentration of housing units (See also **Attachment Table B-15** and **Attachment Table B-16**).

[31] *Despite cutbacks, Chevron remains committed to downtown Houston growth*, Houston Business Journal March 20, 2015: http://www.bizjournals.com/houston/print-edition/2015/03/20/despite-cutbacks-chevron-remains-committed-to.html

6.2 Major infrastructure investments outside study area that that may Potentially Impact Study Area Travel Behavior

6.2.1 SR-239 Implementation

SR 239 is a proposed highway located in East Contra Costa County that would connect State Route 4 to I-580 near Tracy. This new highway, which is in the planning stages, has the potential for increasing commercial use of Highway 4 and regional travel patterns that may extend to the Highway 4 terminus at I-80 in Hercules. Ongoing TriLink regional transportation modeling efforts will provide some insight into this potential effect and what it may mean for the Western Contra Costa Study Area.

6.2.2 Improvements to the Richmond San Rafael Bridge

The I-580 Corridor running through the southern portion of the Study Area has increasingly become a major commuting corridor with bi-directional morning and evening peak hour congestion on the Richmond San Rafael Bridge and the easterly and westerly approaches to the Bridge. The workers traveling into Marin County reflect an increasing jobs-housing imbalance in Marin County and median housing prices among the most expensive in the nation. Workers traveling into the East Bay from Marin County and points north reflect the attractiveness of the large East Bay labor market. This bi-directional commuting trend is expected to continue in future years, with congestion most severe in the eastbound direction in the PM peak period.

In February 2015, the Bay Area Toll Authority approved the addition of an eastbound vehicle lane to the lower deck of the Bridge that is intended to relieve existing PM peak hour congestion. The addition of a bicycle/pedestrian lane to the top deck of the bridge is intended to provide a key link in the completion of the Bay Trail. The environmental clearance for the project will occur in tandem with the development of the final design (design at risk) to allow the facility to become operational in 2018.

The increased commuting on I-580 will affect local traffic conditions given that a substantial amount of the travel demand accesses I-580 from the Richmond Parkway (connecting to I-80).

6.2.3 WETA Expansion Plans

The Water Emergency Transportation Authority (WETA), which operates and coordinates ferry services on San Francisco Bay, has planned for expansion of its services to Western Contra Costa and beyond. Ferry terminals are planned for Richmond and Hercules. The Richmond service, because of its proximity to major labor markets and relatively low cost to create needed on-shore infrastructure, is planned for implementation within the next five years. The Hercules terminal site, which is linked to the City's Intermodal Transit Center, is currently undergoing design studies, however, financial and engineering issues were identified for this

site in the 2014 Ferry Feasibility Study conducted by CCTA.[32] The WETA ferry service will have an effect on transportation patterns within the Study Area because it is expected that commuters and other travelers from within and beyond the Study Area will use existing transportation modes (automobile, bus, etc.), to access the Ferry Service.

6.2.4 Hercules Intermodal Transit Center

The Hercules Ferry Terminal and commuter service to San Francisco is envisioned as a component of the Hercules Intermodal Transit Center (ITC) that will combine three modes of public transportation: Amtrak's Capitol Corridor train service, bus service, and ferry service, as well as offer bicycle and pedestrian connections. The anticipated waterfront location is along Bayfront Boulevard near Refugio Creek. The ITC could have a positive economic "multiplier" effect in creating jobs and bringing visitors to the City, and also attract auto-based commuters traveling from points east on the I-80 or SR-4 Corridors to employment in the central East Bay or San Francisco.

Construction of the ferry terminal component of the ITC would occur after construction of the train (Capitol Corridor) station component. Funding is in place to construct the initial phases of the ITC, but the later phases, including the ferry terminal, are presently unfunded. Though the City of Hercules is continuing to secure funding for the later phases, including the train station, if the Capitol Corridor advances plans to shift the alignment of the rail corridor to the BNSF right-of-way, the service would no longer connect to the Intermodal Transit Station. There are also design challenges due to the shallow water depth for a ferry terminal at this location. There is approximately $50 million in funding for the ITC between that which has been allocated, obligated and / or programmed for the improvements related to the initial rail station, bus loop, the mitigation restoration areas, and two-thirds of the bike/pedestrian trails needed for the project.

[32] *Financial Feasibility of Contra Costa Ferry Service, 2015-2024*, Final Report January 21, 2015, prepared by Economic & Planning Systems for the Contra Costa Transportation Authority.

ATTACHMENT A

Study Area Boundaries and Subarea Definition

ATTACHMENT A. STUDY AREA BOUNDARIES AND SUBAREA DEFINITION

The proposed Study Area boundary shown in **Figure A-1** is coterminous with MTC's Richmond/El Cerrito Superdistrict, Superdistrict #20 of the 34 Superdistricts MTC has defined to facilitate transportation modeling for the nine-county San Francisco Bay Area regional planning Area.

The Study Area includes the incorporated communities of El Cerrito, Hercules, Pinole, Richmond, and San Pablo. The unincorporated Census Designated Places (CDPs) entirely within the Study Area include Bayview, Crockett, East Richmond Heights, El Sobrante, Kensington, Montalvin Manor, North Richmond, Port Costa, Rodeo, Rollingwood, and Tara Hills.

As shown on the **Figure A-1** map, which shows correspondence with Regional Planning Geographies, the Study Area also includes small portions of Martinez, Orinda, and the Alhambra Valley CDP, as these are part of a large MTC Regional Travel Analysis Zone (RTAZ) which also covers portions of incorporated Hercules and Richmond. An estimated 720 persons and 275 households existed in these small sections of Martinez, Orinda, and Alhambra Valley in 2010 (per Census 2010 block counts), representing only about 0.3% of the total population and households estimated for the entire Study Area at that time. This small percentage is insignificant and represents a negligible share of existing and anticipated future development for the Study Area; therefore, estimates for these 'splinter' sections are not explicitly broken out in the analysis or summary tables for this report.

Corresponding ABAG Jurisdictions, Subregional Study Areas and Priority Development Areas

The Study Area encloses the entirety of the ABAG 'city' jurisdictions of incorporated El Cerrito, Hercules, Pinole, Richmond, and San Pablo, as shown above in **Figure A-1**. The Study Area also encloses the larger Spheres of Influence (SOI) for these cities, as approximated by the ABAG Subregional Study Areas (SSA) shown with the Study Area Boundary in **Figure A-2.** ABAG has defined an additional Rodeo-Crockett SSA containing the Rodeo and Crockett Census Designated Places (CDP), also located within the Study Area.

The Study Area boundary encloses a large portion but not all of the unincorporated Contra Costa County Remainder SSA, a small portion of the Martinez SSA and a very small section of the Orinda SSA. All of these partial SSA coverages are alternately represented by coverages of whole MTC RTAZs, CCTA TAZs and Census 2010 tracts, block groups or blocks, making it possible to assemble estimates of existing conditions and projections of future land use without a need to 'split' SSA-level estimates across the Study Area boundary.

Additionally, fifteen PDAs have been defined in the West County Study Area as part of ABAG's Plan Bay Area. These PDAs are shown in **Figure A-3**. While most PDAs are discrete contiguous areas, this is not always the case; for the San Pablo Corridor PDA, individual segments have

Figure A-1 West Contra Costa County High Capacity Transit Study Area

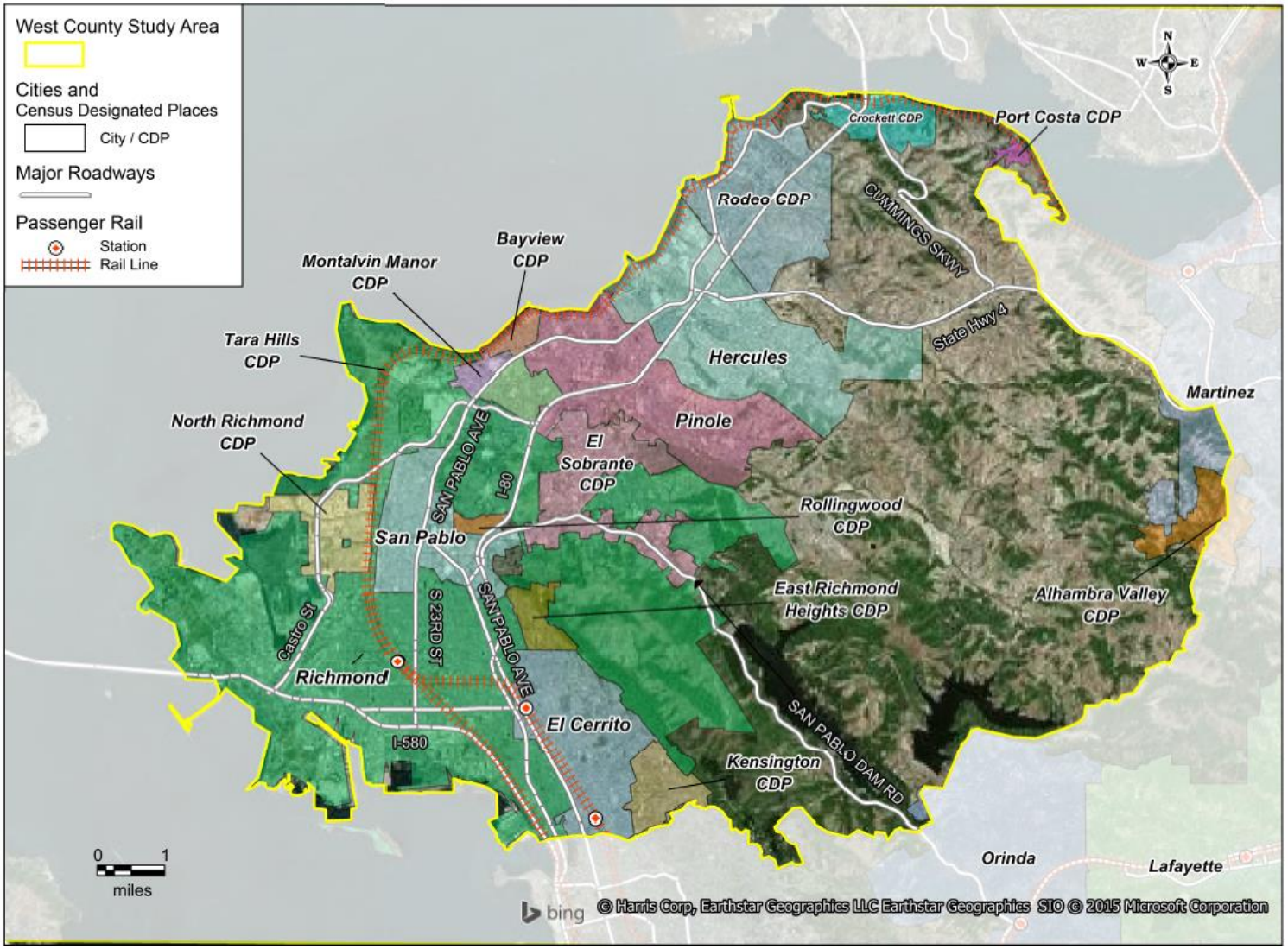


Figure A-2 Study Area and ABAG Subregional Study Areas (SSAs)

Figure A-3 Study Area and Priority Development Areas (PDAs)

been defined in West County by jurisdiction so that there are multiple discrete sections defined as separate PDAs for Richmond and Hercules, and for the unincorporated County. PDAs have also been distinguished by future place type, e.g., the Central Richmond & 23rd St Corridor has separate PDAs defined as a mixed-use corridor place and a city center place. The boundaries of PDAs do not in all instances conform to other zone systems relevant in the West County, and allocations of PDA existing conditions estimates and future growth projections to and from the alternate zone systems can be complex and challenging.

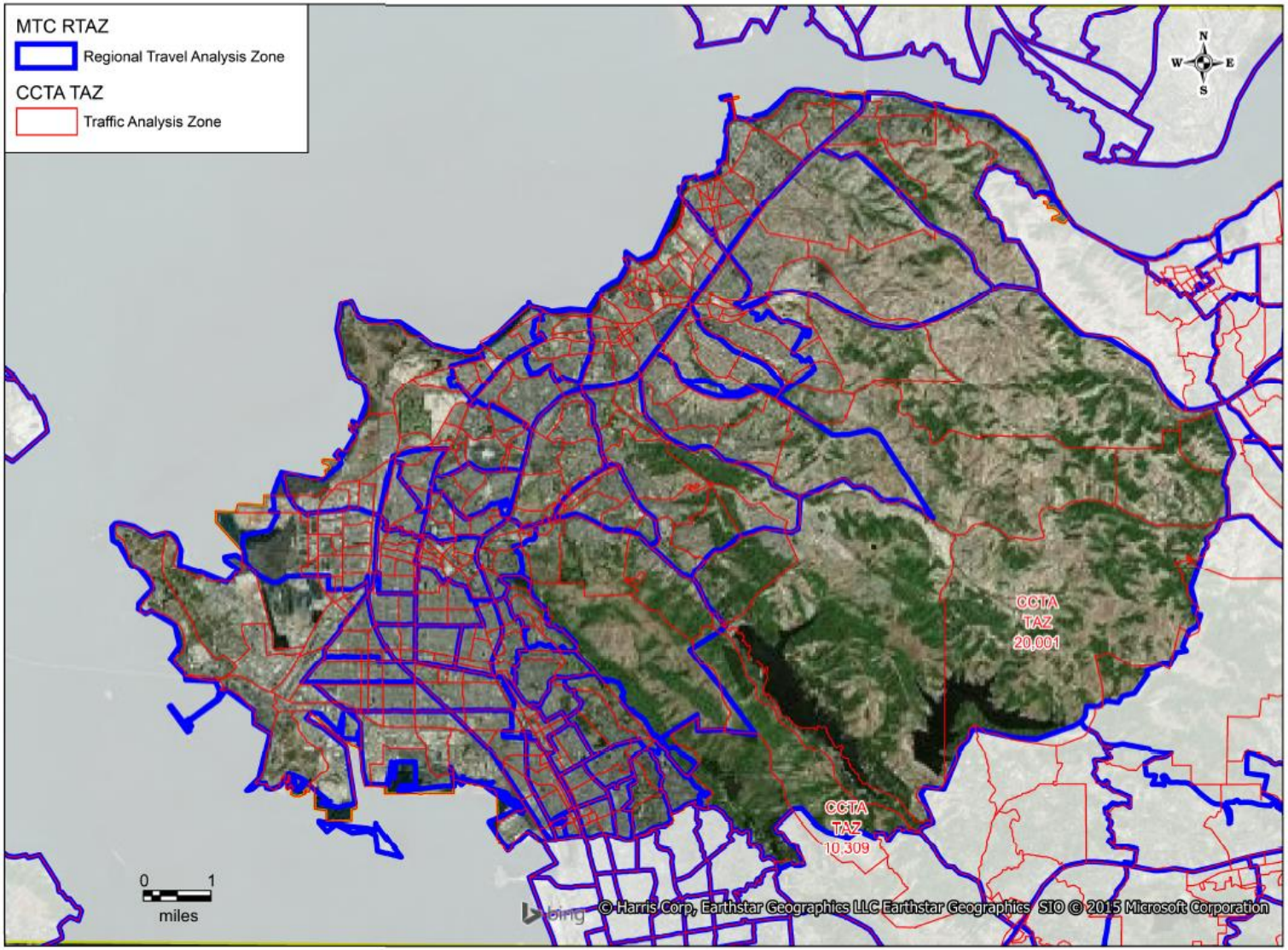
Corresponding MTC Regional Travel Analysis Zones and CCTA Traffic Analysis Zones

Figure A-4 shows the boundaries of the 51 MTC Regional Travel Analysis Zones (RTAZs) and 376 CCTA Traffic Analysis Zones (TAZs) enclosed within the West County Study Area. The RTAZ 1454 zone system zones were designed to nest entirely within Census 2000 tracts, and as there were only minor revisions of tract boundaries in West Contra Costa County between the 2000 and 2010 Census, the 51 RTAZs (with minor exceptions) represent the entirety or nested portions of the 56 corresponding Census 2010 tracts (shown in **Figure A-5**.)

The 376 CCTA Traffic Analysis Zones (TAZs, 2011 zone system) enclosed in the Study Area represent about 25% of a total of 1,495 TAZs defined for Contra Costa County, and about 20% of the 'Inner' 1,869 TAZs defined for Contra Costa County and the TriValley portion of Alameda County. The 1,251 'Outer' TAZs defined for the CCTA's current transportation demand model represent the remainder of Alameda County and the other seven counties in the ABAG planning region. The Outer TAZs in the CCTA 2011 zone system are coterminous with the MTC 1454 zone system RTAZs for those areas.

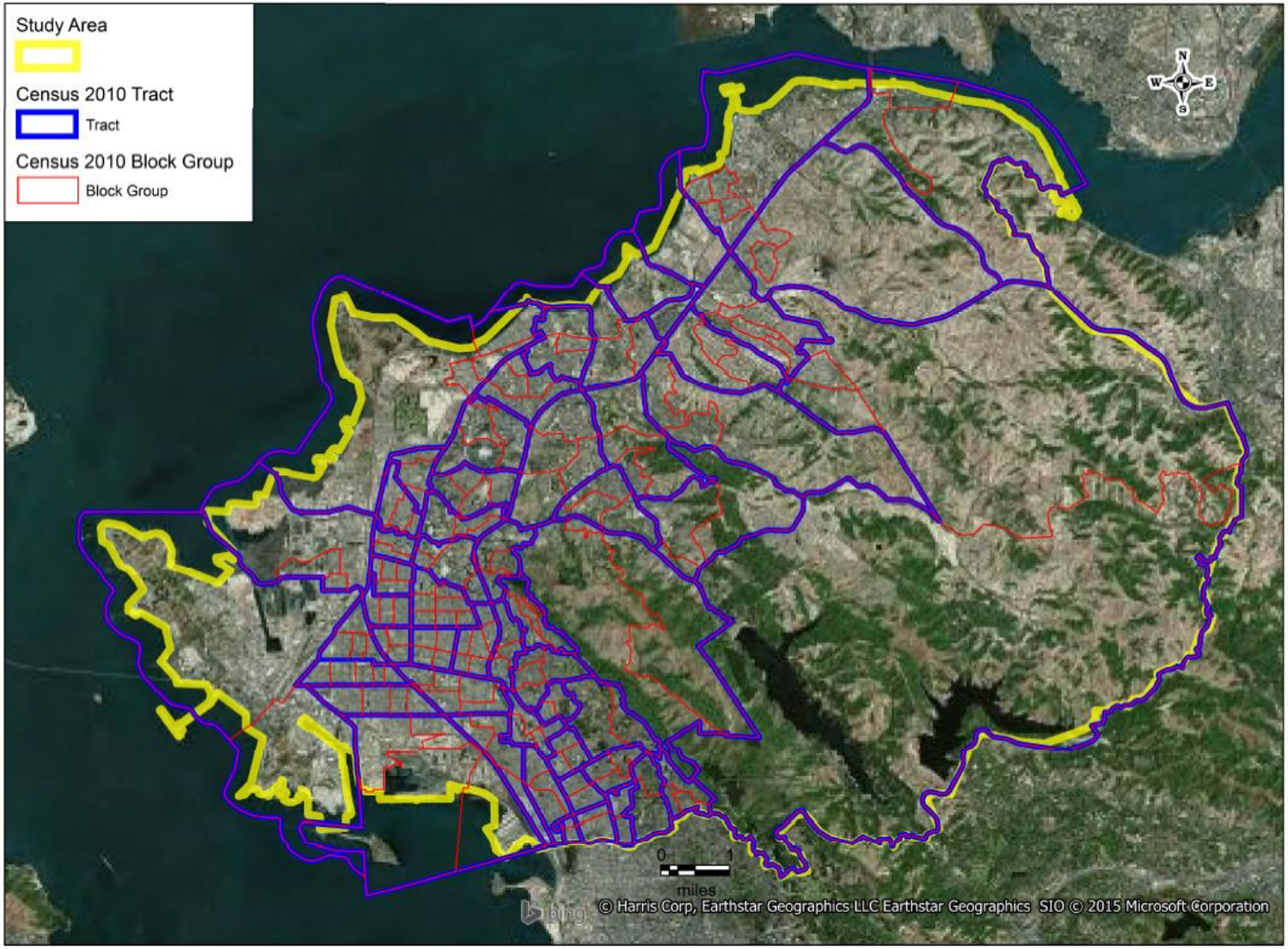
The current CCTA TAZ boundaries do not always nest neatly within RTAZ zones, but by adding 2 TAZs to the 374 TAZs the CCTA has previously classified as comprising the West County Transportation Planning Subarea, the resulting 376-TAZ cluster nests acceptably within the 51 RTAZs which comprise MTC's Richmond/El Cerrito Superdistrict #20, recommended as the reference boundary for the Study Area. The two CCTA TAZs added to the traditional West County Subarea set are #10309 and #20001, located along San Pablo Dam Road southwest of the San Pablo Reservoir and south of Alhambra Valley Road to the east arm of the Briones Reservoir. The TAZs located between and to the north and west of these two have traditionally been assigned to the West County Subarea for CCTA transportation planning purposes.

Figure A-4 Study Area Encloses 51 MTC RTAZs and 376 CCTA TAZs



Economic & Planning Systems, Inc. *MTC RTAZs in Blue; CCTA TAZs in Red* *P:\141000s\141187WCCTAC_HighCapacityTransit\Maps\MapInfo\Figure 4.4rev.wor*

Figure A-5 Study Area and Corresponding 56 Census 2010 Tracts and 180 Census Block Groups



Economic & Planning Systems, Inc. *Census Tracts in Blue; Block Groups in Red* *P:\141000s\141187WCCTAC_HighCapacityTransit\Maps\MapInfo\Figure 4.5rev.wor*

Corresponding Census 2010 Tracts, Block Groups and Blocks

The West County Study Area has 56 corresponding Census 2010 tracts and 180 corresponding block groups, as shown in **Figure A-5**. As can be seen in the figure, the Census tracts and their nesting block group subdivisions extend offshore. Typically, decennial counts of population and housing separate the offshore portions into distinct Census blocks, making it possible to distinguish populations living in boats and islets. The Census Bureau also provides estimates of land and water areas for each block, making possible better estimates of development density. There are 4,537 Census 2010 blocks which correspond to the Study Area (not shown on **Figure A-5**., for clarity of this small map).

Defining the Study Area as an aggregation of whole Census 2010 geographic elements has a number of benefits and efficiencies. ABAG modelers have established the correspondence between MTC RTAZ 1454 Regional Travel Analysis Zones and Census 2010 blocks. Census 2010 blocks were also used by ABAG modelers as the practical working geographic element for allocating Base Year 2010 existing conditions estimates to PDAs, Jurisdictions, Subregional Study Areas, etc., during the Plan Bay Area process.[33]

Going forward, the smallest-area continuing estimates of population, housing, household and employed resident characteristics available from the Census Bureau are the block-group level 5-Year summary files produced by the American Community Survey program. Annual estimates of place-of-work job counts by industrial sector produced by commercial demographic data vendors such as ESRI, Applied Geographic Solutions, Nielsen, etc., are also available at the block-group level.[34]

[33] EPS correspondence with ABAG Regional Planner Jason Munkres, November 2011 and January 2014.

[34] Longitudinal Employer-Household Dynamics (Lodes) block-level allocations of worker residence and job locations produced by the U.S. Census and Bureau of Labor Statistics for the OnTheMap interactive tool are subjected to noise infusion to protect confidentiality, and fidelity to actual ground locations is not reliable below the tract level.

ATTACHMENT B

Growth Projections 2010-2040 for Study Area and Region

PROJECTED STUDY AREA GROWTH COMPARED TO CONTRA COSTA COUNTY AND BAY AREA PROJECTIONS

Attachment Table B-1 West Contra Costa County Study Area Demographic Projections by Decade

	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
Total Population	250,890	272,010	296,580	324,460	73,570	29%
Households	88,540	96,050	103,630	111,310	22,770	26%
Total Jobs	62,580	73,930	78,620	85,200	22,630	36%
Employed Residents	104,710	124,090	130,120	139,350	34,640	33%

Sources: ABAG Projections 2013; EPS

Attachment Table B-2 Population and Household Growth Projections by Bay Area Subregion

Bay Area Subregion	Total Population***						Total Households					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County Study Area	250,900	272,010	296,580	324,450	73,560	29%	88,550	96,030	103,550	111,160	22,610	26%
Remainder, Contra Costa County	798,140	845,150	919,820	1,004,010	205,860	26%	286,820	304,800	328,880	352,990	66,170	23%
Total, Contra Costa County	1,049,040	1,117,160	1,216,390	1,328,460	279,420	27%	375,360	400,830	432,430	464,150	88,790	24%
Other Bay Area Counties	6,101,700	6,601,260	7,195,640	7,867,090	1,765,390	29%	2,232,660	2,436,890	2,640,510	2,843,960	611,300	27%
Total Bay Area Region	**7,150,740**	**7,718,420**	**8,412,030**	**9,195,550**	**2,044,810**	**29%**	**2,608,020**	**2,837,720**	**3,072,940**	**3,308,110**	**700,090**	**27%**

****Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations of P2013 RTAZ tables which exclude some group quarters population segments in future years. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Attachment Table B-3 Jobs and Employed Residents Growth Projections by Bay Area Subregion

Bay Area Subregion	Total Jobs						Employed Residents					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County Study Area	62,580	73,890	78,570	85,080	22,500	36%	105,570	124,080	130,130	139,350	33,780	32%
Remainder, Contra Costa County	282,320	333,920	354,130	382,260	99,940	35%	336,740	387,850	409,220	440,410	103,670	31%
Total, Contra Costa County	344,900	407,820	432,700	467,340	122,440	36%	442,300	511,920	539,350	579,760	137,450	31%
Other Bay Area Counties	3,040,410	3,579,310	3,763,890	4,037,890	997,480	33%	2,826,420	3,337,890	3,512,700	3,770,310	943,890	33%
Total Bay Area Region	**3,385,310**	**3,987,130**	**4,196,590**	**4,505,230**	**1,119,920**	**33%**	**3,268,730**	**3,849,810**	**4,052,050**	**4,350,070**	**1,081,340**	**33%**

Attachment Table B-4 Projected Manufacturing, Wholesale and Transportation Jobs by Subregion

Bay Area Subregion	Manufacturing, Wholesale and Transportation Jobs (NAICS) by Decade					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County Study Area	10,350	11,380	11,690	12,150	1,810	17%
Remainder, Contra Costa County	26,480	28,290	29,060	30,250	3,760	14%
Total, Contra Costa County	36,830	39,660	40,740	42,400	5,570	15%
Other Bay Area Counties	522,050	566,100	548,330	541,060	19,000	4%
Total Bay Area Region	**558,880**	**605,770**	**589,070**	**583,450**	**24,570**	**4%**

Attachment Table B-5 Manufacturing, Wholesale and Trade Jobs (NAICS) as % of Subregional Total Jobs

Bay Area Subregion	Manufacturing, Wholesale and Transportation Jobs (NAICS) Share					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County Study Area	17%	15%	15%	14%	-2.2%	-14%
Remainder, Contra Costa County	9%	8%	8%	8%	-1%	-16%
Total, Contra Costa County	11%	10%	9%	9%	-2%	-15%
Other Bay Area Counties	17%	16%	15%	13%	-4%	-22%
Total Bay Area Region	**17%**	**15%**	**14%**	**13%**	**-4%**	**-22%**

PROJECTED GROWTH BY CCTA TRANSPORTATION PLANNING SUBAREA

Attachment Table B-6 Population and Household Growth Projections by CCTA Transportation Planning Subarea

CCTA Transportation Planning Subarea	Total Population***						Total Households					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County (Study Area)	250,890	272,010	296,580	324,460	73,570	29%	88,540	96,050	103,630	111,310	22,770	26%
Central Contra Costa County	359,590	374,760	413,310	456,050	96,460	27%	143,070	150,280	163,660	177,100	34,020	24%
East Contra Costa County	296,710	322,750	351,350	383,630	86,930	29%	93,430	101,900	109,980	118,050	24,620	26%
TriValley (Contra Costa County Portion)	141,850	147,650	155,180	164,310	22,460	16%	50,310	52,850	55,360	57,890	7,580	15%
Total Contra Costa County	**1,049,030**	**1,117,170**	**1,216,410**	**1,328,450**	**279,420**	**27%**	**375,360**	**401,070**	**432,630**	**464,350**	**88,990**	**24%**

****Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations of P2013 RTAZ tables which exclude some group quarters population segments in future years. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Attachment Table B-7 Single Family and Multifamily Household Growth Projections by CCTA Transportation Planning Subarea

CCTA Transportation Planning Subarea	Single Family Households						Multi-Family Households					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County (Study Area)	62,550	66,720	70,560	74,430	11,890	19%	26,000	29,320	33,070	36,880	10,890	42%
Central Contra Costa County	100,830	104,000	109,300	114,630	13,800	14%	42,250	46,280	54,350	62,460	20,210	48%
East Contra Costa County	77,410	80,750	84,440	88,100	10,690	14%	16,020	21,150	25,530	29,940	13,920	87%
TriValley (Contra Costa County Portion)	42,580	45,360	46,840	48,330	5,750	14%	7,740	7,490	8,530	9,570	1,820	24%
Total Contra Costa County	**283,360**	**296,820**	**311,130**	**325,490**	**42,130**	**15%**	**92,010**	**104,230**	**121,490**	**138,840**	**46,830**	**51%**

Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Attachment Table B-8 Projected Single Family and Multifamily Household Share of Total Households by CCTA Transportation Planning Subarea

CCTA Transportation Planning Subarea	Single Family Households Share of Subarea Total						Multi-Family Households Share of Subarea Total					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County (Study Area)	71%	69%	68%	67%	-4%	-5%	29%	31%	32%	33%	4%	13%
Central Contra Costa County	70%	69%	67%	65%	-6%	-8%	30%	31%	33%	35%	6%	19%
East Contra Costa County	83%	79%	77%	75%	-8%	-10%	17%	21%	23%	25%	8%	48%
TriValley (Contra Costa County Portion)	85%	86%	85%	83%	-1%	-1%	15%	14%	15%	17%	1%	7%
Total Contra Costa County	**75%**	**74%**	**72%**	**70%**	**-5%**	**-7%**	**91%**	**96%**	**104%**	**110%**	**19%**	**21%**

Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Attachment Table B-9 Projected CCTA Transportation Planning Subarea Shares of Total Single Family and Multifamily Households

CCTA Transportation Planning Subarea	Single Family Households Share of Subarea Total						Multi-Family Households Share of Subarea Total					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County (Study Area)	22%	22%	23%	23%	1%	4%	28%	28%	27%	27%	-2%	-6%
Central Contra Costa County	36%	35%	35%	35%	0%	-1%	46%	44%	45%	45%	-1%	-2%
East Contra Costa County	27%	27%	27%	27%	0%	-1%	17%	20%	21%	22%	4%	24%
TriValley (Contra Costa County Portion)	15%	15%	15%	15%	0%	-1%	8%	7%	7%	7%	-2%	-18%
Total Contra Costa County	**100%**	**100%**	**100%**	**100%**			**100%**	**100%**	**100%**	**100%**		

Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Attachment Table B-10 Total Persons per Household and Employed Residents per Household Projections by CCTA Transportation Planning Subarea

CCTA Transportation Planning Subarea	Total Persons per Household***						Employed Residents per Household							
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2030	2040	# Change 2010-2040	# Change 2020-2040	Percent Change 2010-2040	Percent Change 2020-2040
West Contra Costa County (Study Area)	2.83	2.83	2.86	2.91	0.08	3%	1.18	1.29	1.26	1.25	0.07	-0.04	6%	-3%
Central Contra Costa County	2.51	2.49	2.53	2.58	0.06	2%	1.12	1.27	1.25	1.26	0.14	-0.02	12%	-1%
East Contra Costa County	3.18	3.17	3.19	3.25	0.07	2%	1.24	1.29	1.26	1.26	0.02	-0.03	1%	-2%
TriValley (Contra Costa County Portion)	2.82	2.79	2.80	2.84	0.02	1%	1.22	1.25	1.21	1.20	-0.02	-0.04	-1%	-3%
Total Contra Costa County	**2.79**	**2.79**	**2.81**	**2.86**	**0.07**	**2%**	**1.18**	**1.28**	**1.25**	**1.25**	**0.07**	**-0.03**	**6%**	**-2%**

****Subregional Study Areas ratios estimated as aggregates of CCTA TAZ allocations of P2013 RTAZ tables which exclude some group quarters population segments in future years. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Attachment Table B-11 Total Jobs and Employed Residents Growth Projections for CCTA Transportation Planning Subareas

CCTA Transportation Planning Subarea	Total Jobs						Employed Residents					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
West Contra Costa County (Study Area)	62,580	73,930	78,620	85,200	22,630	36%	104,710	124,090	130,120	139,350	34,640	33%
Central Contra Costa County	165,840	199,780	208,110	220,180	54,330	33%	160,220	191,490	204,880	222,750	62,520	39%
East Contra Costa County	52,010	60,610	66,480	76,520	24,500	47%	116,000	131,160	138,170	148,540	32,540	28%
TriValley (Contra Costa County Portion)	64,480	75,930	80,200	86,190	21,710	34%	61,360	65,840	66,820	69,600	8,240	13%
Total Contra Costa County	**344,910**	**410,240**	**433,420**	**468,080**	**123,180**	**36%**	**442,290**	**512,590**	**539,990**	**580,240**	**137,940**	**31%**

****Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations of P2013 RTAZ table. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Attachment Table B-12 Average Jobs per Household and Employed Residents per Local Job Projections by CCTA Transportation Planning Subarea

CCTA Transportation Planning Subarea	Local Jobs per Household***								Employed Residents per Local Job							
	2010	2020	2030	2040	# Change 2010-2040	# Change 2020-2040	Percent Change 2010-2040	Percent Change 2020-2040	2010	2020	2030	2040	# Change 2010-2040	# Change 2020-2040	Percent Change 2010-2040	Percent Change 2020-2040
West Contra Costa County (Study Area)	0.71	0.77	0.76	0.77	0.06	0.00	8%	-1%	1.67	1.68	1.66	1.64	-0.04	-0.04	-2%	-3%
Central Contra Costa County	1.16	1.33	1.27	1.24	0.08	-0.09	7%	-6%	0.97	0.96	0.98	1.01	0.05	0.05	5%	6%
East Contra Costa County	0.56	0.59	0.60	0.65	0.09	0.05	16%	9%	2.23	2.16	2.08	1.94	-0.29	-0.22	-13%	-10%
TriValley (Contra Costa County Portion)	1.28	1.44	1.45	1.49	0.21	0.05	16%	4%	0.95	0.87	0.83	0.81	-0.14	-0.06	-15%	-7%
Total Contra Costa County	**0.92**	**1.02**	**1.00**	**1.01**	**0.09**	**-0.01**	**10%**	**-1%**	**1.28**	**1.25**	**1.25**	**1.24**	**-0.04**	**-0.01**	**-3%**	**-1%**

****Subregional Study Areas ratios estimated as aggregates of CCTA TAZ allocations of P2013 RTAZ tables which exclude some group quarters population segments in future years. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

PROJECTED GROWTH BY STUDY AREA SUBREGIONAL STUDY AREA

Attachment Table B-13 Population and Household Growth Projections for West County Subregional Study Areas

Subregional Study Area	Total Population						Total Households					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
El Cerrito **	29,060	30,860	33,060	35,560	6,500	22%	12,600	13,480	14,340	15,210	2,610	21%
Hercules **	23,890	28,510	33,970	39,970	16,080	67%	8,060	9,560	11,210	12,900	4,840	60%
Pinole **	27,940	29,980	31,850	33,980	6,050	22%	9,770	10,410	10,960	11,510	1,750	18%
Richmond **	123,190	133,150	145,150	158,920	35,740	29%	43,080	46,660	50,220	53,830	10,760	25%
Rodeo-Crockett **	12,080	12,040	12,040	12,120	40	0%	4,490	4,480	4,530	4,590	100	2%
San Pablo **	33,340	35,920	38,920	42,250	8,910	27%	10,000	10,860	11,740	12,620	2,620	26%
C.C. County Remainder (Part)	1,400	1,550	1,600	1,660	250	18%	550	620	630	650	100	18%
Total	**250,890**	**272,010**	**296,580**	**324,460**	**73,570**	**29%**	**88,540**	**96,050**	**103,630**	**111,310**	**22,770**	**26%**

**Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations; may differ from rounded figures in other tables. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

Attachment Table B-14 Jobs and Employed Residents Growth Projections for West County Subregional Study Areas

Subregional Study Area	Total Jobs						Employed Residents					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
El Cerrito **	6,310	7,360	7,830	8,450	2,140	34%	13,140	16,250	16,890	17,920	4,780	36%
Hercules **	4,450	5,850	6,430	7,260	2,810	63%	11,070	13,670	15,320	17,390	6,320	57%
Pinole **	7,260	8,240	8,650	9,220	1,960	27%	11,750	13,940	14,330	15,050	3,300	28%
Richmond **	36,830	43,190	45,770	49,370	12,550	34%	50,000	58,770	61,660	65,880	15,890	32%
Rodeo-Crockett **	2,000	2,330	2,480	2,680	680	34%	5,540	6,450	6,300	6,270	730	13%
San Pablo **	5,590	6,800	7,320	8,080	2,500	45%	12,540	14,110	14,710	15,910	3,360	27%
C.C. County Remainder (Part)	150	150	140	140	(10)	-7%	670	910	910	930	260	40%
Total	**62,580**	**73,930**	**78,620**	**85,200**	**22,630**	**36%**	**104,710**	**124,090**	**130,120**	**139,350**	**34,640**	**33%**

**Subregional Study Areas subtotals estimated as aggregates of CCTA TAZ allocations; may differ from rounded figures in other tables. Sources: ABAG Projections 2013; MTC RTAZ tabulations; EPS

PROJECTED GROWTH BY STUDY AREA PRIORITY DEVELOPMENT AREA

Attachment Table B-15 Population and Household Growth Projections for West County Priority Development Areas

Jurisdiction	Priority Development Area	Total Population						Total Households					
		2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
El Cerrito	San Pablo Avenue Corridor - ELC1_a	1,330	1,690	2,080	2,490	1,160	87%	630	800	980	1,150	510	81%
	San Pablo Avenue Corridor - ELC1_b	1,370	1,780	2,220	2,700	1,340	98%	590	770	950	1,140	550	92%
Hercules	Central Hercules - HER1	1,230	3,650	6,150	8,830	7,600	617%	400	1,190	1,990	2,800	2,400	598%
	Waterfront District - HER2	2,040	3,110	4,230	5,450	3,410	168%	640	980	1,320	1,660	1,020	158%
Pinole	Old Town San Pablo Avenue - PIN1	3,370	3,530	3,730	3,950	590	17%	1,300	1,350	1,410	1,470	180	14%
	Appian Way Corridor - PIN2	1,280	1,770	2,280	2,830	1,550	121%	520	720	920	1,110	590	112%
Richmond	Central Richmond - RIC1_a	14,430	15,310	16,300	17,500	3,070	21%	4,700	4,960	5,220	5,480	780	17%
	23rd Street - RIC1_b	2,500	3,590	4,750	6,030	3,530	141%	640	910	1,190	1,460	830	130%
	South Richmond - RIC2	8,000	9,240	10,570	12,030	4,040	51%	3,250	3,740	4,240	4,740	1,490	46%
San Pablo	San Pablo Avenue & 23rd Street Corridors - SPA1	7,120	8,620	10,230	12,010	4,890	69%	2,530	3,050	3,570	4,110	1,580	63%
Richmond (with Contra Costa County)	North Richmond - CCC2	3,720	4,220	4,810	5,500	1,780	48%	1,030	1,150	1,280	1,410	380	37%
Contra Costa County	Downtown El Sobrante - CCC4	4,430	4,910	5,410	5,990	1,560	35%	1,670	1,840	2,010	2,190	520	31%
WCCTAC	San Pablo Avenue Corridor - Unincorporated County - WCC1_a	5,030	5,300	5,600	5,960	930	19%	1,590	1,670	1,750	1,830	240	15%
	San Pablo Avenue Corridor - Richmond - WCC1_c	4,020	5,320	6,680	8,150	4,130	103%	1,710	2,250	2,800	3,350	1,640	96%
	San Pablo Avenue Corridor - Hercules - WCC1_g	2,030	2,830	3,680	4,600	2,570	127%	600	830	1,070	1,310	710	119%

Sources: ABAG Projections 2013; EPS

Attachment Table B-16 Jobs and Employed Residents Growth Projections for West County Priority Development Areas

Jurisdiction	Priority Development Area	Total Jobs						Employed Residents					
		2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
El Cerrito	San Pablo Avenue Corridor - ELC1_a	1,850	2,030	2,120	2,240	390	21%	750	1,030	1,210	1,410	660	88%
	San Pablo Avenue Corridor - ELC1_b	1,670	1,900	1,990	2,110	440	26%	660	930	1,110	1,320	660	100%
Hercules	Central Hercules - HER1	800	1,290	1,520	1,830	1,030	128%	510	1,640	2,660	3,730	3,220	631%
	Waterfront District - HER2	1,240	1,540	1,690	1,890	650	53%	650	1,070	1,400	1,760	1,100	169%
Pinole	Old Town San Pablo Avenue - PIN1	2,840	3,120	3,250	3,440	610	21%	1,650	1,870	1,890	1,960	300	18%
	Appian Way Corridor - PIN2	2,430	2,820	2,970	3,190	750	31%	660	980	1,210	1,460	800	121%
Richmond	Central Richmond - RIC1_a	6,600	7,600	8,040	8,670	2,070	31%	5,190	5,910	6,030	6,280	1,100	21%
	23rd Street - RIC1_b	310	480	560	660	350	112%	730	1,130	1,420	1,740	1,020	139%
	South Richmond - RIC2	7,030	8,150	8,650	9,360	2,340	33%	3,830	4,770	5,240	5,810	1,980	52%
San Pablo	San Pablo Avenue & 23rd Street Corridors - SPA1	5,530	6,460	6,900	7,520	1,980	36%	2,890	3,770	4,290	4,890	2,000	69%
Richmond (with Contra Costa County)	North Richmond - CCC2	1,490	1,780	1,860	1,990	500	34%	1,020	1,240	1,340	1,460	440	43%
Contra Costa County	Downtown El Sobrante - CCC4	940	1,200	1,300	1,430	490	52%	2,040	2,430	2,580	2,770	730	36%
WCCTAC	San Pablo Avenue Corridor - Unincorporated County - WCC1_a	680	830	900	990	310	46%	2,020	2,280	2,320	2,400	390	19%
	San Pablo Avenue Corridor - Richmond - WCC1_c	1,790	2,380	2,650	3,010	1,210	68%	1,850	2,630	3,160	3,760	1,910	104%
	San Pablo Avenue Corridor - Hercules - WCC1_g	730	950	1,050	1,180	450	62%	620	930	1,170	1,420	800	128%

Sources: ABAG Projections 2013; EPS

STUDY AREA JOB GROWTH PROJECTIONS BY INDUSTRIAL GROUP

Attachment Table B-17 Job Growth Projections by Type* for West County Study Area

NAICS Job Groups	Job Projections by NAICS Group (used by ABAG and MTC)						SIC Job Groups	Job Projections by SIC Group (used by CCTA and other CMAs)					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040		2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
Agriculture and Natural Resources	160	170	150	140	(20)	-11%	Agriculture and Natural Resources	150	160	140	130	(10)	-10%
Manufacturing, Wholesale and Transportation	10,350	11,380	11,690	12,150	1,810	17%	Manufacturing	5,750	6,290	6,430	6,650	900	16%
Retail	8,750	9,200	9,250	9,400	650	7%	Retail Trade**	12,400	13,810	14,340	15,120	2,720	22%
Financial and Professional Services	10,260	13,350	14,460	16,000	5,740	56%	Wholesale Trade	2,960	3,230	3,280	3,380	410	14%
Health, Educational and Recreational Services	18,490	23,460	26,010	29,380	10,890	59%	Services	21,380	27,320	30,120	33,860	12,480	58%
Other	14,580	16,340	17,020	18,020	3,440	24%	Other	19,940	23,100	24,260	25,940	6,000	30%
Total	**62,580**	**73,890**	**78,570**	**85,080**	**22,500**	**36%**	**Total**	**62,580**	**73,900**	**78,570**	**85,070**	**22,500**	**36%**

*ABAG and MTC have used NAICS-based job classifications since Projections 2005; the CCTA and some other Bay Area CMAs continue to use SIC-based classifications. Sources: ABAG Projections 2013; MTC RTAZ tabulations; Applied Geographic Solutions employment estimates; EPS

** Includes 'sit-down' eating and drinking places (restaurants, café's, bars and taverns, etc.), and other food services (fast-food outlets, specialty snack shops, etc.)

Attachment Table B-18 Projected Job Percentage Distribution by Type, by Decade* for West County Study Area

NAICS Job Groups	Job Projections by NAICS Group (used by ABAG and MTC)						SIC Job Groups	Job Projections by SIC Group (used by CCTA and other CMAs)					
	2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040		2010	2020	2030	2040	# Change 2010-2040	Percent Change 2010-2040
Agriculture and Natural Resources	0.3%	0.2%	0.2%	0.2%	-0.1%	-35%	Agriculture and Natural Resources	0.2%	0.2%	0.2%	0.2%	-0.1%	-33%
Manufacturing, Wholesale and Transportation	17%	15%	15%	14%	-2%	-14%	Manufacturing	9%	9%	8%	8%	-1%	-15%
Retail	14%	12%	12%	11%	-3%	-21%	Retail Trade**	20%	19%	18%	18%	-2%	-10%
Financial and Professional Services	16%	18%	18%	19%	2%	15%	Wholesale Trade	5%	4%	4%	4%	-1%	-16%
Health, Educational and Recreational Services**	30%	32%	33%	35%	5%	17%	Services	34%	37%	38%	40%	6%	17%
Other	23%	22%	22%	21%	-2%	-9%	Other	32%	31%	31%	30%	-1%	-4%
Total	**100%**	**100%**	**100%**	**100%**			**Total**	**100%**	**100%**	**100%**	**100%**		

*ABAG and MTC have used NAICS-based job classifications since Projections 2005; the CCTA and some other Bay Area CMAs continue to use SIC-based classifications. Sources: ABAG Projections 2013; MTC RTAZ tabulations; Applied Geographic Solutions employment estimates; EPS

** Includes 'sit-down' eating and drinking places (restaurants, café's, bars and taverns, etc.), and other food services (fast-food outlets, specialty snack shops, etc.)

ATTACHMENT C

CCTA TAZ and RTAZ Allocations of Projections 2013

DATA DICTIONARIES FOR CCTA TAZ AND RTAZ

Allocations of Projections 2013

EPS has already allocated existing (2010) and proposed (2020, 2030, and 2040) land use within the Study Area at the TAZ level, consistent with Plan Bay Area and Projections 2013 published tabulations. EPS checked the accuracy of the existing (2010) population and household estimates at the TAZ level using Census 2010 block counts and satellite photos, and controlled allocations of existing jobs to the TAZ level using RTAZ tables from Projections 2013 and prior TAZ estimates from the CCTA P-2011 model.

Allocations of PBA/Projections 2013 future year to the TAZ level growth forecasts were accomplished using RTAZ and Priority Development Area (PDA) growth tabulations from published ABAG documents and as available from the MTC/ABAG Analytical Modeling Wiki Travel Model Data Depository. The CCTA P-2011 model has again been used to provide proportional distribution factors for allocating growth to TAZs contained within RTAZs or RTAZ clusters.

The Study Area comprises 376 TAZs in the CCTA's current model zone structure, and the many data elements and four time intervals represented in the entire Socio-Economic Dataset (SED) used for input to the transportation demand model, are available for the West Contra Costa High-Capacity Transit Study.

The data dictionaries for the available RTAZ and TAZ allocations of Plan Bay Area/Projections 2013 as compiled for the CCTA model are provided as attachments to this memo, and summary tables for the growth projections at the Subregional Study Area and PDA are provided in the main body of the memo and as attachments[35].

DATA DICTIONARY FOR CCTA TAZ ALLOCATIONS OF PROJECTIONS 2013

The following data dictionary table lists the geographic descriptors, land use and demographic attributes which have been assigned and allocated to the 3,120 CCTA Traffic Analysis Zones (TAZs, Year 2011 zone system) by Economic and Planning Systems (EPS), using ABAG Final Plan Bay Area and Projections 2013 published summary tables as control authorities for compliance with estimates of existing conditions and projected future year conditions at the regional and county levels.

[35] CCTA has also made available interactive maps summarizing current TAZ assumptions for future growth consistent with Plan Bay Area: CCTA Land Use Information System - http://ccta.net/ resources/detail/17/1

MTC RTAZ 1454 tabulations of Plan Bay Area, obtained from the MTC/ABAG Analytical Modeling Wiki Travel Model Data Depository have been used as source authorities for compliance of allocations at the RTAZ level for Future Years 2020, 2030 and 2040.

EPS has assembled a RTAZ source authority for the Base Year 2010 which combines Employment and Employed Residents RTAZ data fields from the Plan Bay Area Draft Preferred Land Use Scenario with population and housing RTAZ data fields from the 2013 RTP\SCS Focused Growth Scenario obtained from the MTC/ABAG Analytical Modeling Wiki. The substitution of the Draft Preferred Land Use Scenario Employment and Employed Residents estimates brings the 'hybrid' Base Year 2010 source authority numbers into compliance with the adopted Plan Bay Area and published Projections 2013 regional and county-level summary tables.

Please note that the data fields with a '_##' label indicate estimates and projections which have been allocated for 2010, 2020, 2030 and 2040. Several of the socioeconomic data elements which are part of the MTC RTAZ tabulations, including population breakdown by age, households by household income range, and household breakdown by single-family and multifamily dwelling types were not required to be allocated to the CCTA TAZ level for the current CCTA travel demand model, but are available at the corresponding RTAZ level.

Also note that the CCTA TAZ allocations of employment are by SIC-based groups only; the current CCTA CMA model uses SIC rather than NAICS groups for job inputs. Both SIC-based and NAICS-based allocations are available in the CCTA RTAZ allocations of Projections 2013.

Attachment Table C-1. Data Dictionary for CCTA TAZ (3120 Zones) Allocations of Projections 2013

Variable Name	Variable Description
CCTA_TAZ	CCTA Traffic Analysis Zone (Y2011 zone set; 3120 zones)
MTC1454	MTC Regional Travel Analysis Zone (1454 zones)
ABAGNAME	ABAG Subregional Study Area (For 'Inner' CCC/AC TAZs Only)
JURNAME	ABAG Jurisdiction (For 'Inner' CCC/AC TAZs Only)
SUBAREA	CCTA Transportation Planning Subarea (CCTA Y2011 Zone System)
DISTRICT	Analysis District, for Calibration of Modal Constants
SD	MTC 34 Superdistrict
COUNTY	County Code (MTC codes, SF=1, SM=2, ... MAR=9)
COUNTY_LABEL	County Text Label
ACRES	Zone Area in Acres (Gross)
TOTHH_##	Total Households ('##' for Years '10, '20, '30 and '40)
TOTPOP_##	Total Population ('##' for Years '10, '20, '30 and '40)
EMPRES_##	Employed Residents in Households ('##' for Years '10, '20, '30 and '40)
SFDU_##	Number of Households in Single Family Dwelling Units ('##' for Years '10, '20, '30 and '40)
MFDU_##	Number of Households in Multi Family Dwelling Units ('##' for Years '10, '20, '30 and '40)
TOTEMP_##	Total Employment ('##' for Years '10, '20, '30 and '40)
RETEMP_##	Retail Trade Employment [SIC] ('##' for Years '10, '20, '30 and '40)
SEREMP_##	Service Employment [SIC] ('##' for Years '10, '20, '30 and '40)
OTHEMP_##	Other Employment [SIC] ('##' for Years '10, '20, '30 and '40)
AGREMP_##	Agricultural Employment [SIC] ('##' for Years '10, '20, '30 and '40)
MFGEMP_##	Manufacturing Employment [SIC] ('##' for Years '10, '20, '30 and '40)
TRDEMP_##	Wholesale Trade Employment [SIC] ('##' for Years '10, '20, '30 and '40)
HSENROLL_##	High School Student Enrollment ('##' for Years '10, '20, '30 and '40)
COLL_FTE_##	College Full-Time Student Enrollment ('##' for Years '10, '20, '30 and '40)
COLL_PTE_##	College Part-Time Student Enrollment ('##' for Years '10, '20, '30 and '40)
GMSENROLL_10	K-8 and Middle School 2010 Enrollment (For 'Inner' CCC/AC TAZs Only)
GMSENROLL_## *	K-8 and Middle School Enrollment (For 'Inner' TAZs Only; '##' for Years '20, '30 and '40)
INHCT_SA	In West Contra Costa County Study Area Flag ('Y' or 'N')
INHCTSUBAREA	CCTA Transportation Planning Subarea (2 TAZs reassigned from CENTAL to WEST)

* GMSENROLL Future Year Projections available for CCTA CRP scenario only, not Projections 2013. Sources: MTC and CCTA Data Dictionaries; EPS

DATA DICTIONARY FOR CCTA RTAZ ALLOCATIONS OF PROJECTIONS 2013

The following data dictionary table lists the geographic descriptors, land use and demographic attributes which have been assigned and allocated to the 1,454 Regional Travel Analysis Zones (RTAZs, MTC 1454 zone system) by Economic and Planning Systems (EPS), using ABAG Final Plan Bay Area and Projections 2013 published summary tables as control authorities for compliance with estimates of existing conditions and projected future year conditions at the regional and county levels.

MTC RTAZ 1454 tabulations of Plan Bay Area, obtained from the MTC/ABAG Analytical Modeling Wiki Travel Model Data Depository have been used as source authorities at the RTAZ level for Future Years 2020, 2030 and 2040.

EPS assembled a RTAZ source authority for the Base Year 2010 which combines Employment and Employed Residents RTAZ data fields from the Plan Bay Area Draft Preferred Land Use Scenario with population and housing RTAZ data fields from the 2013 RTP\SCS Focused Growth Scenario obtained from the MTC/ABAG Analytical Modeling Wiki. The substitution of the Draft Preferred Land Use Scenario Employment and Employed Residents estimates brings the 'hybrid' Base Year 2010 source authority numbers into compliance with the adopted Plan Bay Area and published Projections 2013 regional and county-level summary tables.

EPS also converted the NAICS-based job groups currently used by ABAG and MTC into the SIC-based job groups currently used by CCTA in the CMA transportation demand model. Conversions were made using data obtained from Applied Geographic Solutions (AGS), a commercial data vendor. AGS estimates of employment by place of work are available in both NAICS and SIC detailed classifications for census block groups and blocks, and served as a source for the fractional correspondence matrix used to convert RTAZ-level estimates and projections of jobs by type.

Please note that the RTAZ data dictionary is a common format used for the CCTA RTAZ datasets for 2010, 2020, 2030 and 2040. Several socioeconomic data elements which are part of the MTC RTAZ tabulations, including population breakdown by age, households by household income range, and household breakdown by single-family and multifamily dwelling types, were not required to be allocated to the CCTA TAZ level for the current CCTA travel demand model, but are available at the corresponding RTAZ level.

Attachment Table C-2 Data Dictionary

Variable Name		Variable Description
ZONE		MTC Regional Travel Analysis Zone (1454 zones)
DISTRICT		Analysis District, for Calibration of Modal Constants
SD		MTC 34 Superdistrict
COUNTY		County Code (MTC codes, SF=1, SM=2, ... MAR=9)
TOTHH		Total Households
HHPOP		Household Population
TOTPOP	*	Total Population
EMPRES	***	Employed Residents in Households
SFDU		Number of Households in Single Family Dwelling Units
MFDU		Number of Households in Multi Family Dwelling Units
HHINCQ1		Number of Households, Income Quartile 1 (< $25000 in $1989)
HHINCQ2		Number of Households, Income Quartile 2 ($25000-$45000 in $1989)
HHINCQ3		Number of Households, Income Quartile 3 ($45000-$75000 in $1989)
HHINCQ4		Number of Households, Income Quartile 4 (>$75000 in $1989)
TOTACRE		Total Acres in Zone
RESACRE		Net Residential Acres in Zone
CIACRE		Net Commercial/Industrial Acres in Zone
SHPOP62P		Share of the population age 62 or older
TOTEMP	***	Total Employment
AGE0004		Population, Age 0 – 4
AGE0519		Population, Age 5 – 19
AGE2044		Population, Age 20 – 44
AGE4564		Population, Age 45 – 64
AGE65P		Population, Age 65-+
RETEMPN	***	Retail Trade Employment (NAICS-based)
FPSEMPN	***	Financial & Professional Services Employment (NAICS-based)
HEREMPN	***	Health, Educational and Recreational Service Employment (NAICS-based)
OTHEMPN	***	Other Employment (NAICS-based)
AGREMPN	***	Agricultural & Natural Resources Employment (NAICS-based)
MWTEMPN	***	Manufacturing, Wholesale Trade & Transportation Employment (NAICS-based)
PRKCST		Hourly parking rate paid by long-term (8-hours) parkers (year 2000 cents)
OPRKCST		Hourly parking rate paid by short-term parkers (year 2000 cents)
AREATYPE		Area type designation 0 - regional core, 1 - central business district, 2 - urban business, 3 - urban, 4 - suburban, 5 - rural
HSENROLL		High school students enrolled at schools in this RTAZ
COLL_FTE		College students enrolled full-time at colleges in this RTAZ
COLL_PTE		College students enrolled part-time at colleges in this RTAZ
TERMINAL		Average time to travel from automobile storage location to origin/destination
TOPOLOGY		Topology (steepness) indicator 1 - flat, 2 - in between, 3 - steep
ZERO		Placeholder (always zero)
HHLDS		Repeat of the TOTHH variable with a different name for software compatibility
SFTAZ		Repeat of the ZONE variable with a different name for software compatibility
GQPOP	**	Population living in group quarters rather than households*
RETEMP		Retail Trade Employment (SIC-based; conversions by EPS)
SEREMP		Service Employment (SIC-based; conversions by EPS)
OTHEMP		Other Employment (SIC-based; conversions by EPS)
AGREMP		Agricultural Employment (SIC-based; conversions by EPS)
MFGEMP		Manufacturing Employment (SIC-based; conversions by EPS)
TRDEMP		Wholesale Trade Employment (SIC-based; conversions by EPS)
INHCT_SA		In West Contra Costa County Study Area Flag ('Y' or 'N')

*Future Year TOTPOP Variables in RTAZ tables include only a subset of GQPOP estimates in Plan Bay Area and Projections 2013 summary tables.

**Future Year Variables in RTAZ tables represent only subset of (are less than) GQPOP estimates in Plan Bay Area and Projections 2013 summary tables.

***These Year 2010 Variables for the RTAZ reference tables used in CCTA TAZ allocations of Projections 2013 are substitutes from Plan Bay Area Draft Preferred Land Use Scenario, to maintain consistency at county and regional levels with adopted Final Plan Bay Area and Projections 2013 summary tables.
EPS replaced the ***-flagged original variables found in the Forecast Year 2010 2013 RTP/SCS "Focused Growth Scenario" land use dataset posted here:
http://analytics.mtc.ca.gov/foswiki/Main/DataRepository

Sources: MTC and CCTA Data Dictionaries; EPS