

PROJECTED CONDITIONS

Forecasts of future conditions anticipate levels of intensity and type of growth Santa Fe may experience by the year 2020. Predictions are based on what we know to be true about the past—they represent a future projection of historical trends. As with any statistical method, projections are scientific predictions of future outcomes. A range of possible scenarios is included in this analysis in order to replicate probability.

In accordance with the existing conditions analysis provided in Chapter 2, the projected conditions include population and housing summaries, economy and employment and expected future water demand and potential supply sources. The *projected population, housing, employment and non-residential floor area* assumes four growth scenarios based on current trends and issues; 1) *most likely* projection based on slower urban/moderate fringe growth, 2), two *rapid growth* alternatives based on a) rapid urban and fringe area growth b) rapid fringe and slower urban growth, and 3) overall *slower regional growth*. These four alternatives present three rates of growth for the region; however, the *most likely* growth scenario is presented as the most applicable for this report.



Example of new development in Santa Fe.

Finally, *future water demand and potential future water sources* are identified. Projected water demand is often a direct function of population and/or housing, therefore, it has been derived by applying a weighted or prorated^a water usage per housing ratio to the number of future housing units. Future water demand derived from land use projections and expected needs are also presented in Chapter 5.

With regard to future water supply and potential sources, recent city/county studies and reports provide some general references to potential sources, however, there is limited public quantified or measurable data to determine expected yields or costs. This section does offer a comparison of future sources in terms of preferred alternatives that are based on recommended actions contained within the various plans, presentations and reports.

Section 3.1. Projected Population and Housing

Projected future population and housing are presented as four alternative scenarios and are included in Appendix IV - Santa Fe Regional Population, Housing, Employment and Non-Residential Floor Area Projections. It is suggested the *most likely* growth projections be considered the most appropriate for purposes of modeling and needs assessment, therefore, projections for population, housing, employment and non-residential floor area are presented according to the *most likely* scenarios.

PROJECTION SERIES A: MOST LIKELY GROWTH - POPULATION

Moderate County/Slow Urban Growth

Based on RPA "Urban Area Slow Growth" Scenario

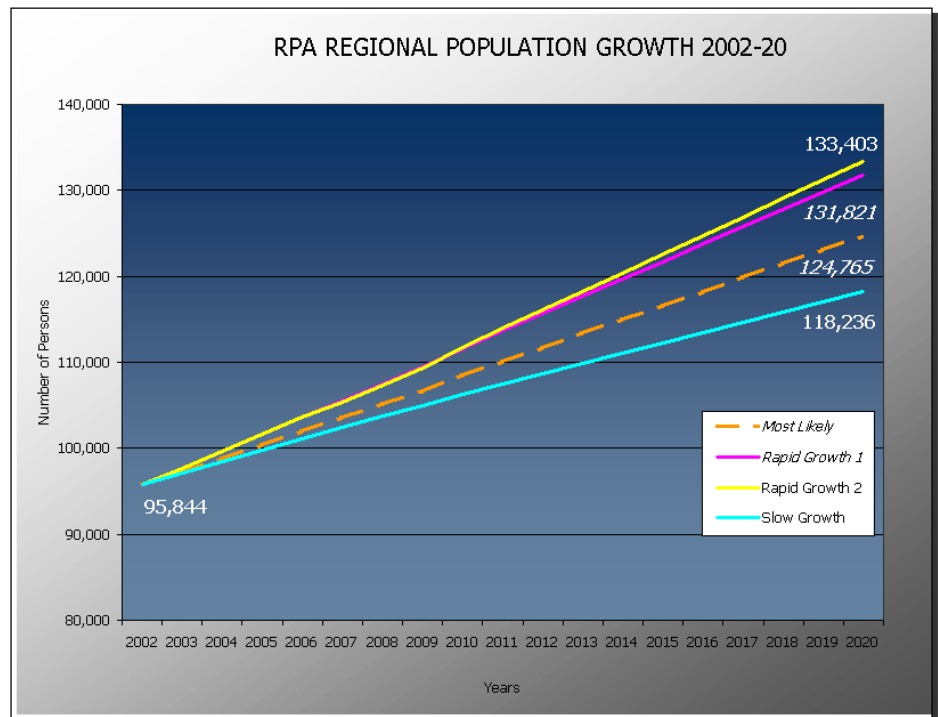
| SUBREGION | TOTAL POPULATION (July 1) | | | | | NET INCREASE | | | AVG ANN. INCREASE | | AVG ANN. GROWTH (%) | |
|----------------------|---------------------------|--------|---------|---------|---------|--------------|---------|---------|-------------------|---------|---------------------|---------|
| | 2002 | 2003 | 2007 | 2010 | 2020 | 2002-10 | 2010-20 | 2002-20 | 2002-10 | 2010-20 | 2002-10 | 2010-20 |
| RPA Urban Area | 81,253 | 81,993 | 84,919 | 87,005 | 93,009 | 5,752 | 6,004 | 11,756 | 719 | 600 | 0.9 | 0.7 |
| Incorporated City | 63,711 | 64,275 | 66,531 | 68,223 | 72,933 | 4,512 | 4,710 | 9,222 | 564 | 471 | 0.9 | 0.7 |
| RPA Urban Fringe | 17,542 | 17,718 | 18,388 | 18,782 | 20,076 | 1,240 | 1,294 | 2,534 | 155 | 129 | 0.9 | 0.7 |
| RPA North Area | 3,024 | 3,106 | 3,441 | 3,687 | 4,396 | 663 | 709 | 1,372 | 83 | 71 | 2.5 | 1.8 |
| RPA West Area | 4,914 | 5,165 | 6,249 | 7,118 | 10,055 | 2,204 | 2,937 | 5,141 | 276 | 294 | 4.7 | 3.5 |
| RPA South | 6,653 | 7,057 | 8,967 | 10,711 | 17,305 | 4,058 | 6,594 | 10,652 | 507 | 659 | 6.1 | 4.9 |
| RPA SFCCD Area | 1,988 | 2,234 | 3,490 | 4,735 | 9,888 | 2,747 | 5,153 | 7,900 | 343 | 515 | 11.5 | 7.6 |
| RPA Southern Fringe | 4,665 | 4,823 | 5,477 | 5,976 | 7,417 | 1,311 | 1,441 | 2,752 | 164 | 144 | 3.1 | 2.2 |
| RPA Planning Area | 95,844 | 97,321 | 103,576 | 108,521 | 124,765 | 12,677 | 16,244 | 28,921 | 1,585 | 1,624 | 1.6 | 1.4 |
| RPA Planning Area EZ | 32,133 | 33,046 | 37,045 | 40,298 | 51,832 | 8,165 | 11,534 | 19,699 | 1,021 | 1,153 | 2.9 | 2.5 |

Table 3.1.A. "Most Likely" Growth Projections for Population (2020)

Source: Al Pitts, 2004: Based on original RPA projections 2002

Table 3.1.A. illustrates the *most likely* population projections from 2002 to 2020. It is based on a slow urban area and moderate urban fringe growth scenario. By 2020, the regional population is projected to reach nearly 124,800 persons, which represents a 1.5% annual growth rate. In contrast, the EZ area is predicted to add nearly 19,700 persons at an annual rate of 2.7%. The most rapid growth is predicted to occur within the *south subarea* at an average annual growth rate between 11.5 and 7.6%. As the city nears build out, growth within the incorporated area is expected to continue to decline.

Chart 3.1.A. compares total regional population growth according to the four alternative growth scenarios. The highest growth is predicted according to *rapid growth alternative #2* (rapid fringe/slower urban), with a projected regional population of 133,400 persons by 2020. The *slow growth* alternative predicts a regional population of 118,200 persons. The range of prediction is approximately 15,200 persons, or 11%.



Charts 3.1.A. Four Scenarios of Regional Population

PROJECTION SERIES A: MOST LIKELY GROWTH - HOUSING
 Moderate County/Slow Urban Growth
 Based on RPA "Urban Area Slow Growth" Scenario

| SUBREGION | TOTAL DWELLING UNITS (July 1) | | | | | NET INCREASE | | | AVG ANN. INCREASE | | AVG ANN. GROWTH (%) | | PERS. PER HOUSEHOLD | |
|-----------------------------|-------------------------------|---------------|---------------|---------------|---------------|--------------|--------------|---------------|-------------------|------------|---------------------|------------|---------------------|------------|
| | 2002 | 2003 | 2007 | 2010 | 2020 | 2002-10 | 2010-20 | 2002-20 | 2002-10 | 2010-20 | 2002-10 | 2010-20 | 2010 | 2020 |
| RPA Urban Area | 37,879 | 38,349 | 40,185 | 41,479 | 45,338 | 3,600 | 3,859 | 7,459 | 450 | 386 | 1.1 | 0.9 | 2.1 | 2.1 |
| Incorporated City | 31,575 | 31,955 | 33,475 | 34,615 | 37,915 | 3,040 | 3,300 | 6,340 | 380 | 330 | 1.2 | 0.9 | 2.0 | 1.9 |
| RPA Urban Fringe | 6,304 | 6,394 | 6,710 | 6,864 | 7,423 | 560 | 559 | 1,119 | 70 | 56 | 1.1 | 0.8 | 2.7 | 2.7 |
| RPA North Area | 1,780 | 1,834 | 2,056 | 2,220 | 2,704 | 440 | 484 | 924 | 55 | 48 | 2.8 | 2.0 | 1.7 | 1.6 |
| RPA West Area | 1,966 | 2,075 | 2,545 | 2,926 | 4,247 | 960 | 1,321 | 2,281 | 120 | 132 | 5.1 | 3.8 | 2.4 | 2.4 |
| RPA South | 2,777 | 2,955 | 3,800 | 4,577 | 7,601 | 1,800 | 3,024 | 4,824 | 225 | 302 | 6.4 | 5.2 | 2.3 | 2.3 |
| RPA SFCCD Area | 805 | 909 | 1,447 | 1,989 | 4,318 | 1,184 | 2,329 | 3,513 | 148 | 233 | 12.0 | 8.1 | 2.4 | 2.3 |
| RPA Southern Fringe | 1,972 | 2,046 | 2,353 | 2,588 | 3,283 | 616 | 695 | 1,311 | 77 | 70 | 3.5 | 2.4 | 2.3 | 2.3 |
| RPA Planning Area | 44,402 | 45,213 | 48,586 | 51,202 | 59,890 | 6,800 | 8,688 | 15,488 | 850 | 869 | 1.8 | 1.6 | 2.1 | 2.1 |
| RPA Planning Area EZ | 12,827 | 13,258 | 15,111 | 16,587 | 21,975 | 3,760 | 5,388 | 9,148 | 470 | 539 | 3.3 | 2.9 | 2.4 | 2.4 |

Table 3.1.B. "Most Likely" Growth Projections for Housing (2020)
 Source: Al Pitts, 2004: Based on original RPA projections 2002

Table 3.1.B. presents the *most likely* projection for regional housing. By 2020, an added 15,500 housing units will bring the regional housing stock to nearly 59,900 units. This translates to a regional average of 860 units added annually or 508 housing units added annually within the EZ. Regarding the EZ, the highest growth percentage is expected to occur within the *south* and *west subareas*, with projected growth rates between 3.8 to 6.4 percent.

The regional average annual growth rate is 1.7% as compared to the slower population growth rate of 1.5%. These rate differentials imply a declining net persons per household size, particularly within the incorporated area of the region (see table above), and/or a projected increase in the number of unoccupied housing units ("second home").

Chart 3.1.B. similarly compares total regional housing growth according to the four growth scenarios. *Rapid growth #2* predicts the highest growth in total housing at a total of 64,200 units (2.1% annual growth rate) as compared to the *slow growth* alternative of 56,800 total housing units (1.4% average annual growth).

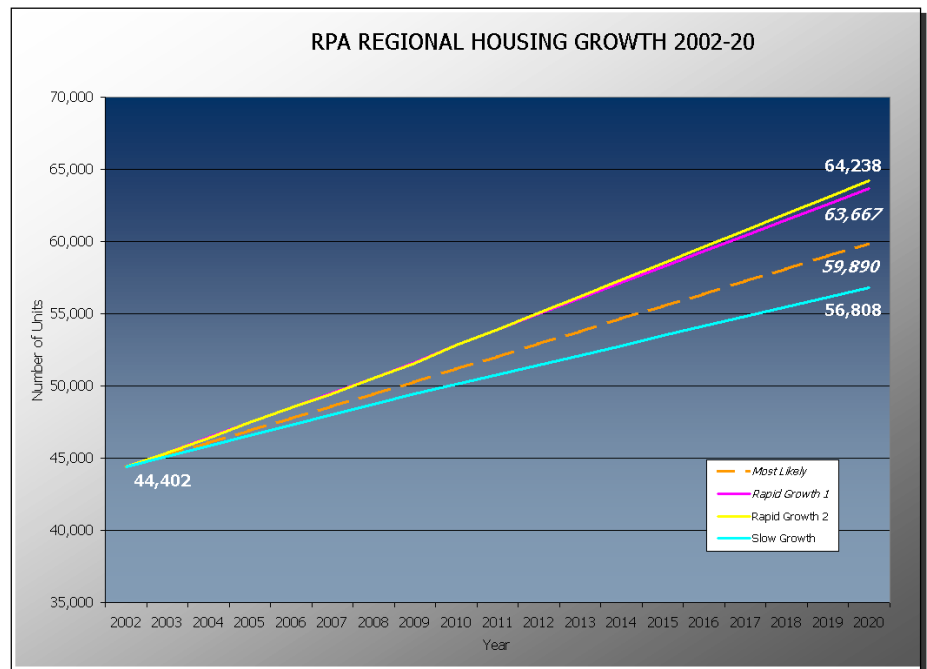


Chart 3.1.B. Four Scenarios of Housing Growth

The RPA has suggested that the most applicable range in regional growth falls between the *most likely* and the *slow growth* alternatives for all four growth measures. Policy, natural and/or economic influences will ultimately determine future growth rates; however, inferences can be made from the modeled alternatives regarding future outcomes. They include:

- Regional growth during the early part of the 1990's occurred at a slightly higher rate than was originally projected within the city and county general plans. This resulted in higher population projections than was originally predicted. Growth, however, has continued to slow since the mid- to late 1990's.
- Since growth occurred at a faster pace in a series of years rather than over a longer period of time, the *most likely* scenario is assumed to represent the most likely occurrence because it recognizes the slower long-term growth trend that has occurred both regionally as well as statewide. The rapid growth seen in the early 1990's is not considered a sustainable trend as compared to historical trends.
- Should water availability constrain future growth through regulation and/or market adjustment, the degree of impact between the City and EZ is likely to vary. It is assumed that growth will tend to follow water availability. Water constraints will not necessarily retard growth, but rather it is expected to shift it to areas where growth can be accommodated. This may be within the city, the EZ, or outside of the region depending on where water is available. Unless there are strong zero-growth regulations applied, growth will continue within the region.
- In order for growth to occur at the rate projected within several of the subarea districts or planning areas, it is assumed that growth would be "redirected" from another subarea, including the city (as a subarea). This scenario is reflected in *rapid growth* scenarios #1 and #2. Based on the continued steady growth rate, it is assumed that Santa Fe relies on "shared" market distribution, rather than the creation of larger, new markets. It is for this reason that an increase in growth within one subarea is most likely drawing from another subarea within the region. More simply stated, it is relatively the same size "pie" no matter which way you slice the pieces. This could change if certain interventions occurred, such as a major employment relocation to a certain subarea, etc... where growth rates dramatically increase.
- It is likely that development activity within any given year will fluctuate particularly in response to water measures or availability. For purposes of this study, these fluctuations are de-emphasized and assumed to be averaged out over time.

Section 3.2. Economy and Employment

Forecasting future trends for economic and employment growth utilizes similar trends analysis as was used in the population projections. Economic projections have been derived using county taxable gross receipts for base quarters 1990 through 2001 projected to 2010 as a linear trend. Employment projections are presented according to the same four alternative scenarios as population and housing.

Gross Receipts as Measure of Economic Activity

Taxable gross receipts were used in the existing conditions analysis as a way of measuring economic activity for the county, city and areas in the county outside of the city. Given the increase in taxable gross receipts (GRT) within the County that has been fairly steady since 1990, it is reasonable to project that trend as an indicator of possible future spending for the region. Chart 3.2.A. illustrates county taxable GRT since 1990 and the projected GRT to 2010. This projection assumes similar and continued growth in spending for goods and services in the county^b.

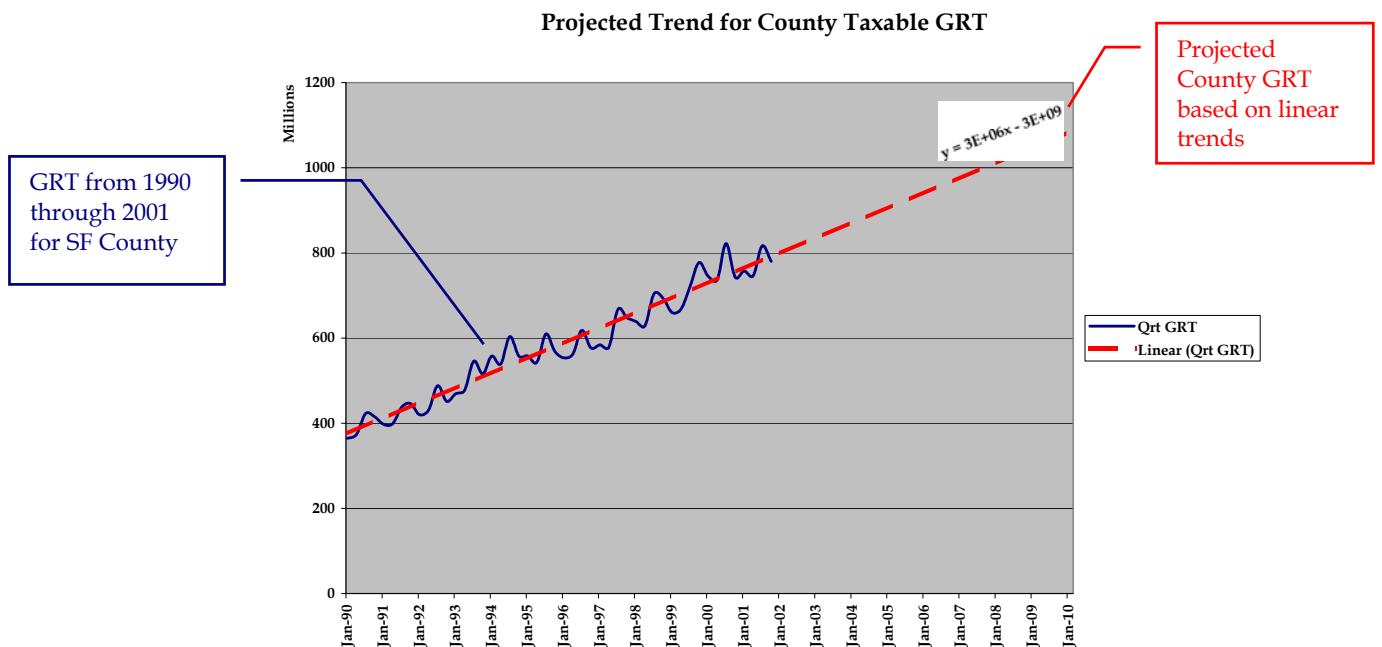


Chart 3.2.A. Trend Projections for Taxable Gross Receipts for Santa Fe County

In 2001, the average quarterly reported GRT was approximately \$770.5 million. By 2009, the average is predicted to reach nearly \$1.13 billion. Revenues from the sales of goods and services are expected to continue to increase by nearly 64% in ten years^c. Actual revenue percentage gains, however, would be somewhat less when accounting for inflation measures.

Employment and Non-Residential Floor Area

Employment projections provide a picture of the future workforce, as to where they may be employed, the industry groupings and respective land uses required for the projected labor force. Two independent employment projection models are presented in this report. The first method uses the Bureau of Business and Economic Research (BBER) employment projections by employment sector – the second is based on local area models.

The 1995 General Plan Working Papers provided workforce projections to the year 2015 for the urban area. It projected a total workforce of 51,900 employees, representing an annual increase in 760 jobs per year for the urban area.

EMPLOYMENT PROJECTIONS - MARKET GROWTH (TREND)

| SANTA FE COUNTY | | | | | | | | | |
|--|-------|----------------|--------|-----------|--------|-------|----------|--------|--------|
| Nonagricultural Wage and Salary Employment by Sector | | | | | | | | | |
| | Mfg | Const & Mining | TPU | Wholesale | Retail | FIRE | Services | Govt | Total |
| 2000 | 1,695 | 4,150 | 1,125 | 1,214 | 13,395 | 2,986 | 17,590 | 15,445 | 57,600 |
| 2002 | 1,650 | 4,306 | 1,080 | 1,224 | 13,425 | 3,130 | 18,472 | 15,304 | 58,591 |
| 2010 | 1,787 | 5,207 | 1,124 | 1,304 | 16,100 | 3,821 | 24,211 | 17,933 | 71,487 |
| 2020 | 1,867 | 6,228 | 1,113 | 1,351 | 19,116 | 4,611 | 30,615 | 20,739 | 85,639 |
| Cmp. Ann. Growth 2010 | 0.53% | 2.29% | -0.01% | 0.72% | 1.86% | 2.50% | 3.25% | 1.51% | 2.18% |

| CITY OF SANTA FE | | | | | | | | | |
|--|-------|----------------|--------|-----------|--------|-------|----------|--------|--------|
| Nonagricultural Wage and Salary Employment by Sector | | | | | | | | | |
| | Mfg | Const & Mining | TPU | Wholesale | Retail | FIRE | Services | Govt | Total |
| 2000 | 1,364 | 1,835 | 1,009 | 1,161 | 12,639 | 2,814 | 15,303 | 13,061 | 49,187 |
| 2002 | 1,327 | 2,104 | 963 | 1,155 | 12,543 | 2,903 | 15,590 | 12,881 | 49,465 |
| 2010 | 1,437 | 2,095 | 975 | 1,184 | 14,471 | 3,315 | 19,466 | 14,735 | 57,678 |
| 2020 | 1,502 | 2,260 | 931 | 1,169 | 16,622 | 3,790 | 23,741 | 16,688 | 66,702 |
| Cmp. Ann. Growth 2010 | 0.53% | 1.33% | -0.35% | 0.20% | 1.36% | 1.65% | 2.44% | 1.21% | 1.61% |

| REMAINDER OF COUNTY (ADJUSTED) | | | | | | | | | |
|--|-------|----------------|-------|-----------|--------|--------|----------|-------|--------|
| Nonagricultural Wage and Salary Employment by Sector | | | | | | | | | |
| | Mfg | Const & Mining | TPU | Wholesale | Retail | FIRE | Services | Govt | Total |
| 2000 | 322 | 2,245 | 112 | 52 | 733 | 167 | 2,218 | 2,312 | 8,161 |
| 2002 | 313 | 2,136 | 114 | 67 | 856 | 220 | 2,795 | 2,351 | 8,852 |
| 2010 | 339 | 3,018 | 145 | 116 | 1,579 | 491 | 4,603 | 3,103 | 13,395 |
| 2020 | 354 | 3,848 | 176 | 177 | 2,419 | 797 | 6,668 | 3,929 | 18,369 |
| Cmp. Ann. Growth 2010 | 0.53% | 3.00% | 2.58% | 8.44% | 7.98% | 11.42% | 7.57% | 2.98% | 5.08% |

| | | | | | | | | | |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| City Share 00 | 80% | 44% | 90% | 96% | 94% | 94% | 87% | 85% | 85% |
| City Share 10 | 80% | 40% | 87% | 91% | 90% | 87% | 80% | 82% | 81% |
| City Share 20 | 80% | 36% | 84% | 87% | 87% | 82% | 78% | 80% | 78% |

Source: BBER, September 2002, Data projections to 2010 provided for Santa Fe County.
 RPA staff-trend projections from 2010 to 2020 based on BBER projections.

Table 3.2.A BBER Employment Projections by Sector (adjusted for 2020 projection).

Using more recent base data, *BBER models* project employment by workforce sectors for Santa Fe County, the City of Santa Fe and areas that fall outside of the city (adjusted to exclude estimates for Edgewood and part of Espanola) as illustrated in Table 3.2.A and Chart 3.2.B. These tables are based on one of the *BBER* scenario projections for city/county employment to 2010^d. Those projections were then extended to 2020 to fit the planning horizon.

According to the *BBER* projected market trends, the city is projected to employ approximately 57,600 persons by 2010 and 66,700 persons by 2020 (or an average 950 jobs/year and an annual growth rate of 1.6%). This represents a declining percentage of 81% (2010) and 78% (2020) of the total county workforce. From 2000 to 2020, the change in percentage of employment growth is predicted to shift from the city to the remainder of county by a modest 7%. Under this scenario, the city continues to dominate as the county employment center.

By 2010, the city workforce will continue to be dominated by the “services”, “government” and “retail” sectors, making up nearly 84% of total employment. For the remainder of county, the “services” sector is expected to double in the number of jobs and represent the largest employment sector by 2010, followed by the “government” and “construction-mining” sectors. Combined, the three sectors make up nearly 80% of the total predicted labor force by 2010.

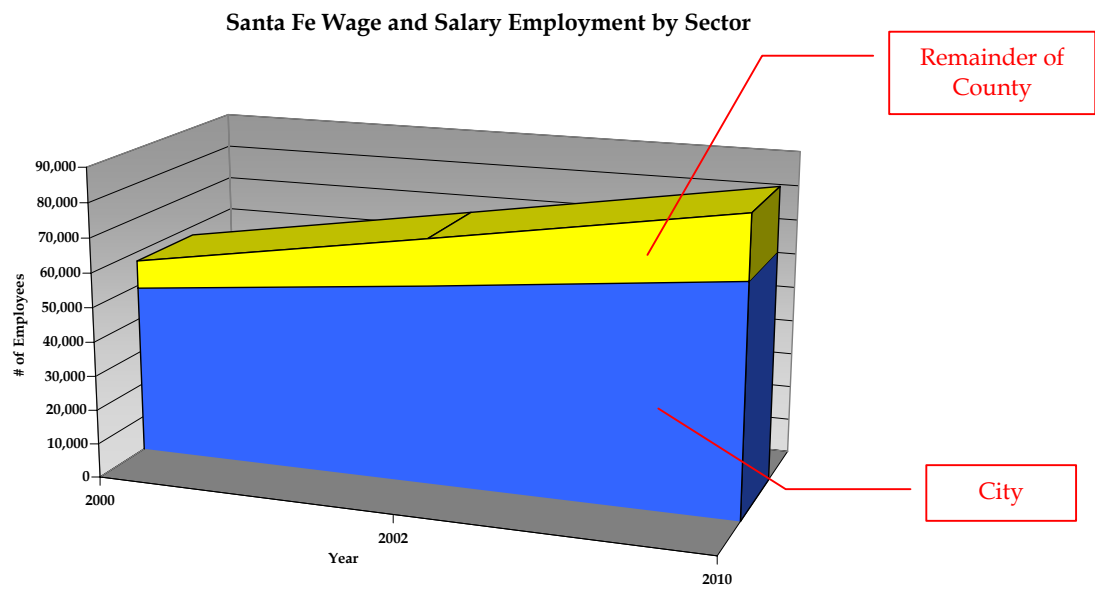


Chart 3.2.B. Predicted Employment Growth by Sector for City and Remainder of County.

The *BBER* projections forecast growth by employment classification or industry; however, it does not directly estimate growth potential at a subregion level. The next method breaks down projected employment growth to the subregion level and then correlates projected non-residential floor area requirements associated with that employment.

PROJECTION SERIES A: MOST LIKELY GROWTH - EMPLOYMENT
 Moderate County/Slow Urban Growth
 Based on RPA "Urban Area Slow Growth" Scenario

| SUBREGION | TOTAL NON-FARM WAGE AND SALARY EMPLOYMENT | | | | | NET INCREASE | | | AVG ANN. INCREASE | | AVG ANN. GROWTH (%) | | J/H RATIO '02 | | J/H RATIO '20 | |
|-----------------------|---|--------|--------|--------|--------|--------------|---------|---------|-------------------|---------|---------------------|---------|---------------|---------|---------------|---------|
| | 2002 | 2003 | 2007 | 2010 | 2020 | 2002-10 | 2010-20 | 2002-20 | 2002-10 | 2010-20 | 2002-10 | 2010-20 | 2002-10 | 2010-20 | 2002-10 | 2010-20 |
| RPA Urban Area | 51,976 | 52,650 | 55,339 | 57,356 | 64,504 | 5,380 | 7,148 | 12,528 | 673 | 715 | 1.2 | 1.2 | 1.4 | 1.4 | | |
| Incorporated City | 49,465 | 50,105 | 52,665 | 54,585 | 61,015 | 5,120 | 6,430 | 11,550 | 640 | 643 | 1.2 | 1.1 | 1.6 | 1.6 | | |
| RPA Urban Fringe | 2,511 | 2,545 | 2,674 | 2,771 | 3,489 | 260 | 718 | 978 | 33 | 72 | 1.2 | 2.3 | 0.4 | 0.5 | | |
| RPA North Area | 314 | 324 | 363 | 391 | 476 | 77 | 85 | 162 | 10 | 9 | 2.8 | 2.0 | 0.2 | 0.2 | | |
| RPA West Area | 679 | 804 | 1,302 | 1,675 | 3,007 | 996 | 1,332 | 2,328 | 125 | 133 | 11.9 | 6.0 | 0.3 | 0.7 | | |
| RPA South | 2,964 | 3,271 | 4,497 | 5,415 | 8,728 | 2,451 | 3,313 | 5,764 | 306 | 331 | 7.8 | 4.9 | 1.1 | 1.1 | | |
| RPA SFCCD Area | 985 | 1,267 | 2,397 | 3,242 | 6,275 | 2,257 | 3,033 | 5,290 | 282 | 303 | 16.1 | 6.8 | 1.2 | 1.5 | | |
| RPA Southern Fringe | 1,979 | 2,004 | 2,100 | 2,173 | 2,453 | 194 | 280 | 474 | 24 | 28 | 1.2 | 1.2 | 1.0 | 0.7 | | |
| RPA Planning Area (*) | 55,933 | 57,049 | 61,501 | 64,837 | 76,715 | 8,904 | 11,878 | 20,782 | 1,113 | 1,188 | 1.9 | 1.7 | 1.3 | 1.3 | | |
| RPA Planning Area EZ | 6,468 | 6,944 | 8,836 | 10,252 | 15,700 | 3,784 | 5,448 | 9,232 | 473 | 545 | 2.9 | 2.5 | 0.5 | 0.7 | | |

Table 3.2.B. "Most Likely" Regional Employment Growth (2020)
 Source: Al Pitts 2004, Based on original RPA projections 2002 and 2002 Regional Employment Estimates

Table 3.2.B. details the *most likely* projected total employment by subarea. By 2020, the region is expected to add approximately 20,800 jobs at an average annual growth rate of 1.8% (as compared to 1.6% projected by BBER). This represents an additional 1,150 regional jobs added per year for a total employment base of 76,700 jobs. As the city nears commercial build out, the rate of growth within the incorporated area is expected to decline. Conversely, employment with the urban fringe is expected to capture some of those relocating markets. The EZ is expected to add nearly 9,200 jobs within the same period based on a projected average annual growth rate of 2.7%, or 515 jobs per year. The regional jobs-to-housing ratio remain relatively stable at 1.3 jobs/housing while the EZ ratio is expected to increase from 0.5 to 0.7 jobs/housing. This also reflects the projected increase in EZ employment growth.

Chart 3.2.C. illustrates the four alternatives for regional growth. *Rapid growth* scenarios #1 and #2 predict approximately 81,200 total jobs by 2020. The slow growth alternative projects some 71,200 total jobs during that period. These represent average annual growth rates of 2.1% and 1.3% respectively.

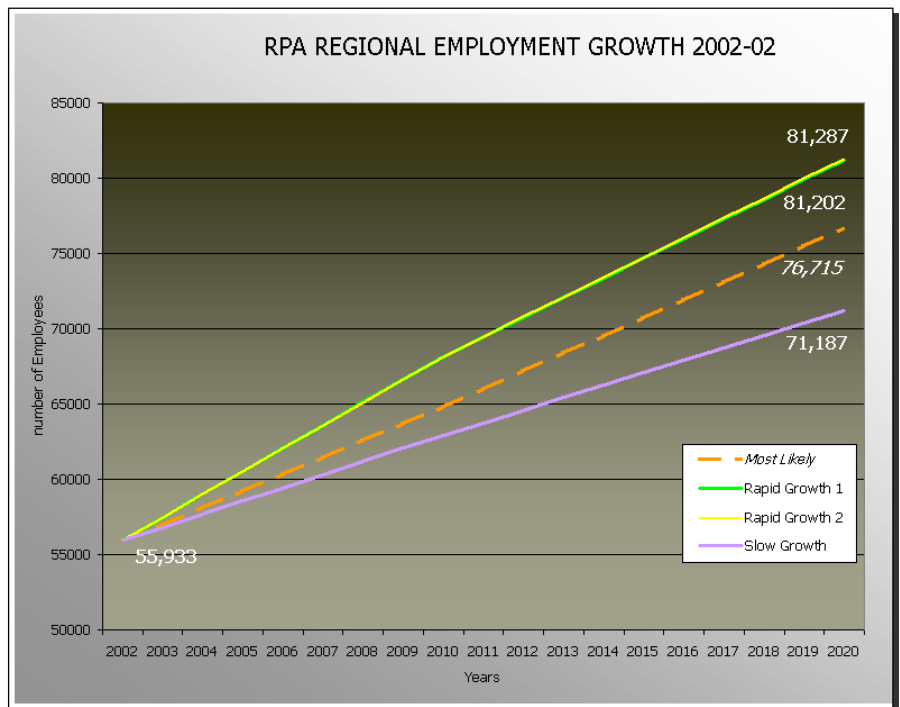


Chart 3.2.C. Four Scenarios of Regional Employment

PROJECTION SERIES A: MOST LIKELY GROWTH - NON-RESIDENTIAL FLOOR AREA

Moderate County/Slow Urban Growth

Based on RPA "Urban Area Slow Growth" Scenario

| SUBREGION | FLOOR SPACE (1000s OF SQ FT) (July 1) | | | | | NET INCREASE | | | AVG ANN. INCREASE | | AVG ANN. GROWTH (%) | |
|------------------------------|---------------------------------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------------------|------------|---------------------|------------|
| | 2002 | 2003 | 2007 | 2010 | 2020 | 2002-10 | 2010-20 | 2002-20 | 2002-10 | 2010-20 | 2002-10 | 2010-20 |
| RPA Urban Area | 24,138 | 24,425 | 25,571 | 26,431 | 29,495 | 2,293 | 3,065 | 5,357 | 287 | 306 | 1.1 | 1.1 |
| Incorporated City | 22,821 | 23,092 | 24,176 | 24,989 | 27,839 | 2,168 | 2,850 | 5,018 | 271 | 285 | 1.1 | 1.1 |
| RPA Urban Fringe | 1,317 | 1,333 | 1,395 | 1,442 | 1,656 | 125 | 215 | 339 | 16 | 21 | 1.1 | 1.4 |
| RPA North Area | 127 | 131 | 147 | 158 | 192 | 31 | 34 | 65 | 4 | 3 | 2.7 | 2.0 |
| RPA West Area | 357 | 411 | 626 | 787 | 1,361 | 430 | 575 | 1,004 | 54 | 57 | 10.4 | 5.6 |
| RPA South Area | 1,363 | 1,501 | 2,056 | 2,471 | 3,954 | 1,108 | 1,483 | 2,591 | 139 | 148 | 7.7 | 4.8 |
| RPA SFCCD Area | 503 | 628 | 1,134 | 1,511 | 2,858 | 1,008 | 1,346 | 2,355 | 126 | 135 | 14.7 | 6.6 |
| RPA Southern Fringe | 860 | 873 | 922 | 960 | 1,096 | 100 | 136 | 236 | 12 | 14 | 1.4 | 1.3 |
| RPA Planning Area (*) | 25,985 | 26,467 | 28,399 | 29,846 | 35,002 | 3,861 | 5,156 | 9,017 | 483 | 516 | 1.7 | 1.6 |
| RPA Planning Area EZ | 3,164 | 3,375 | 4,223 | 4,857 | 7,163 | 1,693 | 2,306 | 3,999 | 212 | 231 | 2.9 | 2.5 |

Table 3.2.C. "Most Likely" Regional Non-Residential Floor Area Growth (2020)

Source: Al Pitts 2004, Based on original RPA projections 2002 and 2002 Regional Employment Estimates

Table 3.2.C. illustrates the *most likely* projected non-residential floor area requirements according to projected employment. Regional employment is expected to generate a demand for approximately 9.02 million square feet in new non-residential floor area, or 500,000 square feet added annually. Within that total, the EZ is projected to add nearly 4.0 million square feet, or 225,000 square feet, which is nearly half of the regional total. The projections indicate that the need for EZ commercial space will more than double over the 18 years. As expected with employment, non-residential growth is expected to gradually shift to the urban fringe in response to near build out conditions within the incorporated area.

Chart 3.2.D. indicates projected floor area requirements according to the four alternatives. Under the *rapid growth* alternatives, commercial square footage is projected to reach nearly 37 million. The slow growth alternative estimates approximately 32.6 million square feet of total regional floor area. The *most likely* scenario falls generally between the high and low ranges at approximately 35 million square feet.

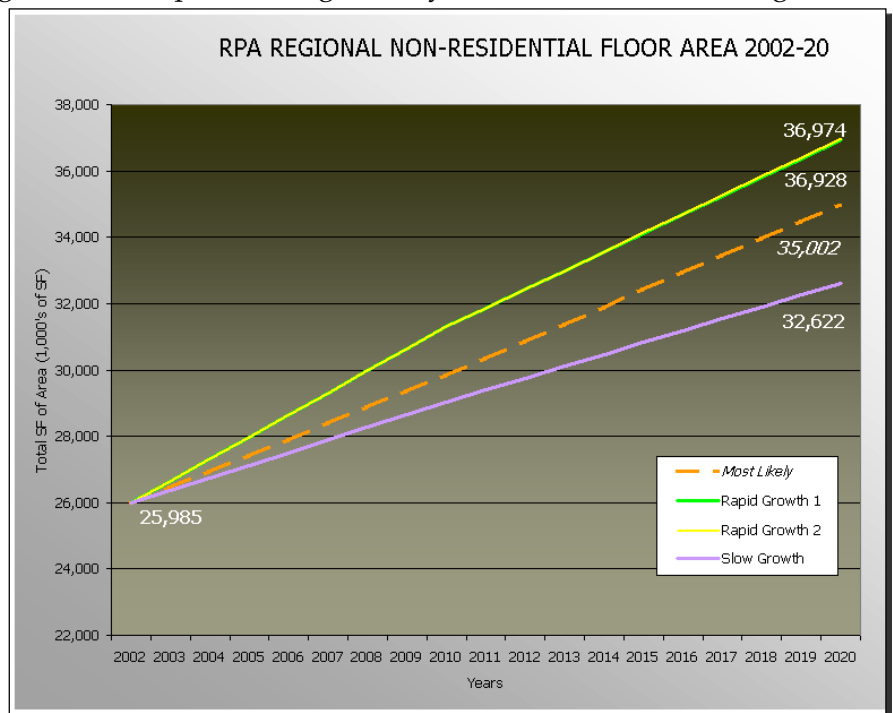


Chart 3.2.D Four Scenarios of Non-Residential Floor Area Growth

Share of employment growth will most likely be determined according to the following factors:

- *Resource allocation.* One of the principal determinates for where employment will occur is the location and accessibility of infrastructure. Employment centers are typically located where transportation and utilities area easily accessed. For significant migration of employment to occur, urban-type services must be accessible to accommodate growth. This is particularly true for water, sewer and roads. Without these services, employment is likely to occur at the smaller or single-business level. Development of larger employment centers will be dependent on the availability of water—small business generation is less dependent on larger allocations of water. Constraints of water availability would support the continued market trends for small business employment growth.
- *Regulatory measures.* Regulation may actively or passively direct growth. Where there are competitive advantages created through a relaxed regulatory framework, development tends to occur, partly in response to reduced land costs. Conversely, more restrictive development regulations tend to increase the cost to develop land. Development tends to occur where there is balance between service access and regulation.
- *Economic development.* Employment centers often locate where incentives are presented. In competing markets where all location factors are relatively equal, economic development incentives are often used to entice development to a certain location or jurisdiction. This occurs through traditional methods such as local tax abatements, fee waivers or other innovative methods such as creative zoning, enterprise development zones, infrastructure credits or public-private partnerships. Moreover, economic development tends to occur through local, innovative marketing strategies designed to create employment generators.

In the case of Santa Fe, the BBER market trend projections indicate that job growth will continue to favor the city. This would imply that some type of incentive or market intervention would have to occur in order to shift growth outward. Availability of land is assumed to be the primary intervening force in creating that shift.

- *National economic trends.* Regional employment growth is likely to emulate national trends. Although Santa Fe is possibly less dependent on national economic trends than other areas of New Mexico, travel (tourism) and outside investment (such second home construction) are widely affected by the larger economy. Economic downturns and recovery are part of any normal business cycle and are typically accounted for in market growth projections over longer periods. In shorter projection periods, business cycles have more impact on the accuracy of the predictions.

Section 3.3. Future Water Demand and Potential Supply Sources

Projected water demand is a function of future population and housing—demand for water can be estimated according to the anticipated growth. For purposes of this plan, future water demand is presented two ways—as a function of overall regional growth (Chapter 3) and according to development capacity and also by expected need (Chapter 5). Growth and need generate water demands based on time; capacity looks at total build out. Water demand is also associated with certain land uses (Appendix V - Water Demand Tables by Land Use).

Supply is presented as a cumulative summary of the findings and recommendation of the city and county water reports and plans. As noted previously, detailed information regarding future water sources, particularly beyond 2010, remains undefined. This plan suggests that a logical next step to this plan is development of a regional water supply plan that fully scopes and identifies potential sources, impacts and feasibility.

Regional Water Demand

The typical prorated water demand factor used for calculating urban area demand on a per capita basis has been approximated at 0.18 AF/person. This assumes a certain ratio of residential and commercial water demand based on urban densities. As noted in Chapter 5, the EZ commercial-to-residential ratios are considerably less, thus the per capita water demand factor for the urban fringe is estimated at 0.14 AF/person based on 2020 growth rates. This ratio is expected to rise as the urban fringe’s jobs-to-housing ratio increases. At some point beyond the 2020-planning horizon, the urban fringe water demand ratio is expected to be at or near the urban area ratio of .18AF/capita.

MOST LIKELY GROWTH - POPULATION & GENERATED WATER DEMAND (WD)

| SUBREGION | TOTAL POPULATION (July 1) | | | | | AVG ANN. INCREASE | | AVG ANN. WD (AF) | | TOTAL ADDED WD REQD | | | TOTAL WD |
|-----------------------------|---------------------------|---------------|----------------|----------------|----------------|-------------------|--------------|------------------|--------------|---------------------|--------------|--------------|---------------|
| | 2002 | 2003 | 2007 | 2010 | 2020 | 2002-10 | 2010-20 | 2002-10 | 2010-20 | 2002-10 | 2010-20 | 2002-20 | 2002-20 |
| RPA Urban Area | 81,253 | 81,993 | 84,919 | 87,005 | 93,009 | 719 | 600 | 125.8 | 105.1 | 1,007 | 1,051 | 2,057 | 16,277 |
| Incorporated City | 63,711 | 64,275 | 66,531 | 68,223 | 72,933 | 564 | 471 | 98.7 | 82.4 | 790 | 824 | 1,614 | 12,763 |
| RPA Urban Fringe | 17,542 | 17,718 | 18,388 | 18,782 | 20,076 | 155 | 129 | 21.4 | 17.8 | 171 | 178 | 349 | 2,772 |
| RPA North Area | 3,024 | 3,106 | 3,441 | 3,687 | 4,396 | 83 | 71 | 11.4 | 9.8 | 92 | 98 | 189 | 607 |
| RPA West Area | 4,914 | 5,165 | 6,249 | 7,118 | 10,055 | 276 | 294 | 38.0 | 40.6 | 304 | 406 | 710 | 1,389 |
| RPA South | 6,653 | 7,057 | 8,967 | 10,711 | 17,305 | 507 | 659 | 70.0 | 91.1 | 560 | 911 | 1,471 | 2,390 |
| RPA SFCCD Area | 1,988 | 2,234 | 3,490 | 4,735 | 9,888 | 343 | 515 | 47.4 | 71.2 | 379 | 712 | 1,091 | 1,365 |
| RPA Southern Fringe | 4,665 | 4,823 | 5,477 | 5,976 | 7,417 | 164 | 144 | 22.6 | 19.9 | 181 | 199 | 380 | 1,024 |
| RPA Planning Area | 95,844 | 97,321 | 103,576 | 108,521 | 124,765 | 1,585 | 1,624 | 245.4 | 246.5 | 1,963 | 2,465 | 4,428 | 20,662 |
| RPA Planning Area EZ | 32,133 | 33,046 | 37,045 | 40,298 | 51,832 | 1,021 | 1,153 | 140.9 | 159.2 | 1,128 | 1,592 | 2,720 | 7,158 |

* Urban areas assumes a 0.18 AF per capita ratio--urban fringe areas assume a 0.14 AF per capita ratio based on finding in Chapter 5.

Table 3.3.A. Projected Total Regional Water Demand Based on Projected 2020 Population

Table 3.3.A. is the calculated future water demand by subarea using *population* projections derived in Section 3.1. These are based on the *most likely* projection alternative. Applying the per capita method, (population) growth generates an added regional water demand of 4,450 AF for a projected total regional demand of 20,650 AFY. Similar growth within the EZ generates 2,700 AFY of added demand for a total of 7,150 AFY for the EZ over the same 18-year period.

Projected Water Demand for the City of Santa Fe Water Utility System

The *Water Supply Analysis for the City of Santa Fe (January 2001, CDM)* forecasts current and future water demand for the region and urban area based on high/low population projections. The study used as its basis the *1999 City General Plan* population projections which, as previously noted, are generally lower than recent projections since it relied on 1990 base census data. Taking this into account, the baseline urban area population for year 2000 is understated by nearly 9,100 persons, therefore the future projections are low by the same percentage. This is an important qualification to the data because there is considerable difference between the future water demand previously estimated and the 2001 CDM study. It is expected that these projections are to be updated as part of the city utility water master plan process.

Figures 3.3.A. (population) and 3.3.B (water demand) are excerpts from the 2001 city water supply study. They represent the estimated current and projected population and water demand trends. It estimates the 2000 urban area population at 70,000 persons and the corresponding water demand at 12,000 AFY. By year 2020, the population is estimated to fall within a range of 85,420 to 90,640 persons producing an expected demand on the potable water supply of approximately 15,080 to 16,120 AFY.

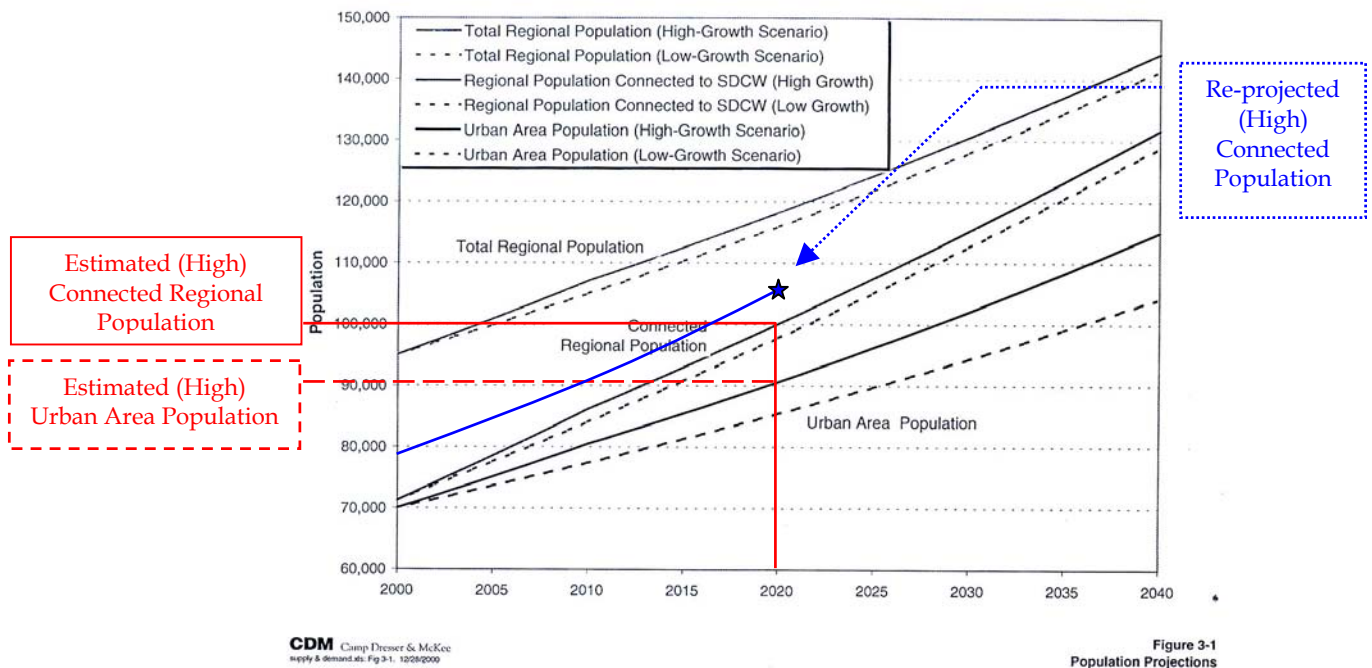


Figure 3.3.A. Estimated Population Connected to the City Utility by 2020 with notations of population shifts
(Source: *Water Supply Analysis for the City of Santa Fe, 200,1 Figure -12*)

For regional demand (region being the larger central area as identified in the both general plans), it assumes that 5% of non-urban area residents are connected to the city utility, increasing to a 50% connection rate by 2040. By year 2020, it assumes that 33% of the region

outside the urban area will be on the city system. It projects total “connected” population to be within the range of 97,800 and 100,100 persons with a projected utility demand of 17,510 to 17,970 AFY.

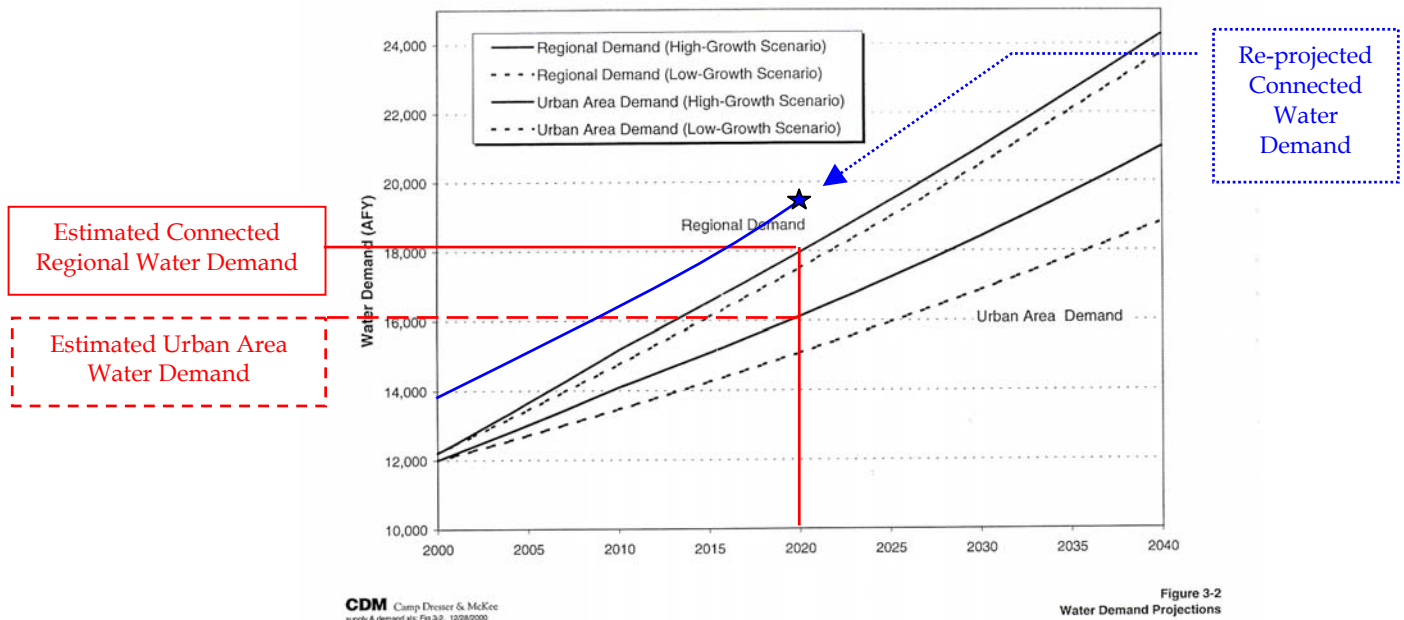


Figure 3.3.B. Estimated Water Demand to the City Utility by 2020 with notations in demand shift
 (Source: Water Supply Analysis for the City of Santa Fe, 2001 Figure 3-2)

Using the *most likely* population figures under Section 3.1, re-projected lines, shown in blue, represent possible trends for connected regional population and water demands. These are relatively higher than were originally projected by the CDM study, which were based on 1990 census figures. Using a re-projected total population of 124,700, or 106,000 connected persons^e (estimated), the corresponding regional “connected” water demand is approximately 19,100 AFY. Assuming an general approximation of 2,500 AFY of water delivery via individual or [smaller] community well systems (Section 2.4), the total (general) estimated water usage nears 21,600 AFY for the region. This is in keeping with the estimated regional water demand of 20,662 AFY found in Table 3.3.A.

These figures are assumed to represent a *high* 2020 projected future demand, or the upper range of potential future water demand. Lower future demand (~17,250 AFY) for connected customers would assume a flatter population growth rate and/or flatter rate of growth through increased conservation. Since one or both of these events are expected based on current conservation practices and lower predicted population growth trends, projected future demand is expected to occur below the projected high for future demand. An example of a range in demand according to normal year and dry year usage/demand is included in Table 3.3.D. to year 2008.

Projected Water Demand for the Santa Fe County Water Utility

Estimated future water demand for the Santa Fe County Utility is delineated in the *Santa Fe County 40-year Water Plan* that calculates projected water demand based on approved or anticipated development. Table 3.3.B. lists the anticipated water demand by 10-year increments to year 2040 for those areas of future service and areas generally within the RPA Planning Area. It should be noted that the La Cienega and Eldorado communities are currently on community well systems, and that the county water plan incorporates provisions for future utility service as part of its demand calculations.

SFCU Water Demand Summary Table

| Year | Communities or Water Systems as Future SFCU Customers | | | | | | | | Total AFY SFCU | Total AFY SFCU 5-mi |
|-------------|---|------------|-------------|-------------|------------|------------|------------------|------------|----------------|---------------------|
| | CCD | State Pen | La Cienega* | Valle Vista | ADD | NW Service | Reserve Capacity | Eldorado** | | |
| 2004 | 450 | 230 | 60 | 75 | 0 | 27 | 228 | 300 | 1370 | 1070 |
| 2010 | 800 | 230 | 200 | 75 | 100 | 46 | 350 | 300 | 2101 | 1801 |
| 2020 | 1200 | 230 | 400 | 75 | 225 | 146 | 515 | 300 | 3091 | 2791 |
| 2030 | 1700 | 230 | 500 | 75 | 350 | 246 | 680 | 300 | 4081 | 3781 |
| 2040 | 1880 | 230 | 578 | 75 | 500 | 346 | 782 | 300 | 4691 | 4391 |

Source: *Santa Fe County 40-year Water Plan* - 5.10 Demand Summary, p. 22

* Portion of service area falls outside of 5-mile boundary

** Nearly all of service area falls outside of 5-mile area

Table 3.3.B. *Santa Fe County 40-year Water Plan Demand Summary.*

By 2020, the total water demand for the county utility is projected to be 3,100 AFY or approximately 2,800 AFY within the EZ area. Assuming that the expected 1,607 acre-feet of water rights are acquired (Section 2.4), a total deficiency of 1,484 AFY of water rights, or 1,184 AFY for the planning area, would exist.

Future Regional Water Supply

Both the *Water Supply Analysis for the City of Santa Fe* and the *Santa Fe County 40-year Water Plan* acknowledge the “large projected shortfall in water supply” if no action is taken combined with the amount of development and growth projected over the next 20 to 40 years. These findings are also in keeping with the existing and projected conditions of this plan. Both water plans recognize the critical need to “vigorously pursue” ongoing and other efforts to secure or enhance water rights as well as reliable and sustainable new or reusable water sources.

There are currently several “knowns” regarding future water rights and supply for both the city and county utilities, but for the most part, there is limited, *quantified* data on potential costs and future yields on “creative” water extraction/renewable systems. The imported water source of the San Juan-Chama Diversion Project and the San Ildefonso horizontal well collector system are the most defined to date as far as future sources, however, full operational knowledge and any future agreements are now being explored and quantified. An additional resource on potential sources is the *Jemez y Sangre Regional Water Plan* which has attempted to provide a more comprehensive understanding of other water sources and their individual complexities.

The City is also undertaking a long-term supply alternatives analysis as part of the NEPA process for the Buckman Diversion project.

Options for Future Sources

In the *Water Supply Analysis for the City of Santa Fe*, several future water source options were provided dealing with infrastructure improvements as well as resource management for imported water. Regarding infrastructure improvements, they include options for 1) a continued “no action” approach, 2) existing well rehabilitation and protection, 3) supplemental well drilling in areas separate from the current well fields, 4) further conservation measures including education and a toilet rebate and retrofit program, 5) conjunctive use between the Santa Fe River and the city wells, and 6) augmentation of supply through the use of treated effluent which addresses city well recharge, return flow to the Rio Grande, and effluent as an irrigational use. Imported water management applies to best practices operation and optimization for 1) offsets to the Buckman Wellfield drilling, 2) the San Juan-Chama Diversion and/or the San Ildefonso horizontal collector well system, 3) domestic well restrictions, and 4) watershed restoration and improvements.

The report emphasizes the need for a multi-prong approach, “since there is no single action that will satisfy the complex needs and mesh with the current water rights and infrastructure”. A summary of suggested options have been provided, based on the desire for a future sustainable system, which includes:

- Rehabilitation of the Buckman Wellfield
- Continued use of local surface water and groundwater resources as modified accordingly:
 - Conjunctive use of local surface and groundwater rights;
 - Further rehabilitation of the city wells to support the use of full groundwater rights;
 - Restriction of new domestic wells in or near the water service area as well as maximization of sewer connections (utility customers) to allow for greater return flow;
 - Expansion of the conservation program;
 - Returning effluent to the Rio Grande for use in attaining return flow credits, as Buckman offsets, or both;
 - Continued use of the San Juan Chama as an imported water source, either as a Buckman offset or as a direct diversion from the Rio Grande;
 - Investment in new infrastructure to divert, treat and convey additional imported water, independent of the source of supply (diversion project and the collector system);
 - Watershed restoration and water yield improvements to the reservoirs.

The report clearly emphasizes the use of sustainable practices to enhance future water resources. It also states that additional imported water rights would be necessary to meet

projected demands in a “no action” scenario, but was not considered a viable option in support of the desire to shift towards sustainable practices. Rather, water right augmentation through the use of return flow credits is promoted as the more acceptable practice.

The report estimates that by using an historical 40% return flow of potable water directly to the Rio Grande (about 8,400 AFY of effluent), some 14,000 AFY of diverted water right could be realized^f. This would require diversion and delivery infrastructure to capture the full 14,000 AFY. Return flow, however, is based on deliverable effluent and, as the city continues to further reduce usage through conservation or as effluent is converted to irrigation use, the amount of generated effluent is reduced. This in turn may also reduce the amount of effluent available for return flow credits.

Future direct surface water diversion from the San Juan Chama is currently being actively pursued by the city, county and Las Campanas. Total rights of 5,605 AFY of San Juan Chama water include 5,230 AFY of city and 375 AFY of [undisputed] county rights^g. In addition, Las Campanas currently leases at least 1,200 AFY of Albuquerque San Juan Chama water. Preliminary cost figures for the diversion have been stated within the \$100 million range and are expected to take some four or more years for approval and completion depending on such factors as NEPA review and future funding. The County has instituted the capital outlay gross receipts ¼ percent tax as a potential funding source for the project.

Current/Projected Yield (Draft-SDWC, Oct. 2002)

| Sources | Year | | |
|----------------------------|---------------|---------------|---------------|
| | 2002 | 2004 | 2007 |
| Buckman Wells 1-8 | 6,050 | 5,200 | 100 |
| Buckman Wells 9 | 0 | 819 | 180 |
| Buckman Wells 10 -13 | 0 | 3,226 | 720 |
| City and NW Wells | 3,575 | 3,500 | 3,500 |
| Surface/SF River | 700 | 700 | 3,550 |
| St. Michael's Well | 453 | 453 | 453 |
| SJC/Direct Diversion* | 0 | 0 | 5,230 |
| Total Supply (AFY): | 10,778 | 13,898 | 13,733 |

* Actual yield is 5,605 with 375 acre-feet reserved for the County

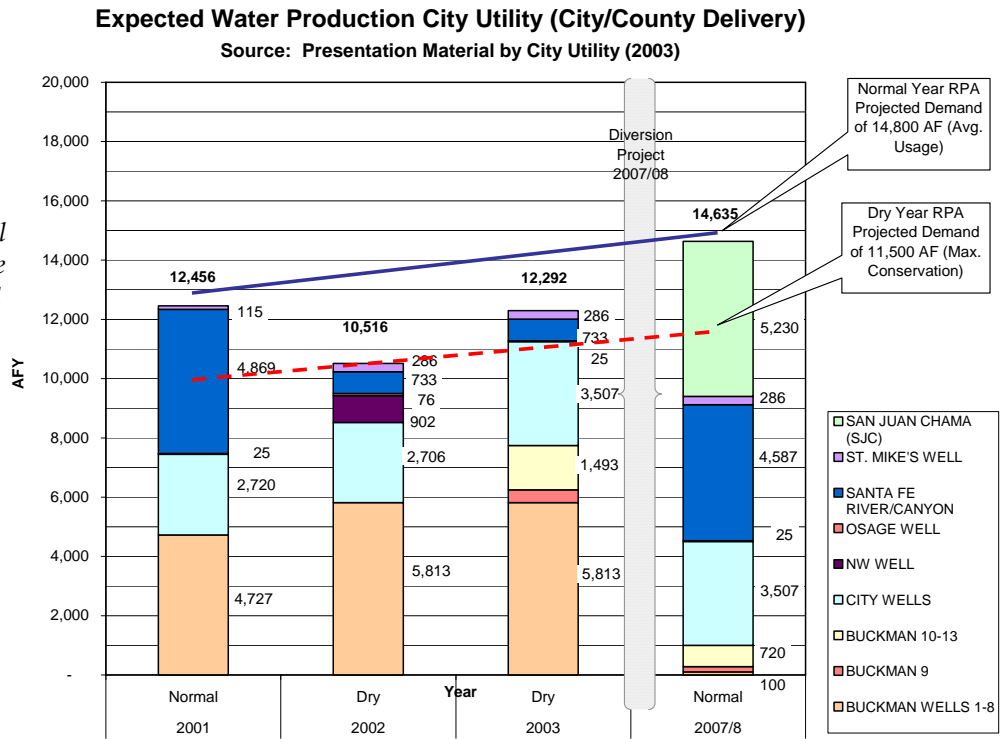
Table 3.3.C. Projected water supply SDWC

In addition, the first of the pilot infiltration galleries (horizontal collectors) systems have been tested at the San Ildefonso Pueblo for water production and quality (2003). The results of the pilot project may warrant that additional collectors be constructed for later diversion. This would be subject to the future terms and agreements negotiated with the pueblo and the county.

Future city supply has been calculated to the year 2007 based on existing proposals for known sources. These are illustrated in Table 3.3.C above. It assumes direct surface diversion in year 2007. The difference of net yield within the 5-year period is approximately 2,455 AF. In 2007 as the diversion comes on line, pumping from the Buckman wells will be reduced to nearly 1,000 AFY, representing a change in point of diversion (or substitution) rather than an added water source. The ability to divert more water is constrained by the amount of water rights available.

Potential water source delivery, apportionment, (RPA) estimated demand by connected customers according to normal and dry cycles to year 2008 (projected operational year for the Buckman Direct Diversion) is illustrated in Chart 3.3.C. and Table 3.3.D.

Chart 3.3.C. Potential water Yields by Source with [RPA] Estimated Demand



RPA Estimated Demand for City/County Connected Customers by Normal and Dry Cycles 2002 - 2008

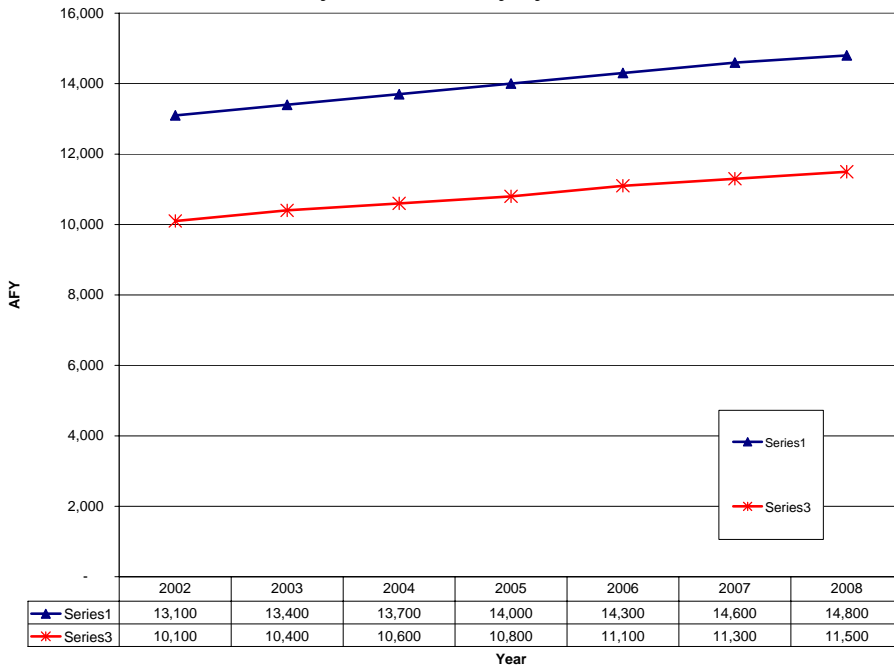


Table 3.3.D. RPA Estimated Demand by Connected Customers to 2008

Finally, the city is undertaking a regional water supply feasibility study to consider and evaluate a multi-faceted regional water system (2003-04) including long-term issues of water

supply. That project is expected to be completed in the spring of 2004. It will evaluate the feasibility of alternative methods including direct return flow, use of reclaimed water, injection of treated effluent, conjunctive use, additional diversions, underground storage, and brackish water use.

With respect to the *Santa Fe County 40-year Water Plan*, future water supply has been identified as three principal sources:

- Buckman Diversion Project—The surface water diversion project is expected to be able to divert some 8,730 AFY. The county is currently acknowledged to have some 375 AFY out of the 5,605 acre-feet of San Juan-Chama, however, additional allocation is currently subject to dispute and has not yet been resolved. The lease agreement for the full rights allocation expires in 2016 with an option to renew.
- San Ildefonso Diversion Pilot Project—As previously noted, the city and county have partnered with the San Ildefonso Pueblo to construct a horizontal well collector system as a possible future source of imported water. Preliminary results indicate water flows of nearly 1.0 million gallons per day (~1100 AFY). Water quality results are expected in the summer of 2002. From these tests, the necessary water treatment levels will be determined in order to fully estimate the cost of the full gallery facility.
- Local water supply alternatives—These include acquisition of both the Hagerman and State Penitentiary wells.

Another potential source identified in the plan is aquifer recharge and recovery (“ASR”) systems. Two methods are suggested including underground storage within the local aquifer of diverted surface water and treated effluent injection into the aquifer. Another similar method would include tertiary treatment of effluent and aquifer storage of the treated water for later use. The plan suggests a deep well injection pilot test program be conducted for the Community College District using potable water. If the results prove positive, storage of imported water within the aquifer may prove feasible for recovery during dry years.

The county plan acknowledges that projected demand based on future development will exceed anticipated supply by nearly 3,000 AFY within the 40-year horizon unless additional sources are secured. As stated in both the city and county plans, return flow credits are to be actively explored to reduce the need for future water right acquisition. The county plan also states that aquifer recharge and storage methods be explored as a potential future source.

Projected regional demand for water is expected to outstrip available water sources in the near horizon. The point where regional demand equals current supply may have already been reached and its subsequent affects are being realized under the 2002 drought conditions. Where that point in time occurs will tend to shift as the region moves in and out of normal, wet, and dry cycles over time. As demand begins to further outstrip supply, however, there will be increasing frequency in the need for drought conservation measures or emergency drought relief measures.

Earlier projections on future demand tended to underestimate growth, so rather than

“breakeven” occurring in later years as was earlier projected, demand is now beginning to exceed supply, particularly during drier years. Although the San Juan-Chama diversion in 2007/08 brings a new water source to Santa Fe, it represents a new point of diversion and no increase in supply will be realized without additional water rights.

In comparing the 2001 city and 2002 county water plans, there is strong concurrence for certain methods of obtaining or enhancing future water sources. These include the following methods:

- San Juan-Chama surface water diversion project;
- San Ildefonso infiltration gallery pilot program;
- Maximization of return flow credits to enhance water rights; and
- Mandatory conservation measures aimed at reducing water usage including outdoor water restrictions, education programs, and indoor conservation measures.
- Both plans emphasize maximizing return flow credits through innovative effluent use.

A final notation regarding a possible water source is the Aamodt settlement agreement that has recently come forward (March 2004). The terms of that agreement call for a regional water system, which would cost an estimated \$280 million of which $\frac{2}{3}$ of the cost would be put up by the federal government. The agreement also calls for the city and county to share in a \$23 million dollar pipeline designed to carry up to 15,000 acre-feet per year of Rio Grande water that is to be diverted at the San Ildefonso Pueblo north of the Otowi Gauge. The pipeline would move water south to the existing Buckman System. Since water is taken out north of the Otowi Gauge, the constraints of transferring rights south of the gauge may be potentially mitigated. Water rights would have to be secured in order to access the water.

Finally, the *Jemez y Sangre Regional Water Plan* explores the benefits and costs of an even greater spectrum of potential water sources. These include other such methods as groundwater treatment (desalination and removal of trace elements), storm water management, wastewater reuse, cloud seeding production, septic tank replacement, and aquifer storage and recharge. The plan explores through preference modeling the costs and benefits associated with the myriad of supply options. The plan summarizes the findings in a matrix of potential options. In addition, the city is embarking on an alternatives feasibility analysis to explore many of the same components.

^a Prorated ratios include a prorated portion of cumulative commercial water usage to the residential multiplier.

^b The actually GRT data is reported receipts; therefore, there is not adjustment for inflation in the projections.

^c These projections do not account for the 2004 legislative changes that removed gross receipts tax on certain foods and medical. It is expected that a downward shift would occur, depending on the impact on local gross receipts tax.

^d The data is taken from the *Economic Impact of a Growth Ordinance for the City of Santa Fe*.

^e This figure was derived using the population and water demand tables contained within the CDM study. It assumes the same population to water ratios occurring in other years to account for the population shift.

^f The amount of effluent that could be returned by the system may be lower due to effluent commitments; therefore, the actual return flow credit is considered less than 14,000 AF. The actual amount of return flow may be considerably lower than the projected optimal.

^g This is the “acknowledged” county water right, however, as later noted, is subject to debate.