Job Growth Projections and Employment Land Demand

A resource for the Envision 2040 San Jose General Plan Update Task Force

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Completed by the City of San Jose Planning Division
Department of Planning, Building, and Code Enforcement

With references to:

Association of Bay Area Governments (ABAG) *Projections 2007* & *Draft Projections 2009*

Population and Job Growth Projections from the Center for the Continuing Study of the California Economy

JOB GROWTH PROJECTIONS AND EMPLOYMENT LAND DEMAND

Table of Contents

Appendices

List of Tables

Executive Summary – Key Conclusions

The data and analysis contained in this and the four attached reports provides a significant resource for the Envision 2040 Task Force to use as the Envision 2040 process continues. While much can be drawn from this information, the following four conclusions in particular should be considered by the Task Force at this time:

- While the job growth projections initially prepared by CCSCE to support the Envision 2040 process forecast an amount of total job growth less than the current General Plan capacity, several factors support planning for a more optimistic amount of job growth in San José:
  - The most recent ABAG *Projections 2009* allocates a higher percentage of Bay Area job growth to San José. The methodology used by CCSCE would then also forecast a higher job growth rate for San José.
  - Providing capacity for job growth above the forecast amount is necessary in order to provide adequate employment land options to attract Driving Industry businesses to San José.
  - Growth projections and the General Plan serve as a policy tool that communicates the City's goals for its future development and potentially influence the development of policies by other agencies.

- Job growth in the Household Support Cluster is directly tied to population or Household growth. Job growth within this cluster should be accommodated within residential areas to the extent feasible to provide convenient access, minimize travel needs and take advantage of mixed-use development opportunities to accommodate overall job growth. The composition of job growth within scenarios will also vary depending upon the amount of Household growth included in the scenario.

- The City should plan for job growth in areas that provide a variety of Land Use types. Some types of job growth can be accommodated in a downtown high-rise office setting, some in a low-density manufacturing district and some in dispersed neighborhood shopping centers. The expected demand for different types of employment space and setting will change over time as particular industries grow or wane and as the characteristics of those industries change.

- The City should provide additional Industrial/Warehouse lands (to support Light and Heavy Industrial uses) and additional Large Retail lands to accommodate job growth demand for these land types. Based upon the projected distribution of job growth by Industry Cluster job type, there will be additional demand for the land types to accommodate new job growth. The type of development that takes place on these land types has a lesser ability to be accommodated in higher density development.

A. *Jobs and Populations Projections*

The sections below discuss how job projections should be used in the Envision San José 2040 process and discusses the jobs projections currently available, including the projections developed by the Association of Bay Area Governments and the projection developed by the Center for the Continuing Study of the California Economy specifically for Envision San José 2040.

1. Purpose of Projections

Population and job growth projections serve two primary purposes for the City of San José and for the Envision 2040 process:

- Planning tool – As a planning tool, the projections are used to anticipate land use demand and to facilitate the planning of an adequate land use supply to accommodate that demand.
- Policy tool – As a policy tool, the projections are used to express the City's vision and goals for its future and to influence policy decisions made by other groups (e.g., Federal, State and regional agencies).

With these two purposes in mind, the following report has been prepared to provide the Envision 2040 Task Force with additional information related to job growth projections and future demands for employment lands within San José.

2. Available Job Growth Projections

The Envision 2040 Task Force has access to two sources of projections for future job and population (household) growth within San José. These two sources are the Association of Bay Area Governments (ABAG) and The Center for the Continuing Study of the California Economy (CCSCE). ABAG has been given the authority by the State to develop projections for the Bay Area jurisdictions which the State and other agencies use to develop various policies. Every two years ABAG releases a new set of projections. The *Projections 2007* document is the most recent set of finalized ABAG projections, but a final draft of the *Projections 2009* document has just been made available to the public and is scheduled for review by the ABAG Board on March 19, 2009. Tables 1 and 2 note the job projections from ABAG for the Bay Area and San José, respectively. In comparison to *Projections 2007, Projections 2009* forecasts a significant increase in San José's share of the future Bay Area job growth. This increase in job share has interesting implications for the Envision 2040 process.

To support the Envision 2040 process, the City of San José contracted with Steven Levy of the Center for the Continuing Study of the California Economy (CCSCE) to provide independent population and job growth projections for San José to 2040. A report prepared by Mr. Levy, previously distributed to the Envision 2040 Task Force in December 2008, provided general population and job projections which have been used as a resource by the Task Force. Mr. Levy has also provided a report (Appendix A) that gives further details on the characteristics of future job growth. Both reports make reference to the ABAG *Projections 2007* document, but not to the more recent draft *Projections 2009*.

The ABAG and CCSCE projections both follow a methodology of first developing a projection for job growth for the Bay Area region as a whole and then distributing this job growth to local jurisdictions within the Bay Area. While ABAG and CCSCE employed independent methodologies to determine the overall job growth for the Bay Area (yielding a significantly different projection for the timing and total amount of Bay Area job growth), CCSCE determined San José's share of regional job growth by using the percentage allocation established in ABAG's *Projections 2007*. As noted above, this percentage increases significantly in *Projections 2009*. The following report includes a summary of the detailed projections provided by CCSCE along with a modified set of projections based upon the *Projections 2009* distribution of job growth. ABAG's Projections 2007 and its draft Projections 2009 can be compared to the projections prepared by CCSCE in Tables 1 and 2 below.

In addition, projections for the total number of jobs for San José in 2040, the report prepared by CCSCE also includes a distribution of that job growth in five year intervals over different industry classifications. Beacon Economics used this data to develop a methodology (Appendix B) to project demand for building square footage and land acreage for the different types of industrial lands needed to accommodate the projected job growth. This report includes a discussion of this demand projection based upon Beacon's methodology for both the CCSCE projections and the CCSCE projections modified as a result of ABAGS *Projections 2009*.

It should be noted that increasingly ABAG projections are being used as a policy tool to help implement State legislative goals. New to the development of the ABAG projections for *Projections 2009*, ABAG is using "performance targets" that measure how different land use scenarios reduce driving, congestion, transportation-related carbon emissions and particulate matter in the air by 2035 with the goal of supporting the development of policies that will help to reduce potential impacts in these areas. ABAG tested several projections scenarios to determine the impact each would have on the generation of these impacts before selecting the set of projections being brought forward for consideration by their Board.

Table 1: Summary of Projected Total Jobs for Bay Area (1,000s)

	2005	2020	2025	2030	2035	Growth 2005-2020	Growth 2020-2035	Growth 2005-2035
ABAG *Projections 2007*	3,450	4,281	4,595	4,922	5,248	24.1%	22.6%	52.1%
ABAG draft *Projections 2009*	3,450	4,041	4,380	4,740	5,107	17.1%	26.4%	48.0%
CCSCE	3,569	4,261	4,383	4,510	4,690	19.4%	10.1%	31.4%

Table 2: Summary of Projected Total Jobs for San José (1,000s)

	2005	2020	2025	2030	2035	2040	2035 San José as % of Bay Area
ABAG *Projections 2007*	349.0	464.9	508.1	554.5	607.4		11.6%
ABAG draft *Projections 2009*	349.0	493.0	562.4	633.7	709.0		13.9%
CCSCE	384.6	479.1	497.2	515.8	542.4	570.0	11.6%

As discussed by Steve Levy (CCSCE) in the attached reports, ABAG *Projections 2007* projects a significantly higher job growth rate for the Bay Area in comparison to the nation. CCSCE also projects Bay Area job growth at a rate higher than the national average, but not at a rate as high as that used by ABAG. CCSCE then projects San José's future job growth as a percentage of the Bay Area job growth by using the same percentage allocation to San José as that used by ABAG. Based on the most recent *Projections 2009* draft, which allocates a higher percentage of the Bay Area job growth to San José, a corresponding adjustment to the CCSCE forecast would result in a projection of 677,200 jobs for San José in 2040, as shown in Table 3.

Table 3: Adjusted Total Jobs for San José (1,000s) – Based on CCSCE Forecast for Bay Area

	2005	2020	2025	2030	2035	2040
CCSCE Bay Area Forecast	3,569	4,261	4,383	4,510	4,690	4,878
Adjusted San José Share	384.6	519.8	562.8	603.0	651.1	677.2

In addition to the aforementioned job growth projections from CCSCE and ABAG, this report refers to two hypothetical scenarios ("More Jobs" and "More Jobs & Less Housing") being used by the Envision 2040 Task Force as it considers how to plan land uses for San José in the year 2040.

B. *Existing San José 2020 General Plan Jobs Capacity*

The City's current General Plan (GP2020) includes capacity for a significant amount of job growth above the existing level of development. It is estimated that the current General Plan would allow additional development on employment lands to accommodate at least 229,020 additional jobs. Much of this job capacity is on lands currently designated for Industrial Park, Downtown Core or Campus Industrial uses and accordingly is expected to take the form of low-rise, mid-rise or high-rise office or R&D space. A more limited amount, mostly in the Monterey Corridor, is designated for Light Industrial or Heavy Industrial use. Table 4 shows the estimated distribution of the existing San José 2020 General Plan job capacity through the City's various employment areas.

Table 4: Estimated New Job Capacity in San José 2020 General Plan

Employment Areas	**Jobs**
North San José	83,000
North Coyote Valley	50,000
Downtown	45,000
Edenvale	23,000
Evergreen Campus Industrial	11,520
Vacant Lands	11,400
Monterey Corridor	3,500
FMC	1,600
Total	**229,020**

As projections for job growth demand, and subsequently square footage and acreage demand are considered, the existing General Plan capacity should be taken into consideration as this capacity could be used to potentially accommodate all or some of the job growth projected to occur within San José to 2040. While the current General Plan job growth capacity could potentially fully accommodate the number of new jobs originally projected by CCSCE (with the notable constraint that there might not be adequate capacity for some types of jobs and excess capacity for other types), it is not adequate for the amount of job growth in the Adjusted CCSCE Projection, nor is it adequate for some of the potential job growth scenarios being considered by the Envision 2040 Task Force. Table 5 below shows the projected job growth for each projection beyond the existing level of jobs in 2007; in 2007, the City of San José had 396,000 jobs. The growth numbers highlighted in this table exceed the present capacity of the San José 2020 General Plan.

Table 5: Job Growth for San José (1,000s) by Projection above 2007 Job Amount

	2020	2035	2040
ABAG *Projections 2007*	+ 68.9	+ 211.4	--
ABAG *Projections 2009*	+ 97.0	+ 313.0	--
CCSCE	+ 83.1	+ 146.4	+ 174.0
Adjusted CCSCE Projection	+ 123.8	+ 255.1	+ 281.2
"More Jobs" and "More Jobs & Less Housing" Scenarios	+ 215.7	--	+ 334.0

C. *Forecast of Job Growth by Industry*

This section of the Report presents the number and type of jobs projected in the City of San José by CCSCE. The section then uses the CCSCE methodology to develop a modified CCSCE projection and a projection for the "More Jobs" and "More Jobs and Less Housing" growth scenarios currently under consideration by the Envision San José Task Force. However, before delving into these projections, it is first important to understand how the City of San José, and therefore this report, classifies the many different types of jobs.

Jobs in the City of San José are classified into the following three general Industry Clusters:

- **Driving Industries** – Includes High Tech Products, Miscellaneous Products, Software/Information Services, Technical/Professional Services and Visitor Services. This cluster is primarily made up of export oriented firms that sell most of their goods and services to customers in other regions, states and countries. These industries have a significant amount of flexibility in where they locate, regionally, nationally, and internationally, and their choice of location drives local job growth and economic development.
- **Business Support Industries** – Includes Construction, Business Services, Financial Services, and Transportation/Distribution. This cluster is composed of businesses that serve both other business customers and some households. Growth within this category is created by the growth of Driving Industry businesses as well as growth in the general population.
- **Local Serving Industries** – Includes Civic (government, non-profit, and education), Health Care, Retail/Consumer Services and Education. Local serving industry jobs support the local residential population and growth within this category is directly related to population (household) growth.

Based upon a methodology discussed in the attached memorandum, CCSCE developed a forecast for job growth (or loss) for each job category in each Industry Cluster over time, as shown in Table 6 below.

Using the methodology developed by CCSCE, it is possible to develop a modified CCSCE projection for jobs by industry cluster that uses the higher San José to Bay Area job share in ABAG's Draft *Projections 2009*. Because this adjustment does not affect the projection for population or household growth, the additional jobs are distributed between the Driving Industries and Business Support Industries according to the same proportional distribution used by CCSCE, as shown in Table 7.

As the City considers various growth scenarios, scenarios with higher projected job growth will result in a higher share of jobs within the Driving Industry and Business Support Industry clusters, if appropriate land and facilities are available. Scenarios with more population (household) growth will also generate job growth, most directly in the Local Serving Industry cluster. Because of the interrelationship between household and some types of job growth, different growth scenarios will result in different proportional distributions of jobs amongst the Industry Clusters. As an example, two of the Scenarios considered by the Task Force, "More Jobs" and "More Jobs & Less Housing" both have the same total number of jobs, but result in different distributions of those jobs because the scenario with more Households, "More Jobs," also has a corresponding higher number of jobs in the Household Support Industries cluster. Projected job distributions for these two scenarios are provided in Table 8 to illustrate this relationship.

Table 6: CCSCE Forecast of Job Growth within each Industry Cluster based on CCSCE Job Forecast (1,000s)

	2007		*2020*		*2040*
		Change	**Total**	**Change**	**Total**
Driving Industries	**120.1**	***15.2***	**135.3**	***34.9***	**170.2**
High Tech Products	45.7	*-9.8*	35.9	*7.9*	43.8
Miscellaneous Products	14.1	*-0.4*	13.8	*-0.6*	13.2
Software/Information Services	21.2	*10.7*	31.9	*11.9*	43.8
Technical/Professional Services	19.0	*10.2*	29.2	*11.3*	40.5
Visitor Services	8.6	*1.9*	10.5	*1.8*	12.3
Self Employed	11.5	*2.6*	14.1	*2.4*	16.6
Business Support Industries	**114.9**	***22.1***	**137.0**	***21.3***	**158.3**
Construction	24.5	*1.8*	26.4	*1.5*	27.9
Business Services	43.2	*15.3*	58.5	*15.5*	74.0
Financial Services	11.4	*1.1*	12.5	*0.9*	13.4
Transportation/Distribution	24.3	*1.2*	25.5	*1.0*	26.5
Self Employed	11.5	*2.6*	14.1	*2.4*	16.6
Household Support Industries	**161.0**	***45.8***	**206.8**	***34.7***	**241.5**
Civic	32.8	*9.1*	41.9	*8.9*	50.8
Health Care	20.6	*17.0*	37.6	*8.3*	45.8
Retail/Consumer Services	78.1	*12.6*	90.7	*11.1*	101.7
Education	18.1	*4.5*	22.6	*4.0*	26.6
Self Employed	11.5	*2.6*	14.1	*2.4*	16.6
Total	**396.0**	***83.1***	**479.1**	***90.9***	**570.0**

Source: Center for the Continuing Study of the California Economy

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Table 7: CCSCE Forecast of Job Growth within each Industry Cluster Adjusted by the Higher San José Job Share in ABAG's Draft Projections 2009 (1,000s)

	2007		*2020*		*2040*
		Change	**Total**	**Change**	**Total**
Driving Industries	**120.1**	***59.4***	**179.4**	***46.3***	**225.7**
High Tech Products	45.7	*1.9*	47.6	*10.5*	58.1
Miscellaneous Products	14.1	*4.1*	18.3	*-0.7*	17.5
Software/Information Services	21.2	*21.1*	42.3	*15.8*	58.1
Technical/Professional Services	19.0	*19.7*	38.7	*15.0*	53.7
Visitor Services	8.6	*5.3*	13.9	*2.3*	16.3
Self Employed	11.5	*7.2*	18.7	*3.2*	21.9
Business Support Industries	**114.9**	***66.7***	**181.6**	***28.3***	**209.9**
Construction	24.5	*10.4*	35.0	*2.0*	37.0
Business Services	43.2	*34.4*	77.6	*20.5*	98.1
Financial Services	11.4	*5.1*	16.6	*1.2*	17.8
Transportation/Distribution	24.3	*9.5*	33.8	*1.3*	35.1
Self Employed	11.5	*7.2*	18.7	*3.2*	21.9
Household Support Industries	**161.0**	***45.8***	**206.8**	***34.7***	**241.5**
Civic	32.8	*9.1*	41.9	*8.9*	50.8
Health Care	20.6	*17.0*	37.6	*8.3*	45.8
Retail/Consumer Services	78.1	*12.6*	90.6	*11.1*	101.7
Education	18.1	*4.5*	22.6	*4.0*	26.6
Self Employed	11.5	*2.6*	14.1	*2.4*	16.5
Total	**396.0**	***171.9***	**567.9**	***109.2***	**677.1**

Note: Some numbers may vary slightly due to rounding error.

Table 8: Forecast of Job Growth within each Industry Cluster for the "More Jobs" and "More Jobs & Less Housing" Envision 2040 Task Force Scenarios (1,000s)

		More Jobs		More Jobs & Less Housing	
	2007	*2020*	*2040*	*2020*	*2040*
Driving Industries	**120.1**	**201.2**	**253.1**	**209.0**	**262.9**
High Tech Products	45.7	53.4	65.2	55.5	67.7
Miscellaneous Products	14.1	20.5	19.6	21.3	20.4
Software/Information Services	21.2	47.4	65.2	49.2	67.7
Technical/Professional Services	19.0	43.4	60.2	45.0	62.5
Visitor Services	8.6	15.6	18.2	16.2	18.9
Self Employed	11.5	21.0	24.6	21.8	25.6
Business Support Industries	**114.9**	**203.7**	**235.4**	**211.6**	**244.5**
Construction	24.5	39.2	41.5	40.8	43.1
Business Services	43.2	87.0	110.0	90.4	114.3
Financial Services	11.4	18.6	19.9	19.3	20.7
Transportation/Distribution	24.3	37.9	39.3	39.3	40.9
Self Employed	11.5	21.0	24.6	21.8	25.6
Household Support Industries	**161.0**	**206.8**	**241.5**	**190.6**	**222.6**
Civic	32.8	41.9	50.8	38.6	46.8
Health Care	20.6	37.6	45.8	34.6	42.2
Retail/Consumer Services	78.1	90.6	101.7	83.6	93.8
Education	18.1	22.6	26.6	20.8	24.5
Self Employed	11.5	14.1	16.5	13.0	15.3
Total	**396.0**	**611.7**	**730.0**	**611.2**	**730.0**

D. *Forecast of Demand for Employment Lands*

This section uses the forecasts for job growth within each industry sector to evaluate the spatial demands for employment uses through 2040. Assumptions are provided, and projected spatial demands for each industry sector are broken down into building square footage needed and land acreage needed. Capacity needs beyond that of the existing San José 2020 General Plan are identified for

1. Methodology and Key Assumptions in the Employment Lands Demand Forecast

Now that the types of jobs have been projected in San José in 2040 and the intervening periods, the next step in the employment lands forecast process is to estimate, based on current trends, the types of employment lands that will be needed to accommodate the projected jobs.

Job growth in each of the Industry clusters generates demand for a variety of employment land types. For their projection of the land use demand that would be generated by this employment growth, Beacon Economics assigned demand into six land use categories: Industrial/Warehouse; R&D/Low-Rise; Mid and High-Rise Office, Retail (Small), Retail (Large) and Institutional/Other. While these do not directly correspond to Land Use Designations currently used in the City's General Plan (GP2020), they are useful in providing a more detailed picture of employment and land-use demand in San José for future years.

Beacon Economics and CCSCE prepared a forecast of demand for different types of employment space that corresponds to the job growth forecasts for the 2007-2010, 2010-2020, 2020-2030 and 2030-2040 time periods. These forecasts were informed by interviews Beacon Economics conducted with key employers located within San José (Appendix C). As might be expected, these forecasts show, over time, a gradual *proportional* decrease in demand for lower intensity, more "industrial" land uses (i.e. Industrial/Warehouse) and a comparable proportional increase in demand for higher intensity, office space (i.e. Mid and High Rise Office); the absolute demand for industrial space actually increases overtime as discussed in Section 3d below. Table 9 below provides estimates on the types of employment space needed by the different industry types in the 2031 – 2040 time period. To review the estimates for all of the time periods between 2007 and 2040, seeing how space needs change over time, refer to Appendix D.

Table 9: Percentage (%) Distribution of Industry Clusters across Land Use Types for 2031-2040

	2031-2040						
	Industrial/ Warehouse	**R&D/ Low-Rise**	**Mid & High Rise Office**	**Retail (Small)**	**Retail (Large)**	**Institutional/ Other**	**Total**
Driving Industries							
High Tech Products	0.05	0.6	0.35				1
Miscellaneous Products	0.1	0.5	0.4				1
Software/ Information Services		0.5	0.5				1
Technical/ Professional Services	0.2	0.3	0.5				1
Visitor Services	0.2			0.3	0.2	0.3	1
Self Employed		0.55	0.25	0.2			1
Business Support Industries							
Construction	0.45	0.35	0.2				1
Business Services	0.1	0.45	0.45				1
Financial Services		0.3	0.7				1
Transportation/ Distribution	0.55	0.2	0.25				1
Self Employed	0.1	0.55	0.35				1
Household Support Industries							
Civic		0.2	0.7			0.1	1
Health Care		0.45	0.15	0.3		0.1	1
Retail/Consumer Services	0.05		0.05	0.75	0.15		1
Education						1	1
Self Employed	0.1	0.55	0.35				1

Once projections were prepared for the total number of jobs by employment type or Industry Cluster, these jobs were then distributed across different land use types. Beacon Economics then developed a projection for the amount of employment lands type necessary to support the projected job growth. This projection was developed using the methodology described in the report included as Appendix B. Before considering the results of the projected land use demand, it is critical to understand two underlying concepts.

First, the idea of land use demand must be understood within the context of the City of San José's Urban Growth Boundary and limited supply of vacant land within that boundary. As a consequence of this limitation, demand for employment lands to accommodate job growth will need to be largely met through use of land that is already developed. This can potentially include the intensification of existing employment lands, the conversion of non-employment lands to employment lands, or the redevelopment of non-employment lands to incorporate employment uses (e.g., mixed-use development). The projections for land use demand available to the City do not include an exploration of opportunities for each of these approaches, but rather provide a projected demand for new employment land acreage conceptually equivalent to the development of vacant land for a stand-alone employment use.

Second, the projections for employment land demand are based on several assumptions about future square footage needs per employee and the density (Floor Area Ratio) of future development within each Land Use type. These assumptions were provided to the consultant by City staff and are based on observation of recent development trends within San José, corporate interviews, and secondary source research. Staff has also observed that the preferred "Square Feet per Employee" and "Floor Area Ratio" can be highly variable among employers and, to a considerable degree, are also determined by market conditions and the characteristics of existing land use development patterns. For example, many office uses currently located within a one or two-story building could easily be located within a mid-rise or high-rise building if local market conditions supported higher density for office use. Because of this sensitivity to market and existing land use conditions, these factors (Square feet per Employee and Floor Area Ratio) could also be considered as outputs of a projections exercise, particularly one that is being used as a policy tool as part of a planning process, like the Envision 2040 process. It is, however, very important to recognize that some industry types or land use types have a high degree of sensitivity to the available, suitable land supply and are therefore not likely to locate within San José if the preferred type of employment land is not available.

As a consequence of these underlying concepts, the following land use demand projections will best be used to qualitatively analyze the scenarios selected for study in the Envision San José 2040 process, rather than as a determinant factor in the formulation of land use scenarios.

The key assumptions used by Beacon Economics for Square Feet per Employee and Floor Area Ratio are indicated in Tables 10 and 11.

Table 10: Assumptions for Future Square Footage per Employee by Land Use Type

	Square Feet Per Employee			
	2007-2010	**2011-2020**	**2021-2030**	**2031-2040**
Industrial/Warehouse	1000	1000	1000	1000
R&D/ Low-Rise	275	275	275	275
Mid & High Rise Office	125	125	125	125
Retail (Small)	300	300	300	300
Retail (Large)	800	800	800	800
Institutional/Other	1900	1900	1900	1900

Because square footage per employee ratios have historically gone up and down without a clearly identified trend, and preferences can vary considerably from one company to the next, rather than attempt to predict the future demand for square feet per employee (by land use type), the projections were conservatively based upon a constant level of demand equivalent to current industry averages.

Table 11: Assumptions for Future Intensity (Floor Area Ratio) by Land Use Type

	Floor Area Ratio			
	2007-2010	**2011-2020**	**2021-2030**	**2031-2040**
Industrial/Warehouse	0.3	0.3	0.3	0.3
R&D/ Low-Rise	0.35	0.4	0.45	0.5
Mid & High Rise Office	0.9	1	1.4	1.7
Retail (Small)	0.3	0.32	0.34	0.36
Retail (Large)	0.2	0.22	0.24	0.26
Institutional/Other	0.2	0.3	0.4	0.5

Because "Industrial/Warehouse" uses exhibit a strong demand for a low intensity form, often comprising a significant portion of warehouse, manufacturing or outdoor use, no increase in density is projected by 2040. A modest increase in density is projected for "R&D/Low-Rise" development which has some ability to respond to increasing land costs and demand through intensification without resulting in a density that would be more appropriately classified as "Mid & High Rise Office." This latter use is expected to intensify over time as land costs and market conditions support taller buildings. Retail uses are limited in their ability to intensify as they rely heavily upon single story buildings and surface parking in almost all cases. Schools are another use that has a modest ability to intensify, given the need for outdoor recreational areas.

2. Projected Square Footage Demand for Employment Uses

This section uses the assumptions above to identify the total projected square footage demand for the various employment categories. Projected square footage needs beyond the existing San José General Plan 2020 are identified.

a. Square Footage Demand Using CCSCE Job Growth Projections

Beacon Economics has prepared a projection for the square footage demand generated from projected job growth by multiplying the projected job growth in each Industry Cluster by the anticipated distribution within Land Use types by the projected square footage needs for that Land Use type. This projected demand, shown in Table 12 below, provides an indication of the amount of new square footage needed to accommodate projected job growth within each Industry Cluster, distributed by Land Use types.

Because the City of San José's current General Plan contains job growth capacity for approximately 229,000 additional jobs (e.g., 26.7 million square feet in North San José, 10 million square feet in Downtown, etc.) some of the projected demand for space can be expected to be met through the current General Plan capacity. Because most of the current General Plan job growth capacity is allocated to lands planned for "R&D/Low-Rise" or "Mid & High Rise Office" use, the current General Plan may not provide adequate capacity for the addition of 14.4 million square feet of Industrial/Warehouse space or for the addition of 12.5 million square feet of Small Retail and Large Retail space. Some portion of the demand for small retail space, office space, institutional space, and possibly large retail space, could be met through mixed-use development on higher density residential or commercially designated lands.

Calibration of the forecast model conducted by Beacon Economics (Appendix B) also suggests that the City may currently have a slight deficit of lands available for "Commercial" (approximately a 430 acre deficit) and "Driving Industrial" (approximately a 300 acre deficit) land uses to accommodate the demand generated by existing employment uses in these categories, a component of which corresponds to the Industrial/Warehouse and Retail land use types.

It should be noted that the demand for space created by Education jobs is largely a result of the growth in school facilities to support Household growth. This land use demand is normally expected to be met primarily through the development of schools in residential areas and not through the use of existing employment lands.

Table 12: Demand for Space (1,000s square feet) by Land Use Type in 2040 for CCSCE Projections (Employment in period x Distribution within Building types x Square feet per Employee)

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	**4,409.9**	**6,530.5**	**2,242.9**	**565.3**	**588.4**	**2,543.3**	**16,880.2**
High Tech Products	-984.5	-306.7	30.1				-1,261.1
Miscellaneous Products	-116.7	-146.7	-35.7				-299.2
Software/ Information Services	246.2	3,793.3	1,072.2				5,111.7
Technical/Professional Services	4,529.5	2,421.7	1,017.4				7,968.5
Visitor Services	735.4			260.3	588.4	2,543.3	4,127.5
Self Employed		768.9	158.9	305.0			1,232.8
Business Support Industries	**7,499.7**	**5,402.0**	**2,025.7**		**52.4**		**14,979.8**
Construction	1,515.2	374.9	61.1				1,951.2
Business Services	4,024.9	3,920.4	1,567.3				9,512.6
Financial Services		217.1	137.1		52.4		406.6
Transportation/ Distribution	1,451.2	120.6	37.9				1,609.7
Self Employed	508.4	768.9	222.4				1,499.7
Household Support Industries	**2,473.7**	**5,267.0**	**2,145.2**	**7,593.4**	**2,838.7**	**24,363.9**	**44,681.9**
Civic	782.5	961.1	1,490.3			3,420.0	6,653.9
Health Care		3,412.4	341.2	2,270.8		4,793.9	10,818.3
Retail/ Consumer Services	1,182.8	124.6	91.2	5,322.6	2,838.7		9,560.0
Education						16,150.0	16,150.0
Self Employed	508.4	768.9	222.4				1,499.7
TOTAL	**14,383.2**	**17,199.5**	**6,413.8**	**8,158.7**	**3,479.5**	**26,907.2**	**76,541.9**

Source: Beacon Economics

As most of the current General Plan job growth capacity is allocated to "R&D/Low-Rise" or "Mid & High Rise Office" development, the demand for square footage produced by the CCSCE projections may suggest that the City should consider the reallocation of some of this growth capacity to lands that better support Industrial/Warehouse and Retail job growth.

Additionally, while the current General Plan appears to have adequate capacity to accommodate the total projected amount of job growth, it is important to consider that as San José competes to attract businesses (particularly in the Driving Industry Cluster), it is valuable to have a surplus and a variety of employment lands available so that a business can be offered an option of land type and location that best meets their particular preferences. For this reason, as the Envision 2040 Task Force considers potential job growth scenarios, it may be preferable to consider scenarios that provide additional employment capacity above the identified projection for total job growth.

b. Square Footage Demand Using Adjusted CCSCE Job Growth Projections

Using the methodology developed by CCSCE, it is possible to calculate a comparable demand for space for alternative job growth projections. Table 13 indicates the demand in square footage by land use type for the job growth projection developed using the CCSCE projections and adjusting them with the ABAG *Projections 2009* percentage for allocation of Bay Area job growth to San José.

In contrast to the job growth projected by CCSCE, the Adjusted Projection indicates job growth through 2040 in excess of the current General Plan capacity. As a greater share of the Adjusted Projection job growth is in the Driving Industry and Business Support clusters, this higher job growth will also result in a proportionally greater demand for Industrial/Warehouse and Large Retail space, the two categories in which the City may currently have the least amount of capacity to accommodate job growth.

While Table 13 below indicates the gross increase in demand for space to meet the Adjusted Projections job growth, the following Table 14 indicates the demand for space generated by the net increase in jobs (the demand for space generated according to the same distribution for the addition of 52,200 jobs; 52,200 being the difference between the Adjusted Projection total of 281.2 new jobs and the existing General Plan capacity for 229,000 new jobs.)

Similar calculations can be made based upon other job growth scenarios, such as the "More Jobs" scenario or the "More Jobs & Less Housing" scenario being considered by the Envision 2040 Task Force. These are included in Tables 15, 16, 17, and 18.

Table 13: Demand for Space (1,000s square feet) by Land Use Type in 2040 for CCSCE Adjusted Projection (Employment in period x Distribution within Building types x Square feet per Employee)

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	**11,098.1**	**14,541.6**	**4,163.6**	**1,122.5**	**1,228.0**	**5,622.4**	**37,776.1**
High Tech Products	1,099.8	2,050.1	483.8				3,633.6
Miscellaneous Products	589.9	566.1	90.1				1,246.0
Software/ Information Services	486.0	6,317.1	1,681.1				8,484.2
Technical/Professional Services	7,387.5	4,023.3	1,581.2				12,992.0
Visitor Services	1,535.0			493.7	1,228.0	5,622.4	8,879.1
Self Employed		1,585.0	327.5	628.8			2,541.2
Business Support Industries	**21,813.9**	**11,354.8**	**3,947.7**		**253.1**		**37,369.5**
Construction	5,607.8	1,486.8	180.9				7,275.6
Business Services	7,609.3	6,939.1	2,761.2				17,309.6
Financial Services		749.5	409.5		253.1		1,412.2
Transportation/ Distribution	7,549.1	594.7	137.6				8,281.4
Self Employed	1,047.7	1,584.6	458.4				3,090.7
Household Support Industries	**2,472.9**	**5,266.0**	**2,144.7**	**7,591.1**	**2,837.7**	**24,358.0**	**44,670.3**
Civic	782.3	960.9	1,490.0			3,419.2	6,652.3
Health Care		3,411.9	341.2	2,270.4		4,793.1	10,816.6
Retail/Consumer Services	1,182.4	124.5	91.2	5,320.7	2,837.7		9,556.4
Education						16,145.7	16,145.7
Self Employed	508.2	768.7	222.3				1,499.3
TOTAL	**35,384.9**	**31,162.3**	**10,256.0**	**8,713.6**	**4,318.8**	**29,980.4**	**119,815.9**

Table 14: Demand for Space (1,000s square feet) above Current General Plan Capacity by Land Use Type in 2040 for CCSCE Adjusted Projection
(Employment in period x Distribution within Building types x Square feet per Employee)

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	192.9	231.0	55.4	16.1	18.4	88.8	602.5
Business Support Industries	416.2	173.1	55.9	0.0	5.8	0.0	651.0
Household Support Industries	1,936.0	2,448.9	1,179.4	5,480.6	2,476.7	13,978.5	27,500.1
TOTAL	**2,545.1**	**2,853.0**	**1,290.7**	**5,496.7**	**2,501.0**	**14,067.3**	**28,753.7**

Table 15: Demand for Space (1,000s square feet) by Land Use Type in 2040 for "More Jobs" Scenario (Employment in period x Distribution within Building types x Square feet per Employee)

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	**14,400.8**	**18,497.5**	**5,112.1**	**1,397.6**	**1,543.8**	**7,142.9**	**48,094.7**
High Tech Products	2,129.0	3,213.8	707.8				6,050.6
Miscellaneous Products	938.8	918.1	152.2				2,009.0
Software/ Information Services	604.5	7,563.4	1,981.7				10,149.6
Technical/Professional Services	8,798.7	4,814.2	1,859.7				15,472.6
Visitor Services	1,929.8			609.0	1,543.8	7,142.9	11,225.5
Self Employed		1,988.0	410.7	788.6			3,187.3
Business Support Industries	**28,889.6**	**14,297.3**	**4,897.7**		**352.3**		**48,436.9**
Construction	7,630.9	2,036.4	240.2				9,907.5
Business Services	9,381.1	8,431.3	3,351.4				21,163.8
Financial Services		1,012.7	544.2		352.3		1,909.2
Transportation/ Distribution	10,563.3	829.0	186.9				11,579.3
Self Employed	1,314.3	1,987.9	575.0				3,877.2
Household Support Industries	**2,472.9**	**5,266.0**	**2,144.7**	**7,591.1**	**2,837.7**	**24,358.0**	**44,670.3**
Civic	782.3	960.9	1,490.0			3,419.2	6,652.3
Health Care		3,411.9	341.2	2,270.4		4,793.1	10,816.6
Retail/Consumer Services	1,182.4	124.5	91.2	5,320.7	2,837.7		9,556.4
Education						16,145.7	16,145.7
Self Employed	508.2	768.7	222.3				1,499.3
TOTAL	**45,763.2**	**38,060.7**	**12,154.5**	**8,988.7**	**4,733.9**	**31,500.8**	**141,201.9**

Table 16: Demand for Space (1,000s square feet) above Current General Plan Capacity by Land Use Type in 2040 for "More Jobs" Scenario
(Employment in period x Distribution within Building types x Square feet per Employee)

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	3,495.6	4,186.9	1,003.9	291.2	334.3	1,609.2	10,921.1
Business Support Industries	7,491.9	3,115.6	1,005.9	0.0	105.1	0.0	11,718.4
Household Support Industries	1,936.0	2,448.9	1,179.4	5,480.6	2,476.7	13,978.5	27,500.1
TOTAL	**12,923.4**	**9,751.4**	**3,189.2**	**5,771.8**	**2,916.0**	**15,587.7**	**50,139.7**

Table 17: Demand for Space (1,000s square feet) by Land Use Type in 2040 for "More Jobs & Less Housing" Scenario
(Employment in period x Distribution within Building types x Square feet per Employee)

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	**15,582.0**	**19,912.4**	**5,451.3**	**1,496.0**	**1,656.8**	**7,686.7**	**51,785.3**
High Tech Products	2,497.1	3,630.1	787.9				6,915.1
Miscellaneous Products	1,063.6	1,043.9	174.4				2,281.9
Software/Information Services	646.8	8,009.2	2,089.2				10,745.2
Technical/Professional Services	9,303.5	5,097.1	1,959.3				16,359.9
Visitor Services	2,071.0			650.2	1,656.8	7,686.7	12,064.7
Self Employed		2,132.1	440.5	845.8			3,418.4
Business Support Industries	**31,414.6**	**15,347.3**	**5,236.8**		**387.8**		**52,386.5**
Construction	8,352.8	2,232.5	261.3				10,846.7
Business Services	10,013.4	8,963.8	3,562.0				22,539.2
Financial Services		1,106.6	592.2		387.8		2,086.6
Transportation/ Distribution	11,639.0	912.7	204.5				12,756.2
Self Employed	1,409.4	2,131.8	616.6				4,157.8
Household Support Industries	**1,726.1**	**4,321.4**	**1,689.8**	**5,477.1**	**1,882.4**	**18,966.3**	**34,063.1**
Civic	563.1	752.7	1,164.8			2,663.9	5,144.4
Health Care		2,923.2	294.3	1,947.7		4,111.7	9,276.9
Retail/Consumer Services	784.3	72.8	65.0	3,529.5	1,882.4		6,333.9
Education						12,190.7	12,190.7
Self Employed	378.7	572.8	165.7				1,117.2
TOTAL	**48,722.8**	**39,581.1**	**12,377.8**	**6,973.2**	**3,927.0**	**26,653.0**	**138,234.8**

Table 18: Demand for Space (1,000s square feet) above Current General Plan Capacity by Land Use Type in 2040 for "More Jobs & Less Housing" Scenario
(Employment in period x Distribution within Building types x Square feet per Employee)

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	4,676.8	5,601.8	1,343.1	389.6	447.3	2,153.1	14,611.7
Business Support Industries	10,016.9	4,165.7	1,345.0	0.0	140.5	0.0	15,668.0
Household Support Industries	1,189.3	1,504.3	724.5	3,366.7	1,521.4	8,586.8	16,892.9
TOTAL	**15,883.0**	**11,271.8**	**3,412.5**	**3,756.3**	**2,109.1**	**10,739.8**	**47,172.6**

3. Projected Acreage Demand for Employment Uses

In this section the square footage projections for each employment category, and the Floor Area Ratio (FAR) assumptions noted above, are used to project the total acreage demands for the various employment categories. Projected acreage needs above and beyond the capacity of the existing San José General Plan 2020 are identified.

a. Acreage Demand Using CCSCE Job Growth Projections

Using the Space (Square Footage) demand calculations shown above and the assumed future intensities (Floor Area Ratios) for each Land Use type, Beacon Economics prepared a projection for the acreage demand within each Land Use type generated by CCSCE projected job growth. This projected demand, shown in Table 19 below, provides an indication of the amount of acreage that could be used to accommodate the projected job growth within each Industry Cluster, distributed by Land Use types. As discussed above in the Key Assumptions section, it may be possible to accommodate the land use needs of projected job growth through alternative strategies. Also, as noted above, because the CCSCE projection for total job growth is less than the job growth capacity of the City's current General Plan, it logically should be possible to accommodate the job growth projected by CCSCE using lands currently designated for employment use.

Table 19: Demand for Acreage by Land Use Type in 2040 for CCSCE Projections (Employment in period x Distribution within Building types x Square feet per Employee x FAR)

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	**337.5**	**338.6**	**38.1**	**38.9**	**58.6**	**185.7**	**997.4**
High Tech Products	-75.3	-32.3	-2.1				-109.7
Miscellaneous Products	-8.9	-7.8	-0.6				-17.4
Software/Information Services	18.8	205.3	19.4				243.5
Technical/Professional Services	346.6	131.8	18.4				496.8
Visitor Services	56.3			17.8	58.6	185.7	318.3
Self Employed		41.6	3.1	21.2			65.8
Business Support Industries	**573.9**	**291.6**	**38.4**		**5.7**		**909.5**
Construction	115.9	20.6	1.1				137.7
Business Services	308.0	210.8	29.7				548.5
Financial Services		12.0	2.6		5.7		20.3
Transportation/ Distribution	111.1	6.6	0.7				118.3
Self Employed	38.9	41.6	4.3				84.8
Household Support Industries	**189.3**	**290.9**	**41.5**	**529.8**	**283.4**	**1,713.5**	**3,048.4**
Civic	59.9	51.5	28.6			234.9	374.9
Health Care		190.8	6.9	160.1		356.2	713.9
Retail/Consumer Services	90.5	7.1	1.7	369.8	283.4		752.4
Education						1,122.3	1,122.3
Self Employed	38.9	41.6	4.3				84.8
TOTAL	**1,100.6**	**921.1**	**118.0**	**568.8**	**347.7**	**1,899.1**	**4,955.3**

Source: Beacon Economics

b. Acreage Demand Using Adjusted CCSCE Job Growth Projections

Using the same methodology developed by Beacon Economics, it is possible to develop alternative projections for future acreage demand based on alternative job growth projections. This is shown in Table 20. Because the Adjusted Projection forecasts job growth beyond the current General Plan capacity, Table 23 is also included to indicate the demand for acreage created by the net job growth. Appendix E provides maps showing the locations of employment lands under the current General Plan 2020.

c. Acreage Demand for "More Jobs" and "More Jobs & Less Housing" Growth Scenarios

Using the same methodology developed by Beacon Economics, it is also possible to create an acreage demand scenario that corresponds to an alternative job growth scenario. The "More Jobs" and "More Jobs & Less Housing" acreage demands are shown in Tables 21 and 22. Because these Scenarios include job growth beyond the current General Plan capacity, Table 23 is also included to indicate the demand for acreage created by the net job growth.

Table 20: Demand for Acreage by Land Use Type in 2040 for CCSCE Adjusted Projection (Employment in period x Distribution within Building types x Square feet per Employee / FAR)

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	**849.3**	**797.2**	**78.5**	**78.7**	**125.6**	**441.8**	**2,371.1**
High Tech Products	84.2	102.8	7.7				194.7
Miscellaneous Products	45.1	34.7	2.4				82.3
Software/Information Services	37.2	348.3	31.8				417.3
Technical/Professional Services	565.3	222.6	29.8				817.8
Visitor Services	117.5			34.3	125.6	441.8	719.2
Self Employed		88.7	6.8	44.4			139.9
Business Support Industries	**1,669.3**	**635.1**	**80.6**		**27.4**		**2,412.4**
Construction	429.1	86.0	3.8				519.0
Business Services	582.3	382.7	55.4				1,020.4
Financial Services		43.3	8.8		27.4		79.5
Transportation/ Distribution	577.7	34.5	2.9				615.1
Self Employed	80.2	88.6	9.6				178.4
Household Support Industries	**189.2**	**290.9**	**41.5**	**529.7**	**283.3**	**1,713.0**	**3,047.5**
Civic	59.9	51.5	28.6			234.9	374.8
Health Care		190.7	6.9	160.0		356.2	713.8
Retail/Consumer Services	90.5	7.1	1.7	369.6	283.3		752.2
Education						1,122.0	1,122.0
Self Employed	38.9	41.6	4.3				84.8
TOTAL	**2,707.8**	**1,723.1**	**200.6**	**608.4**	**436.3**	**2,154.8**	**7,830.9**

Table 21: Demand for Acreage by Land Use Type in 2040 for "More Jobs" Scenario (Employment in period x Distribution within Building types x Square feet per Employee / FAR)

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	**1,102.0**	**1,023.6**	**98.5**	**98.4**	**158.6**	**568.3**	**3,049.4**
High Tech Products	162.9	169.5	12.5				344.9
Miscellaneous Products	71.8	55.8	3.9				131.5
Software/ Information Services	46.3	418.9	37.9				503.1
Technical/Professional Services	673.3	267.5	35.5				976.3
Visitor Services	147.7			42.5	158.6	568.3	917.1
Self Employed		111.9	8.7	55.9			176.5
Business Support Industries	**2,210.7**	**804.9**	**101.4**		**38.1**		**3,155.2**
Construction	583.9	118.4	5.2				707.5
Business Services	717.9	467.7	68.2				1,253.7
Financial Services		58.7	11.9		38.1		108.7
Transportation/ Distribution	808.3	48.3	4.0				860.7
Self Employed	100.6	111.9	12.2				224.6
Household Support Industries	**189.2**	**290.9**	**41.5**	**529.7**	**283.3**	**1,713.0**	**3,047.5**
Civic	59.9	51.5	28.6			234.9	374.8
Health Care		190.7	6.9	160.0		356.2	713.8
Retail/Consumer Services	90.5	7.1	1.7	369.6	283.3		752.2
Education						1,122.0	1,122.0
Self Employed	38.9	41.6	4.3				84.8
TOTAL	**3,501.9**	**2,119.4**	**241.3**	**628.0**	**480.1**	**2,281.3**	**9,252.1**

Table 22: Demand for Acreage by Land Use Type in 2040 for "More Jobs & Less Housing" Scenario (Employment in period x Distribution within Building types x Square feet per Employee / FAR)

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	**1,192.4**	**1,104.6**	**105.6**	**105.4**	**170.4**	**613.6**	**3,292.0**
High Tech Products	191.1	193.4	14.2				398.7
Miscellaneous Products	81.4	63.3	4.4				149.1
Software/Information Services	49.5	444.1	40.1				533.7
Technical/Professional Services	711.9	283.6	37.5				1,033.0
Visitor Services	158.5			45.4	170.4	613.6	987.9
Self Employed		120.2	9.4	60.0			189.6
Business Support Industries	**2,403.9**	**865.5**	**108.8**		**42.0**		**3,420.3**
Construction	639.2	129.9	5.6				774.7
Business Services	766.3	498.0	72.7				1,337.0
Financial Services		64.2	13.0		42.0		119.2
Transporta-tion/Distribution	890.6	53.2	4.4				948.3
Self Employed	107.9	120.2	13.1				241.2
Household Support Industries	**132.1**	**236.6**	**31.5**	**377.5**	**182.9**	**1,281.4**	**2,241.9**
Civic	43.1	39.6	21.4			174.8	279.0
Health Care		162.7	5.9	136.9		302.1	607.6
Retail/Consumer Ser-vices	60.0	4.0	1.1	240.6	182.9		488.6
Education						804.5	804.5
Self Employed	29.0	30.3	3.1				62.3
TOTAL	**3,728.4**	**2,206.7**	**245.9**	**482.9**	**395.3**	**1,895.0**	**8,954.2**

Table 23: Demand for Acreage (Acres) by Land Use Type in 2040 for Net Job Growth by Scenario

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Adjusted Projection	194.76	163.93	28.33	95.65	262.98	1,126.22	2,171.86
"More Jobs"	988.94	560.20	69.11	415.29	306.77	1,252.72	3,593.03
"More Jobs & Less Housing"	1,215.41	647.52	73.67	270.15	221.98	866.41	3,295.15

d. Acreage Demand for Industrial/Warehouse Land Uses

As mentioned above in the Key Assumptions section, some job growth can more easily be accommodated in mid-rise or high-rise office buildings in existing employment areas, or as part of mixed-use development in a neighborhood setting while other types of jobs, particularly those considered to be Light Industrial or Heavy Industrial in character, most likely require land specifically dedicated to low intensity industrial uses. While the share of Light and Heavy Industrial jobs is projected to decline slightly, the scenarios under consideration by the Envision 2040 Task Force will potentially result in a significant demand for additional Industrial/Warehouse acreage. This increased industrial land demand is a result of overall growth projections that result in a net increase in Industrial/Warehouse jobs, jobs which are generally tied to relatively low intensity uses that require large amounts of land per employee. Table 24 summarizes the demand created for Industrial/Warehouse lands for each scenario calculated from the net increase in jobs over the current General Plan capacity.

Table 24: Net Demand for Industrial/Warehouse Acreage to Accommodate Projected Job Growth

	CCSCE Projections	Adjusted Projections	"More Jobs"	"More Jobs & Less Housing"
Additional Demand for Industrial/Warehouse Lands (Acres)	0	194.8	988.9	1,215.4

Based on this analysis, it is evident that in scenarios that include significantly large amounts of job growth, and in particular those with lesser amounts of Household growth, additional Industrial/Warehouse lands (lands that accommodate Light and Heavy Industrial land uses) will need to be added to the City's employment land supply. Because of the limited amount of vacant lands within the City's planning area and the infeasibility of converting lands already developed with residential or other non-employment uses into Industrial/Warehouse lands, one viable strategy might be to convert existing land planned for R&D/Low-Rise use to Industrial/Warehouse use. This strategy could plan to accommodate more of the R&D/Low-Rise job growth on Mid & High-Rise lands, while also utilizing opportunities to include this job growth within mixed-use development to the greatest extent feasible. Appendix E provides maps showing the locations of employment lands under the current General Plan 2020, including a breakdown of where Industrial/Warehouse uses could currently locate.

APPENDIX A

Projections of Jobs by Industry, Clusters and Categories
For the City of San José
A Summary of Results and Methodology (CCSCE)

Projections of Jobs by Industry, Clusters and Categories

For the City of San Jose

A Summary of Results and Methodology

Prepared by

THE CENTER FOR CONTINUING STUDY OF THE CALIFORNIA ECONOMY

Prepared for the City of San Jose

For the

Envision San Jose 2040 General Plan Update

January 2009

Introduction

In early 2008 the Center for Continuing Study of the California Economy (CCSCE) prepared projections of total jobs, population and households to 2040 for the City of San Jose. These projections were presented to the Envision San Jose 2040 General Plan Update Task Force (Task Force) on May 27, 2008 and described in a report included as Appendix B in the Task Force packet for their December 8, 2008 meeting.

In July 2008 CCSCE prepared more detailed projections of jobs for use by Beacon Economics in developing employment land use analyses. This report summarizes the results of these detailed job projections and the methodology used in developing them.

As explained in the Methodology section, these detailed job projections were developed using a simplified projection approach consistent with the intended use of the projections and the budget allocation of funds in the contract between Beacon Economics and the City of San Jose. The projections to 2020 were based on Bay Area job projections completed in 2008 by CCSCE. The projections to 2040 were an extension of the 2007-2020 trends. In addition the contract did not provide funds for any analysis of the wage levels associated with projected job levels.

Summary of Results

The projections delivered to Beacon Economics are shown on Table 1 on the following page. Projections were developed for 2020 and 2040 using 2007 as a base year for the projections. The detailed job projections are consistent with the projections of total jobs for the City developed earlier by CCSCE. The more detailed projections will help Beacon Economics identify specific employment land use needs.

At the request of the City, CCSCE organized the job projections into three major categories—1) Driving Industries, 2) Business Support Industries and 3) Household Support Industries—following the way in which Strategic Economics presented job projections in earlier work for the City.

Driving industries are what economists call basic or export industries because firms in these industries sell most of their goods and services to customers in other regions, states and countries. These firms can locate anywhere and communities like San Jose compete for the location of these firms as in the recent decision of Tesla Motors to locate in San Jose. Six industry clusters—high tech manufacturing, miscellaneous manufacturing, technical professional services, creative professional services, visitor services and some self employed workers--were identified as driving industry clusters.

Household support industries directly serve the local population. Five clusters—civic, health care, retail and consumer services, local education and some self employed workers—were identified as household support clusters.

Industries in the business support category serve both household and business customers. For land use planning purposes these industries were combined into five business support clusters—business services, financial services, transportation and distribution, construction and some self employed workers—whose primary customers are local businesses.

A complete list of the industries in each cluster is found in Table 2.

Table 1 Jobs by Clusters and Categories
City of San Jose
2007-2040
Thousands

	2007	2020	2040	Change in Job Levels 2007-2020	2020-2040
Driving Industries	120.1	135.3	170.2	15.2	34.9
High Tech Manufacturing	45.7	35.9	43.8	-9.8	7.9
Miscellaneous Manufacturing	14.1	13.8	13.2	-0.4	-0.6
Technical Professional Services	17.3	26.1	35.9	8.8	9.8
Creative Professional Services	22.9	34.9	48.5	12.0	13.6
Visitor Services	8.6	10.5	12.3	1.9	1.8
Self Employed	11.5	14.1	16.6	2.6	2.4
Business Support Industries	114.9	137.0	158.3	22.1	21.3
Business Services	43.2	58.5	74.0	15.3	15.5
Financial Services	11.4	12.5	13.4	1.1	0.9
Transportation & Distribution	24.3	25.5	26.5	1.2	1.0
Construction	24.5	26.4	27.9	1.8	1.5
Self Employed	11.5	14.1	16.6	2.6	2.4
Household Support Industries	161.0	206.8	241.5	45.8	34.7
Civic	32.8	41.9	50.8	9.1	8.9
Health Care	20.6	37.6	45.8	17.0	8.3
Retail & Consumer Services	78.1	90.7	101.7	12.6	11.1
Local Education	18.1	22.6	26.6	4.5	4.0
Self Employed	11.5	14.1	16.6	2.6	2.4
Total Jobs	396.0	479.1	570.1	83.1	91.0

The distribution of jobs in San Jose for the three major categories remains relatively constant between 2007 and 2040 because projected job growth rates for the three categories are relatively similar. The Driving Industry category had 30% of the City's jobs in 2007, dropping to 28% in 2020 and rising back to 30% in 2040. For the Business Support category the shares are 29% in 2007, 28% in 2020 and 28% in 2040. The largest job category is Household Support Industries with 41% of the City's jobs in 2007, 43% in 2020 and 42% in 2040.

Within the Driving Industry category the fastest growing clusters are Technical Professional Services and Creative Professional Services followed by Visitor Services and Self Employed. Manufacturing jobs are projected to decline until 2020 following national trends and then rebound slightly to 2040.

Within the Business Support category the only cluster to show strong projected job growth in Business Services, which includes administrative services and temporary help agencies.

All of the Household Support clusters are projected to have above-average job growth based on the high level of population growth projected for San Jose to 2040. Health Care is projected to be the fastest-growing cluster within the Household Support job category.

Additional detail on the job projections by industry for the 2007-2020 period is shown in Table 3.

Methodology

The projections to 2020 were based on two principal sources of information. One, the City of San Jose obtained a detailed database of jobs by industry for the City prepared by the California Employment Development Department (EDD) for the years 2001-2007. Estimates of the number of self employed workers living in San Jose were available from the American Community Survey of the Census Bureau. Two, CCSCE used a set of Bay Area job projections for 2017 prepared during 2008 and extended these projections to 2020.

CCSCE selected a list of industries to include in the projection analysis based on the following three criteria: 1) that regional job projections were available from CCSCE; 2) that job estimates were available for that industry for Santa Clara County and 3) that the industry had an average of at least 1,000 jobs in the City of San Jose during the 2001-2007 period. These criteria left a list of 37 industries that could be included in the projections to 2020. These industries and their North American Industry Classification System (NAICS) code are shown in Table 2.

Step One: Evaluate Jobs Database for San Jose

The first step was to compare the jobs history for San Jose obtained from EDD with EDD's published jobs history for Santa Clara County and the Bay Area. Ratios were developed for jobs in San Jose as a share of jobs for each industry in Santa Clara County and the region. These ratios identified places in the EDD history for San Jose that looked out of line with the county and regional estimates.

The data review resulted in two kinds of modification to the San Jose job history database. First, CCSCE decided to use the more recent period (2004-2007) as the basis for projection analysis. Some of the 2001-2003 data was not consistent with the trends reported for the more reliable county estimates. And the 2004-2007 data provided a starting point that began after the sharp recession was over. Second, CCSCE used the 2006 estimates in three cases where the 2007 estimates were out of line with county trends.

CCSCE then calculated and evaluated the 2004-2007 share of Bay Area jobs located in San Jose for each industry. In nearly all industries the San Jose share of regional jobs for years from 2004 through 2007 were 1) steady with no big up or down trends and 2) looked reasonable. For these reasons CCSCE decided to use the 2004-2007 average shares for developing industry projections to 2020.

The database provided by EDD had one technical obstacle that we could not overcome after consulting with EDD staff. Jobs for federal government, state government and education and local education were identified separately. Most jobs for local government were allocated to other industries and we could not provide a credible historical series for local government jobs. Hence the estimates and projections of the Government job category in Table 3 are an undercount of Government jobs as some of these jobs appear in other industry sectors.

Step 2: Project Industry Jobs for San Jose to 2020

The second step was to multiply projected Bay Area job levels by industry in 2020 by the 2004-2007 average San Jose/Bay Area job shares. This step produced a set of preliminary San Jose job projections for 2020. The sum of the preliminary industry projections was very close (within 2%) to the previously projected level of total jobs in 2020 (479,100). The preliminary projections by industry were adjusted to equal the 479,100 total for the City.

Step 3: Aggregate 2020 Industry Projections to Clusters and Categories

The third step was to aggregate the industry projections into the clusters and categories shown on Table 1. CCSCE proposed an initial allocation of industries to each cluster on Table 1 and the final mapping reflected input from Beacon Economics and City staff. The list of industries in each cluster is shown below on Table 2. Self employed workers

were distributed equally in each of the three major job categories to indicate that self employed workers exist in industries throughout the economy.

Table 2 Industries by Cluster and Category

	NAICS Industry Code	
Driving Industries		
	High Tech Manufacturing	
	3341	Computer and peripheral equipment mfg.
	3344	Semiconductor and electronic component mfg.
	3345	Electronic instrument manufacturing
	334x	Other computer and electronic products manufacturing
	Miscellaneous Manufacturing	
	311	Food manufacturing
	332	Fabricated metal product manufacturing
	333	Machinery manufacturing
	31-33X	Other manufacturing
	Technical Professional Services	
	5112	Software publishers
	51x	Other Information services
	54x	Other professional services
	55	Management of companies and enterprises
	Creative Professional Services	
	5413	Architectural and engineering services
	5415	Computer systems design and related services
	5417	Scientific research and development services
	Visitor Services	
	71	Arts entertainment and recreation
	721	Accommodation
	Self employed	
Business Support Industries		
	Business Services	
	53	Real estate and rental and leasing
	5411	Legal services
	5412	Accounting and bookkeeping services
	561	Administrative and support services
	Financial Services	
	52	Finance and insurance

Transportation & Distribution

42	Wholesale trade
48 - 49	Transportation and Warehousing

Construction

23	Construction

Self employed

Household Support Industries

Civic

562	Waste management and remediation services
61	Educational services
22	Utilities
622	Hospitals
517	Telecommunications

Health Care

62x	Other Health care

Retail & Consumer Services

44 - 45	Retail
5111	Newspaper book and directory publishers
722	Food services and drinking places
811	Repair and maintenance
81x	Other services except public administration

Local Education

Self employed

Step 4: Extend the 2020 Projections to 2040

The projections for 2040 were developed using a simplified methodology. The first decision was to project the industry cluster totals and not try to project the component industries separately.

For most clusters the job growth rates for 2007-2020 were reduced by the same ratio to meet the projected total of 570,100 jobs in 2040. This preserved the **pattern of job growth** projected for 2007-2020. Faster growing clusters between 2007 and 2020 would remain relatively faster growing clusters between 2020 and 2040 and vice versa.

CCSCE made two separate judgmental adjustments to this approach to the 2040 projections. CCSCE adjusted the rate of growth in health care jobs downward slightly to reflect the trend that the largest impact of baby boomer aging will have occurred by 2030. And CCSCE projected a small positive rate of growth in high tech manufacturing after 2020, despite the downward trend in high tech job levels since 2000, based on the

assumption that San Jose would participate in new kinds of high tech activity such as related to green tech or biotech or nanotech.

Summary of Projections by Major Industry Category

As explained above, detailed projections by industry were developed for 2007-2020 before the industries were added into clusters and categories. These industry projections allow a more detailed look into job trends to 2020. Job trends by industry are shown in Table 3 below. Government jobs are undercounted as explained in the methodology section because some local government jobs were allocated to other sectors in the jobs database we received from EDD.

The largest numerical job growth projected to 2020 is in Education and Health Services (+24,300 jobs), Professional Services (+19,300 jobs) and Business Services (+11,600 jobs).

Table 3 Jobs by Major Industry
City of San Jose
2007-2020
Thousands

	2007	2020	2007-2020
Construction	24.5	26.4	1.9
Manufacturing	59.8	49.7	-10.1
Wholesale Trade	15.9	16.5	0.6
Retail Trade	40.1	43.4	3.3
Transportation, Warehousing and Utilities	8.6	9.5	0.9
Information	11.5	14.9	3.4
Financial Activities	19.3	22.4	3.1
Professional Services	40.2	59.5	19.3
Business Services	28.8	40.4	11.6
Education and Health Services	33.8	58.1	24.3
Leisure and Hospitality	35.0	39.6	4.6
Other Services	11.2	16.8	5.6

Government	33.7	39.7	6.0
Self Employed	34.4	42.3	7.9
Total Jobs	396.0	479.1	83.1

APPENDIX B

San José Employment Land Demand Forecast Methodology
Prepared by Beacon Economics

BEACON ECONOMICS

TO: ANDREW CRABTREE, ET AL., CITY OF SAN JOSE

FROM: JON HAVEMAN, BEACON ECONOMICS

DATE: MARCH 12, 2009

SUBJECT: SAN JOSE EMPLOYMENT LAND DEMAND FORECAST METHODOLOGY

This memo outlines our methodology for forecasting additional employment land requirements through 2040.

The model for projecting employment land demand is based on four variables: a forecast of employment by industry, the distribution of that employment across building types, the space available per employee in each building type, and the amount of land occupied by different building types via the floor area ratio (FAR).

1. We first calibrate the model to fit San Jose's current pattern of land consumption.
    a. This process begins with current employment by industry.[1]

Industry/Group	2001	2002	2003	2004	2005	2006	2007	Share of Total, 2007
Driving Industries	**143.9**	**137.8**	**112.9**	**118.7**	**110.9**	**111.7**	**118.1**	**30.4**
High Tech Products	62.9	55.3	45.0	46.7	45.3	45.1	55.7	14.3
Miscellaneous Products	25.4	23.2	18.1	16.9	15.2	15.7	14.1	3.6
Software/Information Services	21.4	20.7	18.4	19.6	18.2	19.4	16.0	4.1
Technical/Professional Services	25.7	29.2	22.9	26.5	23.0	22.1	22.7	5.8
Visitor Services	8.5	9.5	8.6	9.1	9.2	9.3	9.5	2.5
Self Employed**	8.4	11.7	12.3	13.2	13.3	12.5	11.5	3.0
Business Support Industries	**100.1**	**94.6**	**91.1**	**97.0**	**95.7**	**97.2**	**103.1**	**26.5**
Construction	21.5	19.6	19.1	20.8	22.4	23.3	24.5	6.3
Business Services	38.6	35.8	36.4	40.3	37.9	37.5	39.6	10.2
Financial Services	9.7	9.8	8.7	9.3	10.3	10.9	10.5	2.7
Transportation/Distribution	30.3	29.4	26.8	26.6	25.1	25.5	28.5	7.3
Self Employed**	8.4	11.7	12.3	13.2	13.3	12.5	11.5	3.0
Local Serving Industries	**148.5**	**151.5**	**146.9**	**151.7**	**153.6**	**157.6**	**156.2**	**40.2**
Civic/Infrastructure	17.1	16.2	17.2	18.4	17.2	17.2	17.2	4.4
Health Care	22.2	23.1	19.6	20.2	19.7	20.0	20.7	5.3
Retail/Consumer Services	74.7	72.4	70.5	73.3	76.8	79.1	79.1	20.4
Education	26.1	28.1	27.4	26.6	26.6	28.7	27.7	7.1
Self Employed**	8.4	11.7	12.3	13.2	13.3	12.5	11.5	3.0
Total	**401.0**	**395.7**	**363.3**	**380.6**	**373.4**	**379.0**	**388.9**	**100.0**

*Source: California Employment Development Department
**Source: American Community Survey
***Jobs reported in thousands

[1] The 2007 numbers deviate from those used in the forecast because several industries are expected to umbrella different naics codes in the future.

b. Current employment is allocated by share across building types. This results in the following distribution of employment across building types

Assumptions regarding distribution of employment across building types:

	2007-2010						
	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries							
High Tech Manufacturing	20	60	20				100
Miscellaneous Manufacturing	20	60	20				100
Software/Information Services	10	60	30				100
Technical/Professional Services	30	40	30				100
Visitor Services	20			10	20	50	100
Self Employed		55	25	20			100
Business Support Industries							
Construction	45	45	10				100
Business Services	20	45	35				100
Financial Services		45	45		10		100
Transportation/Distribution	75	20	5				100
Self Employed	10	55	35				100
Household Support Industries							
Civic	10	15	65			10	100
Health Care		50	10	30		10	100
Retail/Consumer Services	5	2.5	2.5	75	15		100
Education						100	100
Self Employed	10	55	35				100

c. The distribution of employment across building types is then combined with assumptions regarding the square footage per employee of each building type to translate current employment into square footage by building type.

Assumptions regarding current square footage per employee

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional /Other
Square Feet Per Employee 2007-2010	1000	275	125	300	800	1900

d. Through assumed Floor to Area Ratios (FAR), this square footage is translated into acreage.

Assumptions regarding current floor to area ratio:

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional /Other
Floor Area Ratio 2007-2010	0.3	0.35	0.9	0.3	0.2	0.2

e. The following acreage estimates were obtained as a baseline estimation of land demand today, by industry and building type:

	2007						
	Industrial/ Warehouse	**R&D/ Low-Rise**	**Mid & High Rise Office**	**Retail (Small)**	**Retail (Large)**	**Institutional /Other**	**Total**
Driving Industries	1,428.9	1,127.8	85.7	72.4	157.7	936.3	3,808.7
High Tech Products	699.0	494.3	29.1	0.0	0.0	0.0	1,222.5
Miscellaneous Products	0.0	153.0	9.0	0.0	0.0	0.0	162.1
Software/Information Services	162.3	229.6	20.3	0.0	0.0	0.0	412.2
Technical/Professional Services	436.1	137.1	18.2	0.0	0.0	0.0	591.3
Visitor Services	131.4	0.0	0.0	19.7	157.7	936.3	1,245.1
Self Employed	0.0	113.8	9.1	52.7	0.0	0.0	175.6
Business Support Industries	2,898.3	730.1	76.3	0.0	105.1	0.0	3,809.9
Construction	845.2	199.2	7.8	0.0	0.0	0.0	1,052.2
Business Services	660.8	350.5	48.2	0.0	0.0	0.0	1,059.5
Financial Services	0.0	92.9	16.4	0.0	105.1	0.0	214.5
Transportation/Distribution	1,392.3	87.5	3.9	0.0	0.0	0.0	1,483.7
Self Employed							
Local Serving Industries	637.5	423.5	93.6	1,486.1	1,075.4	5,112.0	8,828.1
Civic/Infrastructure	251.0	88.7	68.0	0.0	0.0	715.3	1,123.1
Health Care	0.0	185.8	6.6	141.9	0.0	449.3	783.5
Retail/Consumer Services	298.7	35.2	6.2	1,344.2	1,075.4	0.0	2,759.8
Education	0.0	0.0	0.0	0.0	0.0	3,947.4	3,947.4
Self-Employed	87.8	113.8	12.8	0.0	0.0	0.0	214.3
Total	4,964.7	2,281.4	255.6	1,558.5	1,338.2	6,048.3	16,446.7

f. These estimates were developed through an iterative process that resulted in assumptions regarding employment distributions across building types, space allocatons, and FARs that generated acreage useage that are consistent with information provided by city staff.

Category	***City Estimate (Acres)***	***Beacon Estimate (Acres)***
Commercial	4,000-5,000	5,433.7
Industrial	5,000-6,000	4,964.7
Driving Industries	3,500	3,808.7
Institutional/Other	5,000-6,000	6,048.3
Education	4,000	3,947.4
Total Empl Lands	14,000-17,000	16,446.7

2. Our forecast of employment lands through 2040 is similarly generated by applying our employment forecasts through the process described above for each intermediate year between 2007 and 2040. These forecasts and their accompanying assumptions are below:

Employment Forecast by Industry

Industry/Group	TOTAL (000) 2007	CHANGE FROM PREVIOUS PERIOD (000) 2010	2020	2030	2040
Driving Industries	**120.1**	**3.5**	**11.7**	**17.4**	**17.4**
High Tech Manufacturing	45.7	-2.3	-7.5	4.0	4.0
Miscellaneous Manufacturing	14.1	-0.1	-0.3	-0.3	-0.3
Software/Information Services	21.2	2.5	8.2	6.0	6.0
Technical/Professional Services	19.0	2.3	7.8	5.7	5.7
Visitor Services	8.6	0.4	1.5	0.9	0.9
Self Employed	11.5	0.6	2.0	1.2	1.2
Business Support Industries	**114.9**	**5.1**	**17.0**	**10.7**	**10.7**
Construction	24.5	0.4	1.4	0.8	0.8
Business Services	43.2	3.5	11.8	7.7	7.7
Financial Services	11.4	0.2	0.8	0.4	0.4
Transportation/Distribution	24.3	0.3	0.9	0.5	0.5
Self Employed	11.5	0.6	2.0	1.2	1.2
Household Support Industries	**161.0**	**10.6**	**35.2**	**17.4**	**17.4**
Civic	32.8	2.1	7.0	4.5	4.5
Health Care	20.6	3.9	13.0	4.1	4.1
Retail/Consumer Services	78.1	2.9	9.7	5.5	5.5
Education	18.1	1.0	3.5	2.0	2.0
Self Employed	11.5	0.6	2.0	1.2	1.2
Total	**396.0**	**19.2**	**63.9**	**45.5**	**45.5**

Assumptions regarding changes in the future distribution of employment across building types

2011-2020	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other
Driving Industries						
High Tech Manufacturing	-5	0	5			
Miscellaneous Manufacturing	-5	0	5			
Software/Information Services	-10	10	0			
Technical/Professional Services	-10	10	0			
Visitor Services	0			10	0	-10
Self Employed		0	0	0		
Business Support Industries						
Construction	0	0	0			
Business Services	-5	0	5			
Financial Services		0	5		-5	
Transportation/Distribution	-5	0	5			
Self Employed	0	0	0			
Household Support Industries						
Civic	-5	5	0			0
Health Care		0	0	0		0
Retail/Consumer Services	0	0	0	0	0	
Education						0
Self Employed	0	0	0			

2021-2030	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other
Driving Industries						
High Tech Manufacturing	-5	0	5			
Miscellaneous Manufacturing	-5	0	5			
Software/Information Services		-10	10			
Technical/Professional Services	0	-10	10			
Visitor Services	0			10	0	-10
Self Employed		0	0	0		
Business Support Industries						
Construction	0	-10	10			
Business Services	-5	5	0			
Financial Services		-5	10		-5	
Transportation/Distribution	-5	0	5			
Self Employed	0	0	0			
Household Support Industries						
Civic	0	0	0			0
Health Care		0	0	0		0
Retail/Consumer Services	0	0	0	0	0	
Education						0
Self Employed	0	0	0			

2031-2040	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other
Driving Industries						
High Tech Manufacturing	-5	0	5			
Miscellaneous Manufacturing	0	-10	10			
Software/Information Services		-10	10			
Technical/Professional Services	0	-10	10			
Visitor Services	0			0	0	0
Self Employed		0	0	0		
Business Support Industries						
Construction	0	0	0			
Business Services	0	-5	5			
Financial Services		-10	10			
Transportation/Distribution	-10	0	10			
Self Employed	0	0	0			
Household Support Industries						
Civic	-5	0	5			0
Health Care		-5	5	0		0
Retail/Consumer Services	0	-2.5	2.5	0	0	
Education						0
Self Employed	0	0	0			

*Sources: Strategic Economics, CCSCE

Assumptions regarding space and land consumption by building type

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other
Square Feet Per Employee						
2007-2010	1000	275	125	300	800	1900
2011-2020	1000	275	125	300	800	1900
2021-2030	1000	275	125	300	800	1900
2031-2040	1000	275	125	300	800	1900
Floor Area Ratio						
2007-2010	0.30	0.35	0.90	0.30	0.20	0.20
2011-2020	0.30	0.40	1.00	0.32	0.22	0.30
2021-2030	0.30	0.45	1.40	0.34	0.24	0.40
2031-2040	0.30	0.50	1.70	0.36	0.26	0.50

*Sources: Strategic Economics, CCSCE

Total forecasted increase in demand for employment space (sq. ft. 000's) by industry and building type: 2007-2040

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	**4,410**	**6,530**	**2,243**	**565**	**588**	**2,543**	**16,880**
High Tech Manufacturing	-984	-307	30	0	0	0	-1,261
Miscellaneous Manufacturing	-117	-147	-36	0	0	0	-299
Software/Information Services	246	3,793	1,072	0	0	0	5,112
Technical/Professional Services	4,529	2,422	1,017	0	0	0	7,969
Visitor Services	735	0	0	260	588	2,543	4,127
Self Employed	0	769	159	305	0	0	1,233
Business Support Industries	**7,500**	**5,402**	**2,026**	**0**	**52**	**0**	**14,980**
Construction	1,515	375	61	0	0	0	1,951
Business Services	4,025	3,920	1,567	0	0	0	9,513
Financial Services	0	217	137	0	52	0	407
Transportation/Distribution	1,451	121	38	0	0	0	1,610
Self Employed	508	769	222	0	0	0	1,500
Household Support Industries	**2,474**	**5,267**	**2,145**	**7,593**	**2,839**	**24,364**	**44,682**
Civic	783	961	1,490	0	0	3,420	6,654
Health Care	0	3,412	341	2,271	0	4,794	10,818
Retail/Consumer Services	1,183	125	91	5,323	2,839	0	9,560
Education	0	0	0	0	0	16,150	16,150
Self Employed	508	769	222	0	0	0	1,500
Total	**14,383**	**17,199**	**6,414**	**8,159**	**3,479**	**26,907**	**76,542**

*Sources: Strategic Economics, EDD, CCSCE

Total forecasted increase in demand for employment land by industry and building type: 2007-2040

	Industrial/ Warehouse	R&D/ Low-Rise	Mid & High Rise Office	Retail (Small)	Retail (Large)	Institutional/ Other	Total
Driving Industries	**337**	**339**	**38**	**39**	**59**	**186**	**997**
High Tech Manufacturing	-75	-32	-2	0	0	0	-110
Miscellaneous Manufacturing	-9	-8	-1	0	0	0	-17
Software/Information Services	19	205	19	0	0	0	244
Technical/Professional Services	347	132	18	0	0	0	497
Visitor Services	56	0	0	18	59	186	318
Self Employed	0	42	3	21	0	0	66
Business Support Industries	**574**	**292**	**38**	**0**	**6**	**0**	**910**
Construction	116	21	1	0	0	0	138
Business Services	308	211	30	0	0	0	548
Financial Services	0	12	3	0	6	0	20
Transportation/Distribution	111	7	1	0	0	0	118
Self Employed	39	42	4	0	0	0	85
Household Support Industries	**189**	**291**	**41**	**530**	**283**	**1,713**	**3,048**
Civic	60	52	29	0	0	235	375
Health Care	0	191	7	160	0	356	714
Retail/Consumer Services	91	7	2	370	283	0	752
Education	0	0	0	0	0	1,122	1,122
Self Employed	39	42	4	0	0	0	85
Total	**1,101**	**921**	**118**	**569**	**348**	**1,899**	**4,955**

*Sources: Strategic Economics, EDD, CCSCE

APPENDIX C

Summary of San José Land Use Employer Interviews
Prepared by Beacon Economics

SUMMARY OF SAN JOSE LAND USE EMPLOYER INTERVIEWS

1. INTRODUCTION

As part of the San Jose Land Use project, it was necessary to gain an understanding of land use needs from various employers in the private sector in the city of San Jose. Through a survey, we were able to gain insight not only on previous choices employers have made in terms of their intensity of land use (number of employees per square foot) but also future plans they intend to implement as part of a strategy to maximize the efficiency of their land use. Overall, we observed through the interviews, land use trends in the past five years have gone towards more intensive land use. Generally speaking, density of land use per worker in industrial and commercial developments has increased in San Jose as well as Silicon Valley. Forces that have shaped these changes stem from reasons such as off-shoring and telecommuting to more efficient uses of office space. However, we observed the companies we interviewed have not changed all that much in terms of their facilities footprint. Since the type of business they were conducting five years ago is roughly the same as the type of business they are conducting today. Finally, our findings suggested that overall land use intensity is projected to increase and land will be used more efficiently through "Smart Growth" urban planning techniques.

2. HISTORICAL LAND USE PER EMPLOYEE

The first question of our phone survey asked the employer if the company has trended towards more or less land use per employee in the last five years. Although there were a few outliers, we generally found that most companies have trended towards less land per employee, or an increase in intensity of land use. Randy Knox, a Facilities Manager at Adobe Systems, noted that his company has been trending towards more intensive land use of their facilities because their offices are located in high-rise buildings near transit hubs for easy employee access as well as close proximity to convenient amenities for their staff. Edwin Mendence, Senior Vice President of the Commercial division for ReMax, has noticed an increase in intensity of land use not only in industrial and commercial use, but also residential properties. Buildings have been constructed vertically rather than horizontally, increasing the intensity of land use (more use per

square foot for the same footprint). In contrast to this view, Eerie Stewart, Director of Finance of Property & Management for J.P. Di Nappoli Co. Inc., a real estate development firm, stated that her company has trended towards *more* land per employee. She has found that people want more space in an office environment. Additionally, she noted that even though telecommuting has minimized the number of employees in the office on any given day, people still need a full-time workspace that is her own. Some other notable responses we received from a few employers indicated that their land use per employee policies mainly came down to economic conditions. As the economy took a downturn, employees were let go, and subsequently increased the amount of space per employee. Conversely, as the economy picked back up, employees were re-hired and land use per employee went down.

3. LAND USE CLASSIFICATION

The second question in our survey asked the employer what type of land the company primarily occupies. The choices given were industrial or commercial. Overwhelmingly, the answer was commercial property. We can infer through this that the employment composition in San Jose is primarily made up of service-sector jobs.

4. COMPANY'S FACILITY'S FOOTPRINT

Next we asked the employer if the company's facility footprint has changed because its business functions in San Jose have been changing. We were interested to see if companies in San Jose have been transitioning from manufacturing to research and development (R&D) and administrative work, or if work had been outsourced or off-shored to be produced cheaper somewhere else. The majority of the companies have maintained the same business model over the last five years. However, we did observe some San Jose-based companies have opted to outsource a portion of their work. Adobe, for example, has opened facilities in Eastern Europe and India. J.P. Di Nappoli Co. Inc. has outsourced the majority of its clerical and I.T. work, now making its San Jose office mainly comprised of a professional staff. Finally, Edwin Mendence of ReMax also observed more commercial buildings are being built over R&D or manufacturing facilities.

5. Future Intensity of Land Use

The final question in the survey asked the employers which forces in the future they anticipate will cause intensity of land use to change. Some of the factors we observed that could cause changes are increases in telecommuting, changes in open space, verticality, or changes in the type of work that is conducted within the San Jose facilities. Adobe Systems has aspired to adapt some of these forces. The company is pushing towards more employees per square foot in its current high-rise facility, has a goal to increase the amount of employees telecommuting, and finally, will incorporate more open space within its facilities. Specifically, Adobe would like to convert its current rooftops to have basketball courts, a bocce ball space and other recreational activities for its employees. Redbeck Networks is also adopting a similar strategy as Adobe in terms of making the office environment less of a workplace and more of a community.

The notion of "Smart Growth" came up in the survey when this questioned was asked. Smart Growth is an urban planning and transportation theory that concentrates growth in the center of a city, both residential and employment, to avoid urban sprawl; and advocates compact, transit-oriented, walkable, bicycle-friendly land use, including neighborhood schools, streets that work for everyone, mixed-use development with a range of housing choices. Land use should therefore not only be used more intensely, but also used more efficiency. Buildings should be more vertical, commuting should be minimized as much as possible, and live-work areas should be integral in future city planning.

6. Conclusion

Through this survey, we were able to gain an understanding of land use in San Jose from a local employer's perspective. Commercial, industrial and residential buildings have been, and will continue to be, constructed to use land more efficiently, mainly by use of verticality and increases in employee per square foot. The companies we interviewed

have not dramatically changed their company's business models, therefore maintaining its same facilities footprint Finally, smart growth is being used in urban planning to avoid urban sprawl and continue on the notion of efficient use of land.

APPENDIX D

Percentage (%) Distribution of Industry Clusters
across Land Use Types

Broken Down for the Years 2007-2010, 2011-2020, 2021-2030, & 2031-2040

Table 9a: Percentage (%) Distribution of Industry Clusters across Land Use Types for 2007-2010

	2007-2010						
	Industrial/ Warehouse	**R&D/ Low-Rise**	**Mid & High Rise Office**	**Retail (Small)**	**Retail (Large)**	**Institutional/ Other**	**Total**
Driving Industries							
High Tech Products	0.2	0.6	0.2				1
Miscellaneous Products	0.2	0.6	0.2				1
Software/ Information Services	0.1	0.6	0.3				1
Technical/Professional Services	0.3	0.4	0.3				1
Visitor Services	0.2			0.1	0.2	0.5	1
Self Employed		0.55	0.25	0.2			1
Business Support Industries							
Construction	0.45	0.45	0.1				1
Business Services	0.2	0.45	0.35				1
Financial Services		0.45	0.45		0.1		1
Transportation/ Distribution	0.75	0.2	0.05				1
Self Employed	0.1	0.55	0.35				1
Household Support Industries							
Civic	0.1	0.15	0.65			0.1	1
Health Care		0.5	0.1	0.3		0.1	1
Retail/Consumer Services	0.05	0.025	0.025	0.75	0.15		1
Education						1	1
Self Employed	0.1	0.55	0.35				1

Table 9b: Percentage (%) Distribution of Industry Clusters across Land Use Types for 2011-2020

	2011-2020						
	Industrial/ Warehouse	**R&D/ Low-Rise**	**Mid & High Rise Office**	**Retail (Small)**	**Retail (Large)**	**Institutional/ Other**	**Total**
Driving Industries							
High Tech Products	0.15	0.6	0.25				1
Miscellaneous Products	0.15	0.6	0.25				1
Software/Information Services		0.7	0.3				1
Technical/Professional Services	0.2	0.5	0.3				1
Visitor Services	0.2			0.2	0.2	0.4	1
Self Employed		0.55	0.25	0.2			1
Business Support Industries							
Construction	0.45	0.45	0.1				1
Business Services	0.15	0.45	0.4				1
Financial Services		0.45	0.5		0.05		1
Transportation/ Distribution	0.7	0.2	0.1				1
Self Employed	0.1	0.55	0.35				1
Household Support Industries							
Civic	0.05	0.2	0.65			0.1	1
Health Care		0.5	0.1	0.3		0.1	1
Retail/Consumer Services	0.05	0.025	0.025	0.75	0.15		1
Education						1	1
Self Employed	0.1	0.55	0.35				1

Table 9c: Percentage (%) Distribution of Industry Clusters across Land Use Types for 2021-2030

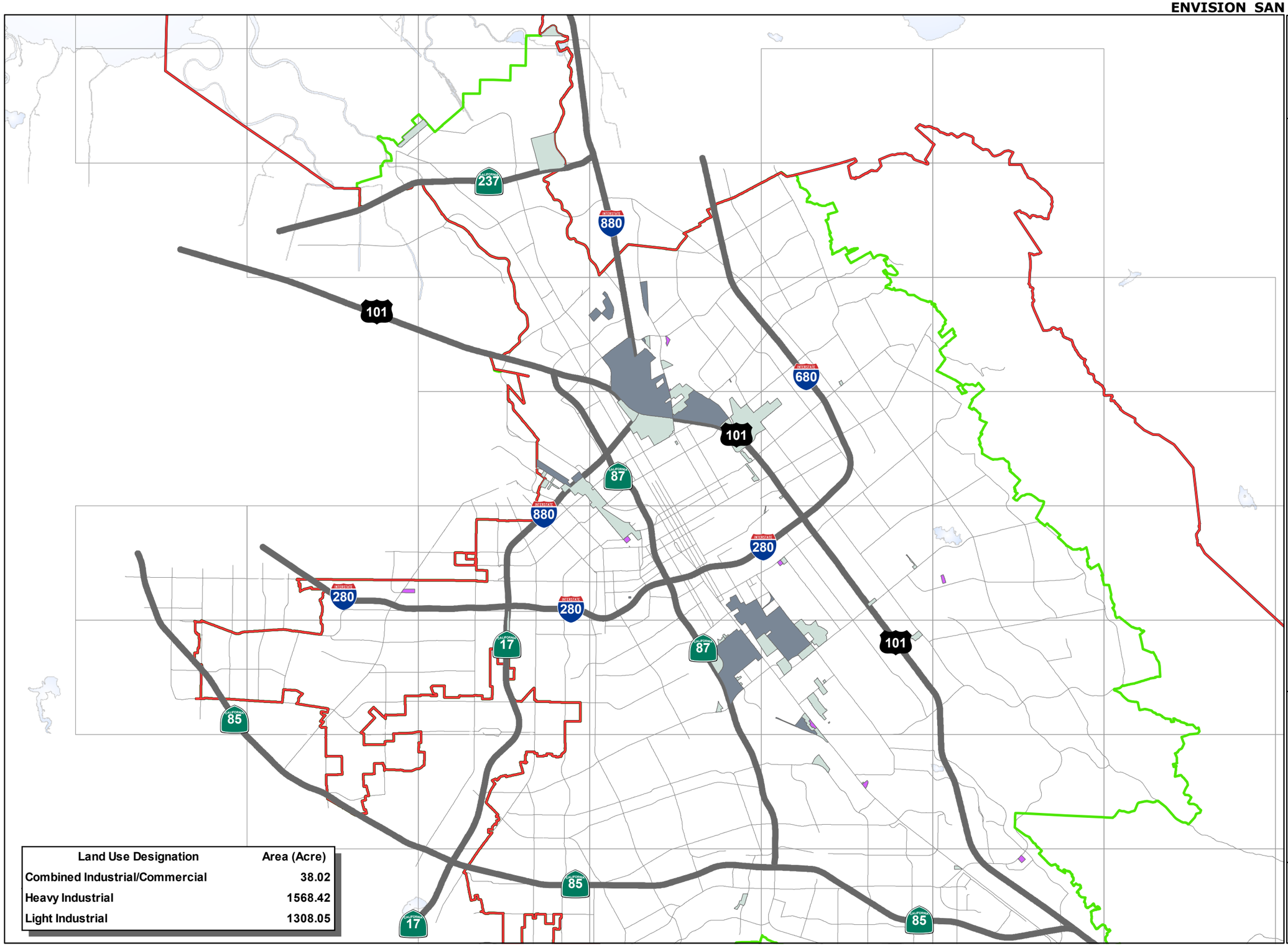
	2021-2030						
	Industrial/ Warehouse	**R&D/ Low-Rise**	**Mid & High Rise Office**	**Retail (Small)**	**Retail (Large)**	**Institutional/ Other**	**Total**
Driving Industries							
High Tech Products	0.1	0.6	0.3				1
Miscellaneous Products	0.1	0.6	0.3				1
Software/ Information Services		0.6	0.4				1
Technical/ Professional Services	0.2	0.4	0.4				1
Visitor Services	0.2			0.3	0.2	0.3	1
Self Employed		0.55	0.25	0.2			1
Business Support Industries							
Construction	0.45	0.35	0.2				1
Business Services	0.1	0.5	0.4				1
Financial Services		0.4	0.6				1
Transportation/ Distribution	0.65	0.2	0.15				1
Self Employed	0.1	0.55	0.35				1
Household Support Industries							
Civic	0.05	0.2	0.65			0.1	1
Health Care		0.5	0.1	0.3		0.1	1
Retail/ Consumer Services	0.05	0.025	0.025	0.75	0.15		1
Education						1	1
Self Employed	0.1	0.55	0.35				1

Table 9: Percentage (%) Distribution of Industry Clusters across Land Use Types for 2031-2040

	2031-2040						
	Industrial/ Warehouse	**R&D/ Low-Rise**	**Mid & High Rise Office**	**Retail (Small)**	**Retail (Large)**	**Institutional/ Other**	**Total**
Driving Industries							
High Tech Products	0.05	0.6	0.35				1
Miscellaneous Products	0.1	0.5	0.4				1
Software/ Information Services		0.5	0.5				1
Technical/ Professional Services	0.2	0.3	0.5				1
Visitor Services	0.2			0.3	0.2	0.3	1
Self Employed		0.55	0.25	0.2			1
Business Support Industries							
Construction	0.45	0.35	0.2				1
Business Services	0.1	0.45	0.45				1
Financial Services		0.3	0.7				1
Transportation/ Distribution	0.55	0.2	0.25				1
Self Employed	0.1	0.55	0.35				1
Household Support Industries							
Civic		0.2	0.7			0.1	1
Health Care		0.45	0.15	0.3		0.1	1
Retail/Consumer Services	0.05		0.05	0.75	0.15		1
Education						1	1
Self Employed	0.1	0.55	0.35				1

APPENDIX E

Location Maps of Lands Designated in the San Jose 2020 General Plan for Employment Uses



Land Use Designation	Area (Acre)
Combined Industrial/Commercial	38.02
Heavy Industrial	1568.42
Light Industrial	1308.05

ENVISIONSAN JOSE2040

General Plan 2020 Lands Suitable for Industrial/Warehouse Use

LEGEND

- Combined Industrial/Commercial
- Heavy Industrial
- Light Industrial
- Sphere of Influence
- Urban Growth Boundary
- Major Roads
- Water Bodies

N W E S

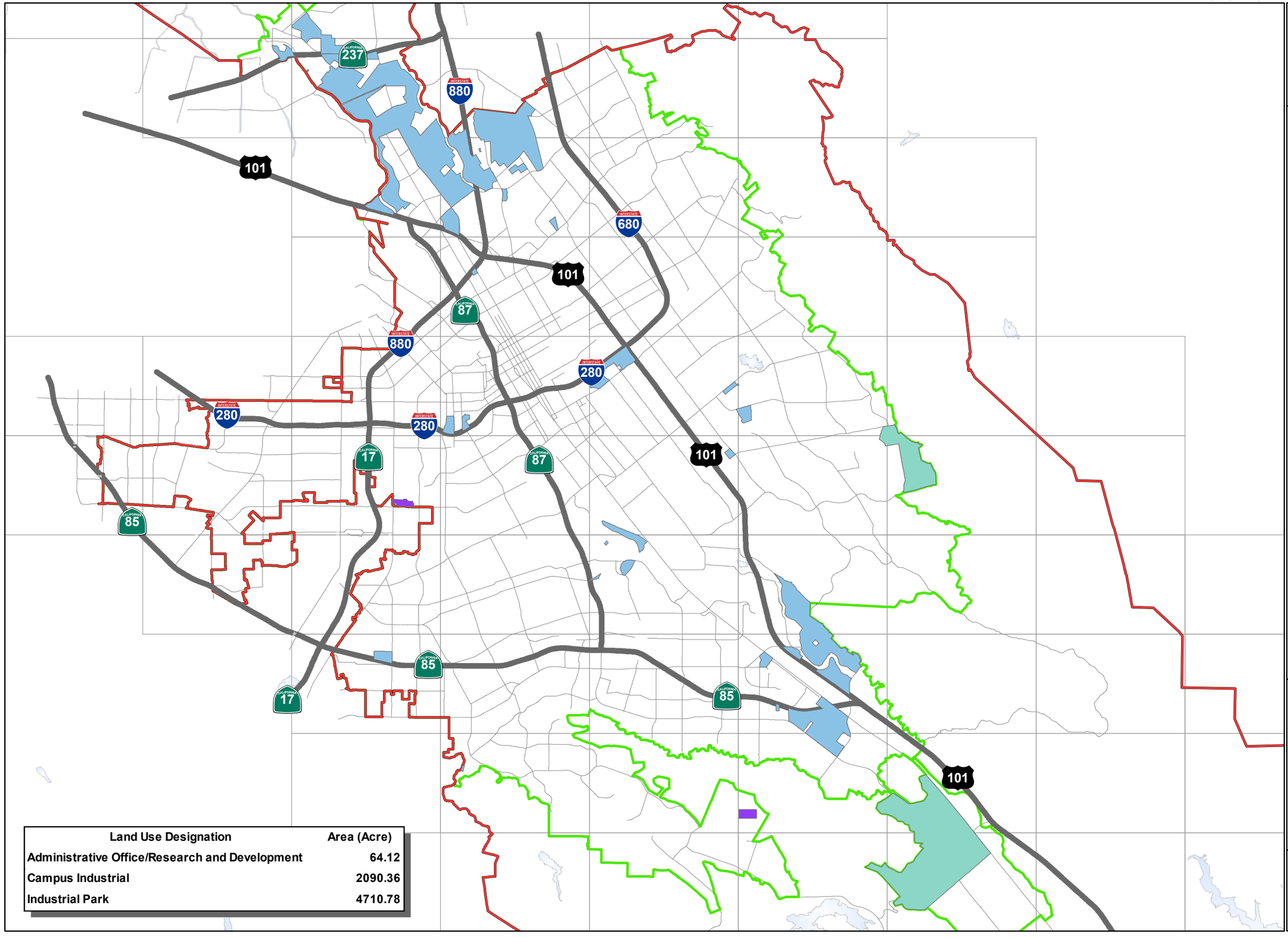
0 0.45 0.9 1.8 2.7 3.6
Miles

0 3,800 7,600 15,200
Feet

Date: March 12, 2009

Source: Department of Planning, Building and Code Enforcement City of San Jose

FIGURE 1
LANDS SUITABLE FOR INDUSTRIAL/WAREHOUSE USE



Land Use Designation	Area (Acre)
Administrative Office/Research and Development	64.12
Campus Industrial	2090.36
Industrial Park	4710.78

ENVISIONSAN JOSE2040

General Plan 2020
Lands Suitable for R&D and Low-Rise Office Use

LEGEND

- Administrative Office/R&D
- Campus Industrial
- Industrial Park
- Sphere of Influence
- Urban Growth Boundary
- Major Roads
- Water Bodies

N
W E
S

0 0.5 1 2 3 4
Miles

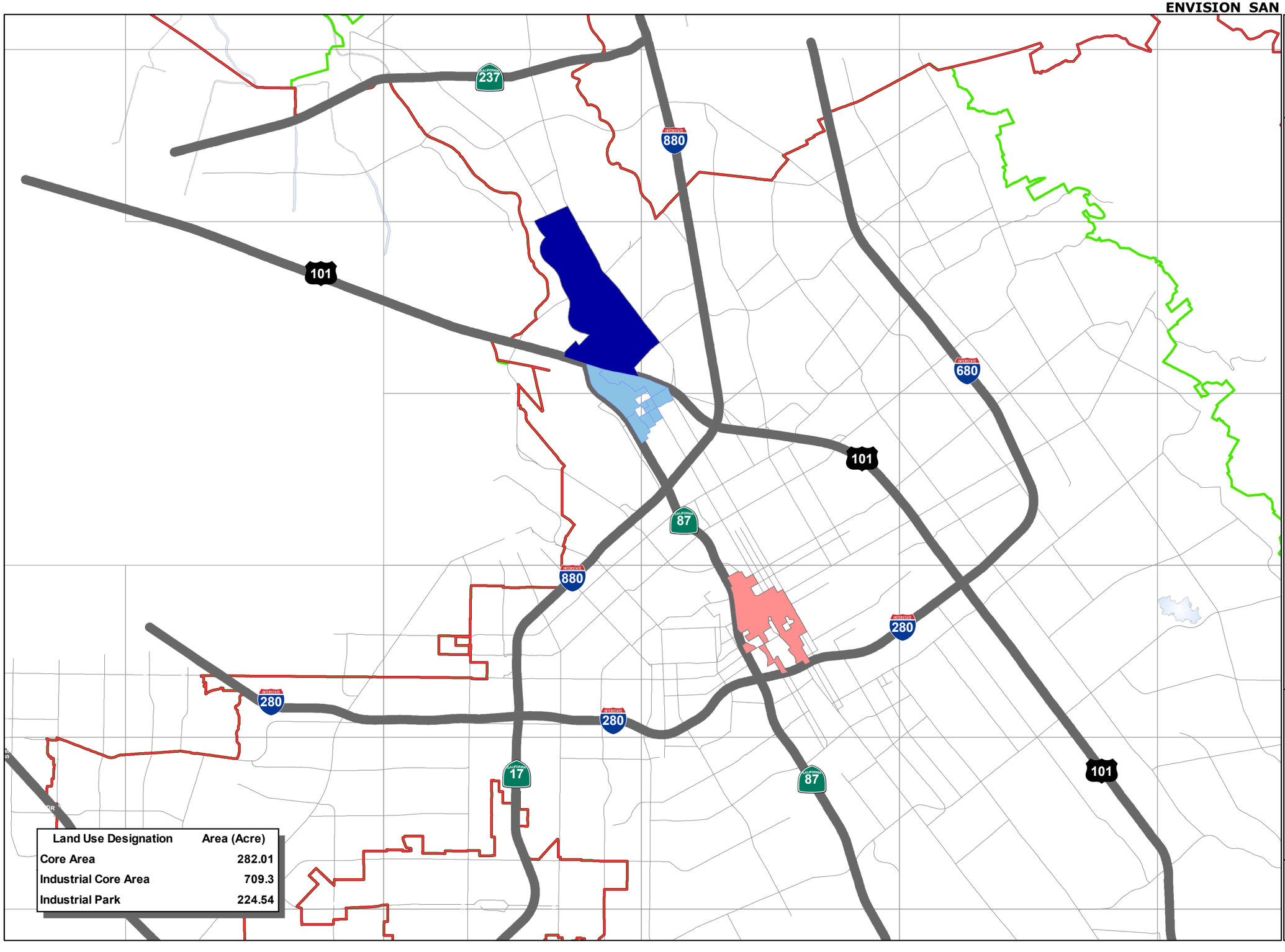
0 4,500 9,000 18,000
Feet

Date: March 12, 2009

Source: Department of Planning, Building and Code Enforcement City of San Jose

FIGURE 2
LANDS SUITABLE FOR R&D/LOW-RISE OFFICE USE

CITY OF SAN JOSE
ENVISION SAN JOSE 2040 GENERAL PLAN UPDATE



Land Use Designation	Area (Acre)
Core Area	282.01
Industrial Core Area	709.3
Industrial Park	224.54

ENVISIONSAN JOSE2040

General Plan 2020 Lands Suitable for Mid and High Rise Office Use

LEGEND

- Core Area
- Industrial Core Area
- Industrial Park
- Sphere of Influence
- Urban Growth Boundary
- Grid Panels
- Major Roads
- Water Bodies

N
W E
S

0 0.25 0.5 1 1.5 2
Miles

0 1,500 3,000 6,000
Feet

Date: March 12, 2009

Source: Department of Planning, Building and Code Enforcement City of San Jose

FIGURE 3
LANDS SUITABLE FOR MID AND HIGH RISE OFFICE USE

ENVISIONSAN JOSE2040

General Plan 2020 Lands Suitable for Retail (Small) Use

LEGEND

- General Commercial
- Neighborhood/Com Commercial
- River Commercial
- Sphere of Influence
- Urban Growth Boundary
- Major Roads
- Water Bodies

N W E S

0 0.45 0.9 1.8 2.7 3.6
Miles

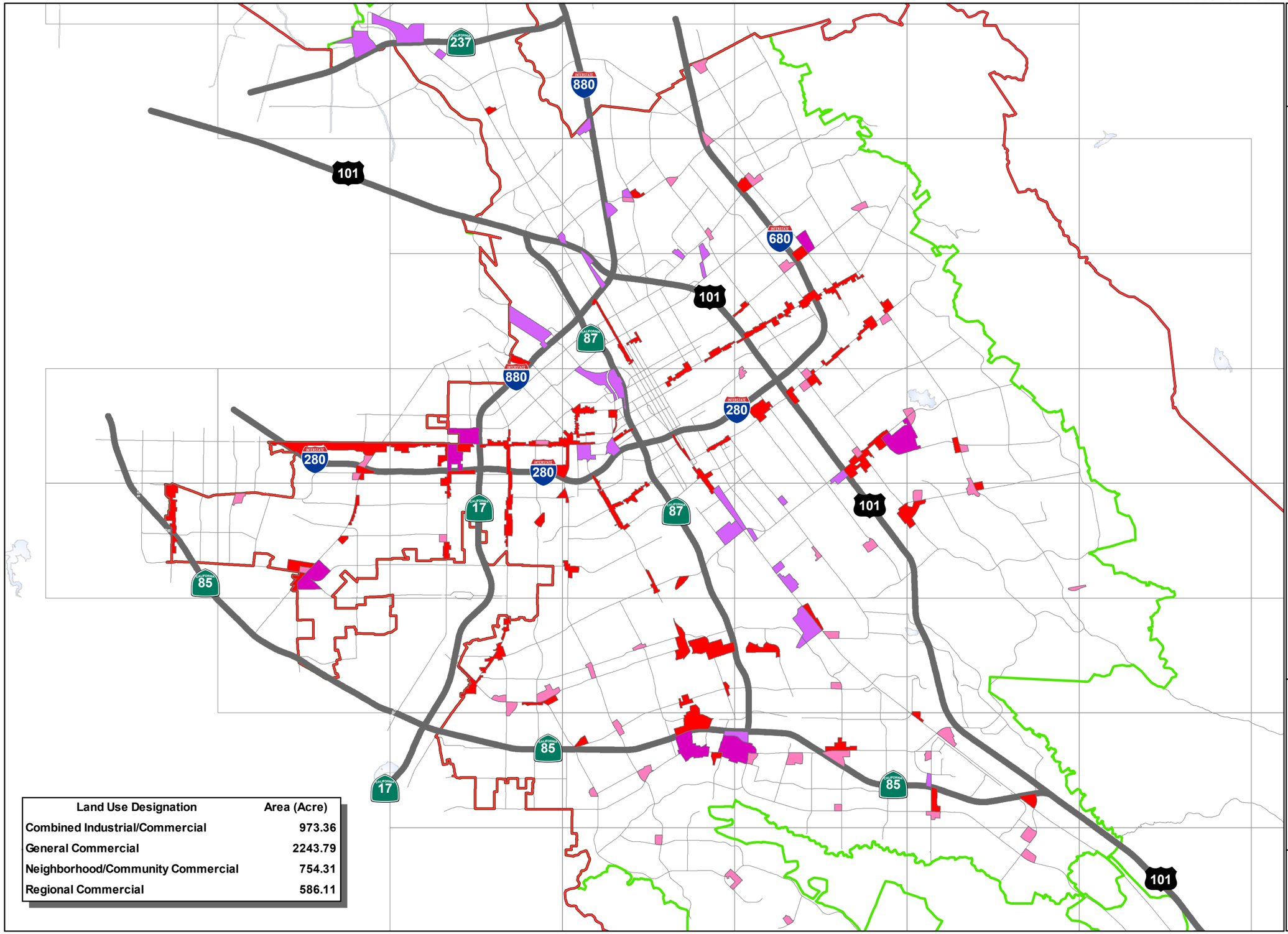
0 3,500 7,000 14,000
Feet

Land Use Designation	Area (Acre)
General Commercial	335.62
Neighborhood/Community Commercial	151.91
River Commercial	7.97

Date: March 12, 2009

Source: Department of Planning, Building and Code Enforcement City of San Jose

FIGURE 4
LANDS SUITABLE FOR RETAIL (SMALL) USE



ENVISIONSAN JOSE2040

General Plan 2020 Lands Suitable for Retail (Large) Use

LEGEND

- Combined Industrial/Commercial
- General Commercial
- Neighborhood/Com Commercial
- Regional Commercial
- Sphere of Influence
- Urban Growth Boundary
- Major Roads
- Water Bodies

N W E S

0 0.5 1 2 3 4
Miles

0 3,750 7,500 15,000
Feet

Land Use Designation	Area (Acre)
Combined Industrial/Commercial	973.36
General Commercial	2243.79
Neighborhood/Community Commercial	754.31
Regional Commercial	586.11

Date: March 12, 2009

Source: Department of Planning, Building and Code Enforcement City of San Jose

FIGURE 5
LANDS SUITABLE FOR RETAIL (LARGE) USE