

Jobs/Housing Balance, Jobs Centers and Transportation

Summary

To allow the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) to achieve its greenhouse gas reduction targets and air quality conformity targets, the Framework for a Draft Preferred Scenario specifies that the land use forecast of the plan should have as much or slightly more improvement in sub-regional jobs/housing balance as in the current MTP/SCS. The reason for this emphasis is that regional accessibility to jobs, or the number of jobs within a reasonable drive time from a place of residence, explains much of the travel performance difference between the three scenarios that are being used to inform the update of the MTP/SCS. In areas within the existing urbanized area, regional accessibility is usually higher, and in outlying areas or areas on the urban/suburban edge, it tends to be lower. Increased regional accessibility to jobs means shorter driving trips and a corresponding decrease in vehicle miles traveled and air emissions.

There are multiple travel benefits to sub-regional jobs/housing balance. The Discussion Draft Preferred Scenario (Discussion Draft), with its improvement in sub-regional jobs/housing balance and supporting transportation investments, achieves the following travel improvements into regional employment centers:

- Average commute vehicle miles traveled (VMT) per worker within the regional employment centers declines over time.
- Transit, bike and walk mode share for commute travel to regional employment centers increases over time.
- Average auto commute time to regional employment centers decreases over time (this is an average commute time of both single-occupancy vehicles and carpools to workplace).

Fourteen regional employment centers were identified as part of this analysis. The memo herein discusses 1) the definition of jobs/housing balance, 2) the definition of employment centers as applied in the Discussion Draft, and 3) the travel performance of workers to each of the fourteen regional employment centers in the Discussion Draft. Staff is also willing and able to run this analysis for smaller job centers upon request. In the February Board workshop, staff will brief the Board on the fundamental assumptions in this memo and solicit questions and comments that will be used to further refine the regional jobs center definition and related transportation performance outcomes.

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1. Definition of Jobs/Housing Balance

The relationship between the number of households and jobs has long been used as an indicator of the potential for longer (or shorter) commutes. The most common quantitative statement of the relationship is the “jobs/housing balance” (J/HB). In areas with very low J/HB (i.e. few jobs for the number of households in the area), many workers need to commute out of their residence area to find work. In areas with very high J/HB (i.e. many jobs for the number of households in the area), jobs need to be filled by workers from outside the area. Areas with high or low J/HB’s, all else being equal, are likely to generate longer commutes for workers. This is the most basic assumed relationship of the balance between J/HB, and the need for travel.

The reality of the relationship between jobs and housing is far more complex than the J/HB portrays, though, for several reasons:

- The true relationship is not between jobs and *housing*, but between jobs and *workers*—housing has long been treated as a proxy for workers and worker residence. In reality, the number of workers per household varies widely across the region, and different types of housing have the capacity for accommodating different numbers of workers.
- J/HB is dependent on the geography used for the computation—but there is no “right” geography to use. Example: One jurisdiction has a housing-rich J/HB (say 10,000 households and 3,000 jobs, or a J/HB of 0.3). An adjacent jurisdiction has jobs-rich J/HB (13,000 jobs and 2,000 households, or a J/HB of 6.5). Both jurisdictions combined, with a total of 16,000 jobs and 12,000 houses, has a “good” J/HB of 1.3. Which of these three J/HB’s is worth paying attention to?
- Areas with “good” J/HB may still force longer commutes for workers, if the housing available in the area is unaffordable or unattractive to the workers filling jobs in the area. For example, if most of the jobs in a given area pay minimum wage, does the presence of sufficient market-rate housing to theoretically house all these workers (i.e. a “good” J/HB of 1.2) mean the area has good J/HB?
- Finally, employment necessarily agglomerates and concentrates in specific areas. For example, industrial/warehouse areas are usually homogenous employment areas, with little or no housing, for good reason—they are unattractive areas in which to reside. Even for office and service employment centers, where attractive housing could be located, employment uses often out-compete housing as a land use in those centers, for economic reasons. So, for good planning and economic reasons, healthy, vibrant employment centers tend to have “poor” (and usually jobs-rich) J/HB’s.

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These issues, among others, have stimulated a reappraisal of J/HB as a worthwhile indicator of the relationship between jobs and housing, and a move toward the notion of “fit” between jobs (where people work) and housing (where workers reside). SACOG staff used a measure of J/HB as an indicator for the 2012 MTP/SCS update, and proposes to use this measure for the MTP/SCS update. This measure would be based on the following principles and guidelines:

- Use as a target regional average J/HB. In 2008, the regional J/HB was about 1.2, or 1.2 jobs per household. This ratio dropped to 1.06 by 2012, due to the loss of employment in the recession. Because 2008 was a more normal year in the regional economy, and based on regional forecasts, the region is expected to return to about that ratio of jobs to households by 2036, 1.2 is proposed as a target for evaluating J/HB. That is, the degree to which an area which moves toward 1.2 is considered improvement in J/HB. So, a jobs-rich area with, say 1.9 jobs per household, would improve by adding more housing than jobs, and thereby moving J/HB toward 1.2. A housing-rich area with, say, 0.5 jobs per household, would improve by adding more jobs than housing, and thereby increasing J/HB toward 1.2.
- Accept the fact that employment, in a healthy regional economy, has and will continue to cluster and agglomerate in centers, within which “good” J/HB is very difficult, and undesired-able in some cases, to achieve. J/HB targets must be set for employment centers and a reasonable area around the centers, and not necessarily within the centers.
- Use an objective definition of employment centers, based on the size, concentration, and future capacity of jobs centers within the region, to identify employment areas of interest for assessing and measuring the balance between jobs and potential locations of residence for workers in and around those centers.
- Use an consistent distance measure from employment centers to identify surrounding areas of interest for measuring the fit between jobs and worker residence. For example, the median one-way commute distance for workers in the Sacramento region is about eight miles. For the 2012 MTP/SCS, areas within four miles of employment centers were defined as J/HB areas. Four miles is significantly lower than the median commute distance, and improving the balance between jobs and housing within this distance should support shorting of commute distances. Four miles is also a distance within a reasonable bicycle distance, and could be served with local transit service. For the 2016 MTP/SCS update, continued use of the four-mile area around employment centers is proposed.
- In the near term, the simple balance or ratio between jobs and housing units in J/HB areas will be the metric provided. Ultimately, in addition to total numbers of jobs and households, the distribution of wages paid at the jobs center, and housing cost in the

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surrounding J/HB area, should be taken into account in measuring the “fit” between jobs and housing, rather than just the “balance”. This more sophisticated measure of fit will take significant research and data collection to develop, and will not happen in the course of the 2016 MTP/SCS update.

Table 1 provides a county-level tally of jobs and households, based on the Discussion Draft land use forecast for the MTP/SCS update. At county level, J/HB improves for El Dorado County, and is stable for other counties. However, as discussed above, jurisdictional assessments of J/HB may miss significant J/HB issues based on distributions of jobs, households and worker flows which cross jurisdiction boundaries, and are defined by specific jobs centers below county level.

Table 1. Jobs and Households by County, 2008 and 2036

County	Jobs		Households		Jobs/Housing Balance	
	2008	2036	2008	2036	2008	2036
El Dorado /1/	44,763	64,078	55,305	70,094	0.81	0.91
Placer /1/	141,613	209,047	124,761	185,698	1.14	1.13
Sacramento	626,155	831,169	510,550	696,759	1.23	1.19
Sutter	31,751	43,805	31,314	43,485	1.01	1.01
Yolo	102,378	146,509	67,928	99,779	1.51	1.47
Yuba	<u>23,178</u>	<u>32,497</u>	<u>23,482</u>	<u>32,941</u>	<u>0.99</u>	<u>0.99</u>
Regional Total	969,838	1,327,105	813,340	1,128,756	1.19	1.18

Source: SACOG, February 2015.

/1/ Excludes Tahoe Basin.

2. Definition of Employment Centers

For purposes of evaluating land uses for the 2016 MTP/SCS, J/HB will be assessed for a set of fourteen employment centers. Centers are defined as:

- Concentrations of at least 10,000 “base” jobs (i.e. including manufacturing, office, medical, educational, and service employment, and excluding “residential-serving” sectors like retail and restaurant uses), at average density of eight or more jobs per acre. “Base” jobs were considered in defining the centers, because these jobs are more directly related to economic vitality and competitiveness in the region.
- Centers were defined where 80 percent or more of the uses within the center were employment, not residential. Little housing was provided within the center, and J/HB must be achieved in areas around the centers.

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Figure 1 shows the geography of 14 employment centers meeting the above criteria. The map shows the underlying 2036 land use mix (with predominantly employment in blue, predominantly residential in yellow and brown, and areas with mixed use in pink), and density (by intensity or darkness of color, with the lightest areas being the least dense, and the darkest, the most dense). The figure also shows the combined four-mile radii around all fourteen centers. This map is provided for illustrative purposes only. The identification of employment centers could be changed, as could the four-mile J/HB areas around the centers. If this concept seems like a reasonable way to move forward in dealing with the relationship between jobs and housing, staff will work to refine it. We could add any other smaller job centers as needed or requested.

Table 2 provides a tally of jobs and households within the employment centers themselves. Just under one-half of all jobs in the region are located within the 14 employment centers. A very small share (8 to 12 percent) of the region's households are located within employment centers, which supports the concept of the four-mile "sheds" around these centers assessing progress toward J/HB. Table 2 also provides a tally of jobs and households within the combined four-mile radius around all employment centers. Just over 80 percent of all jobs, but less than 75 percent of all households, are located in the combined four-mile radius around all centers.

Ideally, a J/HB metric would be produced for each employment center, to allow for assessment of each the J/HB around each center. A complicating factor in this calculation, though, is that the four-mile radii around each center overlap with that of other centers. A simple calculation of the total households and jobs within each four-mile radius would double, triple, and quadruple count many households. A second complicating factor is that, as shown in Table 2 and illustrated in Figure 1, a significant percentage of employment is located outside the centers. The center definition is used for identifying core employment areas for defining J/HB, but the jobs outside the centers, but within the combined four-mile radius area, are relevant to J/HB. For the 2012 MTP/SCS, SACOG developed an approach for calculating J/HB by employment center, by essentially "splitting" both jobs and households in areas where the four-mile radii overlap, and crediting each center with the split jobs and households within the four-mile radius of that center. So, if a particular area is "shared" by the four-mile radii of two employment centers, each center is credited with one-half of each job and one-half of each household in the overlapping area. This approach recognizes, in a simple way, that "competition" among centers exists for both jobs (on the household side) and workers (on the employer side). This approach also eliminates double counting of jobs and households.

Table 3 provides the “split” calculation of J/HB for each of the 14 employment centers. This method of computing employment center J/HB results in some interesting findings:

- In Year 2008, more centers are jobs-rich than housing-rich. Seven centers (Sacramento CBD/Riverfront, Rancho Cordova, Expo/Arden/Point West, East Sacramento Medical, North Natomas, Bradshaw/US-50, and West Sacramento Industrial Area) show up as significantly jobs-rich. Only two centers (Roseville/Douglas Corridor, McClellan) show up as significantly housing-rich.
- Based on the 2036 proposed growth allocations for the MTP/SCS, 12 of 14 centers improve in J/HB (i.e. they move closer to 1.2 over the plan horizon). Two of the centers do not improve in J/HB: Power Inn Industrial Area, and UC Davis. Power Inn gets marginally more housing rich, and UC Davis gets marginally more jobs-rich.
- Overall in the combined four-mile radius area, J/HB improves through the planning horizon, decreasing from 1.32 to 1.27 (i.e. becoming less jobs-rich in total).
- To achieve “perfect” J/HB of 1.2, 51,000 more households would need to be located within the combined four-mile radius area.

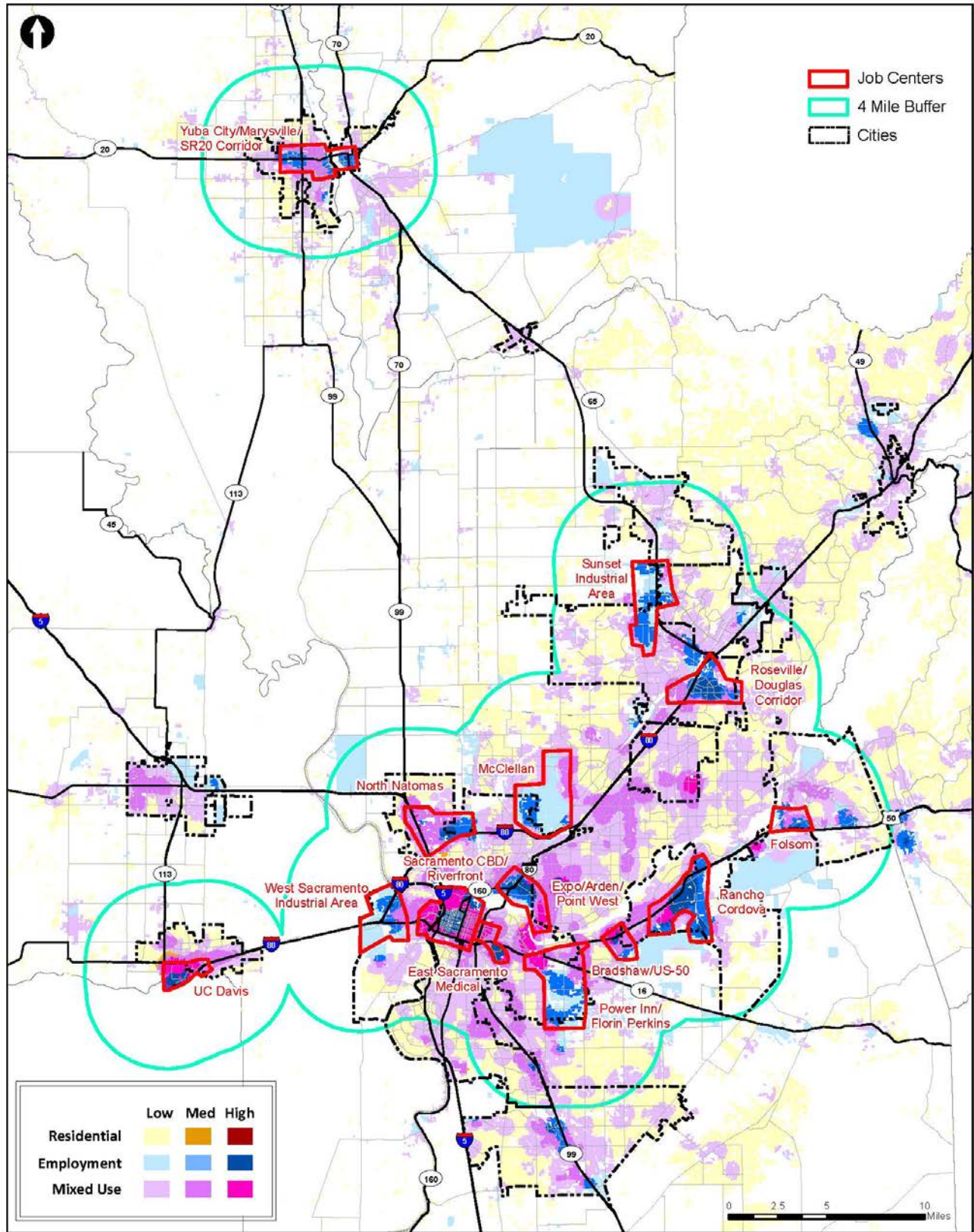
3. Travel Performance to Employment Centers

Finally, Table 4 provides a snapshot of selected worker-travel characteristics to each of the 14 employment centers. Shown in the table are:

- Average commute vehicle miles traveled (VMT) per worker at the employment center. This metric declines for each center, with an overall decline for all centers of five percent.
- Transit, bike and walk mode share for commute travel to each center. This metric captures the combined non-auto travel to each center. This metric increases for all of the centers.
- Average auto commute time to each center. This is an average of both SOV and carpool times for all auto trips to each workplace. This metric improves to 11 of 14 of the centers.

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Figure 1. Employment Centers and four-mile Jobs/Housing Balance Areas



Source: SACOG, February 2015.

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Table 2. Jobs and Households in Employment Centers

Employment Center	"Base" Jobs /1/		Total Jobs		Households	
	2008	2036	2008	2036	2008	2036
Sacramento CBD/Riverfront	99,243	133,025	109,719	144,559	17,523	46,213
Rancho Cordova	42,837	61,031	47,764	67,300	6,646	8,584
Power Inn/Florin-Perkins	31,928	47,268	34,919	53,409	4,241	14,981
Roseville/Douglas Corridor	26,878	32,958	35,202	41,593	6,376	7,789
Expo/Arden/PointWest	26,598	23,560	35,318	32,844	7,492	9,325
East Sacramento Medical	26,004	25,151	27,786	26,487	4,063	5,216
Sunset Industrial Area	14,090	38,556	16,135	42,474	482	1,947
Yuba City/Marysville/SR20 Corridor	17,398	23,992	23,834	30,599	6,122	7,852
North Natomas	13,772	24,641	18,667	33,831	4,889	10,229
Folsom	11,962	12,017	13,929	14,421	2,016	2,482
UC Davis	16,793	29,856	18,987	31,973	2,015	3,733
Bradshaw/US-50	10,606	13,707	11,694	15,286	2,411	4,204
West Sacramento Industrial Area	20,893	21,754	23,867	25,049	1,650	2,758
McClellan	<u>11,931</u>	<u>31,439</u>	<u>13,757</u>	<u>34,998</u>	<u>1,690</u>	<u>5,234</u>
Total of All Employment Centers	370,933	518,954	431,578	594,822	67,616	130,547
Total in Centers + four-mile Radius	646,152	883,282	795,412	1,078,971	604,069	848,726
Total In Region	779,956	1,063,483	969,838	1,327,105	813,340	1,128,756
% of Region in Centers	48%	49%	45%	45%	8%	12%
% of Region w/in 4 miles of All Centers	83%	83%	82%	81%	74%	75%

Source: SACOG, February 2015.

/1/ "Base" jobs do not include retail and restaurant/food sectors.

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Table 3. Jobs and Households Split to four-mile Sheds Around Employment Centers

Employment Centers	Total Jobs /1/		Total Households /1/		Jobs / Housing Balance	
	2008	2036	2008	2036	2008	2036
Sacramento CBD/Riverfront	72,043	86,730	38,377	55,927	1.88	1.55
Rancho Cordova	66,532	92,007	47,310	75,340	1.41	1.22
Power Inn/Florin-Perkins	79,966	99,489	77,312	100,409	1.03	0.99
Roseville/Douglas Corridor	62,141	83,536	71,084	80,545	0.87	1.04
Expo/Arden/PointWest	73,732	90,077	36,527	51,794	2.02	1.74
East Sacramento Medical	68,775	79,625	35,795	51,960	1.92	1.53
Sunset Industrial Area	53,439	99,672	49,351	86,762	1.08	1.15
Yuba City/Marysville/SR-20	40,445	53,604	37,450	49,119	1.08	1.09
North Natomas	45,075	73,306	27,387	44,874	1.65	1.63
Folsom	47,615	69,321	36,576	55,856	1.30	1.24
UC Davis	34,342	45,539	26,108	33,312	1.32	1.37
Bradshaw/US-50	44,041	60,536	22,191	31,087	1.98	1.95
West Sacramento Ind'l Area	43,367	57,599	22,227	34,379	1.95	1.68
McClellan	<u>63,898</u>	<u>87,931</u>	<u>75,328</u>	<u>96,218</u>	<u>0.85</u>	<u>0.91</u>
Total in Centers+four-mile Radius	795,412	1,078,971	604,069	848,726	1.32	1.27
Rest of Region	<u>174,426</u>	<u>248,134</u>	<u>210,317</u>	<u>281,175</u>	<u>0.83</u>	<u>0.88</u>
Region Total	969,838	1,327,105	813,340	1,128,756	1.19	1.18

Source: SACOG, February 2015.

/1/ Jobs and households on this table are split amongst four-mile radius sheds around employment centers, where the sheds overlap.

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Table 4. Worker Travel Characteristics to Employment Centers

Employment Center	Worker Travel Characteristics							
	Jobs/Housing Bal.		Commute VMT per Worker		Commute Transit/Bike/Walk Share		Auto Commute Time (One-Way, in Minutes)	
	2008	2036	2008	2036	2008	2036	2008	2036
Sacramento CBD/Riverfront	1.88	1.55	16.7	11.5	20.0%	43.9%	31.8	28.3
Rancho Cordova	1.41	1.22	22.9	19.1	2.6%	5.7%	28.4	26.3
Power Inn/Florin-Perkins	1.03	0.99	20.6	17.8	2.6%	5.1%	25.1	23.2
Roseville/Douglas Corridor	0.87	1.04	18.7	17.5	2.7%	4.4%	21.9	22.1
Expo/Arden/PointWest	2.02	1.74	18.9	17.6	4.7%	8.8%	23.4	23.6
East Sacramento Medical	1.92	1.53	18.3	16.3	10.7%	12.7%	25.4	24.2
Sunset Industrial Area	1.08	1.15	22.8	19.3	1.2%	2.1%	24.4	22.6
Yuba City/Marysville/SR-20	1.08	1.09	9.4	8.5	7.4%	9.5%	13.7	12.4
North Natomas	1.65	1.63	21.7	20.0	2.4%	6.6%	23.9	23.4
Folsom	1.30	1.24	20.2	18.1	2.1%	3.9%	26.0	23.1
UC Davis	1.32	1.37	14.2	11.7	20.7%	29.2%	33.4	35.3
Bradshaw/US-50	1.98	1.95	19.8	17.3	4.0%	9.9%	24.1	23.6
West Sacramento Industrial Area	1.95	1.68	25.2	22.3	1.3%	4.1%	27.1	25.8
McClellan	<u>0.85</u>	<u>0.91</u>	<u>22.1</u>	<u>19.5</u>	<u>1.9%</u>	<u>3.2%</u>	<u>25.0</u>	<u>24.9</u>
Total in Centers + four-mile Radius	1.32	1.27	19.1	16.1	8.2%	16.2%	26.5	25.2
Rest of Region	<u>0.83</u>	<u>0.88</u>	<u>22.1</u>	<u>19.5</u>	<u>3.4%</u>	<u>4.9%</u>	<u>26.6</u>	<u>25.5</u>
Region Total	1.19	1.18	19.9	17.4	5.6%	10.2%	26.5	25.2

Source: SACOG, February 2015.

Based on travel forecasts prepared using SACSIM regional travel demand model, and the Discussion Draft land use and transportation project assumptions for Year 2036.