



DRAFT

MEMORANDUM

Date: June 11, 2001

To: The Honorable Chair and Members
Pima County Board of Supervisors

From: C.H. Huckelberry
County Administrator 

Re: Pima County Tax Base and Property Valuation

It has been our privilege as we develop the technical reports supporting the Sonoran Desert Conservation Plan to work with a group of scientists who are originators in the area of conservation biology and leading thinkers in their specialties. As we begin this week to issue studies that provide the technical basis for the Comprehensive Plan, we are fortunate to see the same quality of thought and originality in the first of the studies on the Cost Element. Entitled *Pima County Tax Base and Property Valuation*, the attached analysis by Mr. Bruce Basemann reviews the Pima County tax base since the 1977 and concludes in part that "the tax base has less capacity to produce revenue than it did twenty three years ago." When population growth is factored into the assessment, and the performance of the tax base is viewed from a per capita, constant dollar perspective, the result is that "the primary net assessed values ability to provide the same level of services now, as in 1977/78 has dropped 34.4%, and the ability of the secondary value has dropped 32.4%." Stated simply and accurately, Mr. Basemann's study finds that "the County is actually operating on a smaller revenue base than it was two decades ago."

Why has the County's revenue source declined in relation to population growth over time? We have issued studies dating back three years on the negative effect of unregulated development to land values and therefore to the tax base. The attached study goes farther by placing each aspect of the property tax formula (valuation, assessment, and exemptions) under the microscope while reviewing the component parts of the tax base by legislative class: in addition to residential property, the experience of commercial property, the utilities, vacant land, mining property and other classifications such as railroad and historic properties is described to get at the issue of why there has been such a dramatic fall in the per capita revenue generating power of the tax base during the last quarter century. In addition to market conditions, the study shows that decisions of the state legislature to alter assessment ratios have substantially weakened the revenue base for Pima County government and shifted the tax base burden to owner-occupied residential property and commercial property.

Trends in personal income are also presented in the study and described in relation to the trends in the tax base. Within the legislative classes hit hardest by changes in state law (owner-occupied residential and commercial), the study finds that gains in the area of personal income are offset by additional burdens created by market forces and reductions in assessment ratios provided for other legislative classes of property. Future studies issued as part of the Cost Element will provide details about the relative fiscal contributions, relative land consumption, and the service demand of all types of residential and commercial development. Mr. Basemann's study provides an outstanding basis for this analysis and sets the stage for recommendations on how to effectively and responsibly pay for future population growth in Pima County.

Attachment

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INTRODUCTION

This document is an updated version of the Pima County property tax base report which has been produced the last two of years. This year the report has been reformatted and some additional research has been done to relate the tax base and property values to key socioeconomic characteristics of the County. The basic purpose of the reports has been to review the history of Pima County's tax base, since the current property taxing system was put into place in the early 1980s. This year emphasis has been placed on determining the tax base's inherent capability to support the needs of the people of the County. Another goal is to determine if the inherent capability of the tax base is in-step with the personal income of the population.

The report begins with a presentation of the broad socioeconomic factors used in the study. These are population, employment, and personal income. Following this is a general discussion of the property tax system and information about the overall tax base. Valuation, assessment ratios, and County total net assessed value are explored. These topics are presented for each of the major legislative classes of property. The classes of property are: owner-occupied residential, commercial, utilities, renter-occupied residential, agricultural / vacant & miscellaneous property, mining properties, and a brief discussion of all remaining property classes. The final section of the report brings all the facts together to form a conclusion to the issues raised.

Dates used in this report, both in the text and on the charts, refer to fiscal years unless expressly stated otherwise.

The main sources of information for this report are the Pima County Assessor's Office and The University of Arizona's, Eller College of Business and Public Administration's, Economic and Business Research Project. Other sources included the Arizona Department of Revenue, Arizona Department of Economic Security, Pima County Finance, The City of Tucson Planning Department, and The Pima Association of Governments. Advice and encouragement were gratefully received from Maeveen Behan of the Pima County Administrators Office, David Taylor of the City of Tucson Planning Department, Marshall Vest of the Economic & Business Research Project, and Pima County Assessor, Rick Lyons.

SOCIOECONOMIC CHARACTERISTICS

The study of the history of Pima County's tax base is not relevant without some knowledge of the people and economic factors which have actually driven it. The socioeconomic factors may also give an insight into the need for County services. For this study the social and economic factors that are explored are limited to Pima County total population, employment in the County, earnings and total personal income.

Population

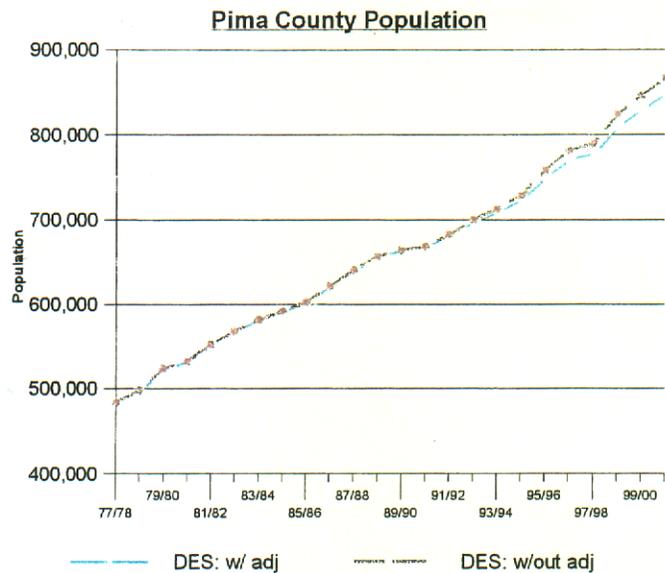
Almost 500,000 people have moved into Pima County since 1970. The table at the right shows the County's population growth over the years.

The chart below shows the population growth over the twenty-three years that are the focus of this report. Population is used in this report to gain a relative perspective of the change in the tax base. Just as population has increased, so has the tax base. If the assumption is made that the need for governmental services is determined by the number of the people in the county it is important to track, not only the nominal tax base, but also the "per capita" value of the tax base.

For the years between, census estimates prepared by the Arizona Department of Economic Security (DES) were used in this research. The Census Bureau released the 2000 Census results while this report was being prepared. The DES population figures for the year 2000 were higher than the census numbers. The method used to adjust the DES numbers is given in Appendix II. The graph, *Pima County Population*, shows the degree of adjustment which resulted.

	1970	1980	1990	2000
Population	351,667	531,443	666,880	843,746
Change		179,776	135,437	176,866
Percent Change		51.12%	25.48%	26.52%

Source: United States Census Bureau



Source: Arizona Department of Economic Security (Adjustment in Appendix II.)

Employment

If population is an indicator of the need for services, then employment may be an indicator of the ability to pay for these services. Population provides the labor force that in turn, produces the income that pays property taxes generated from the tax base.

Employment growth in Pima County is shown in the table at the right. The percent that the labor force was of the total population was included to demonstrate one of the changes that has taken place in our culture. Like the nation as a whole, Pima County has an increasing number of two wage earners per household. The rate for the nation in 1998 was 60%, and the rate in the Phoenix metropolitan area was 61.4%. This phenomenon is a function of the desire to work outside the home and of economic necessity.

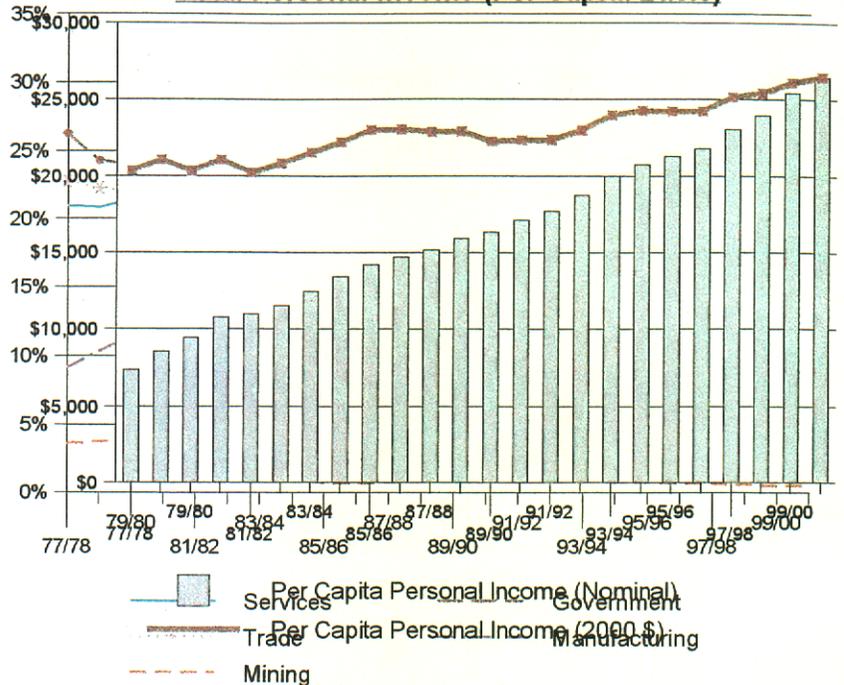
	1970	1980	1990	2000
Employment	144,273	234,749	321,831	457,785
Change		90,476	87,082	135,954
Percent Change		62.71%	37.10%	42.24%
Percent of Population	41%	44%	48%	54%

Source: Total County Employment, Bureau of Labor Statistics

The chart, *Percent of Wage & Salary Employment*, illustrates another significant change in the employment characteristics of Pima County. Employment has become more and more service oriented. Service employment, for example, is comprised of work at resort hotels and medical services establishments. These endeavors are much different than the mining and manufacturing work that dominated the late seventies and early eighties.

In the late seventies and early eighties, mining and then manufacturing declined as major employers in Pima County. They were initially replaced by lower paying service positions. The changes in the employment base created a significant shift in the incomes of those who stayed in Pima County.

Percent of Wage & Salary Employment



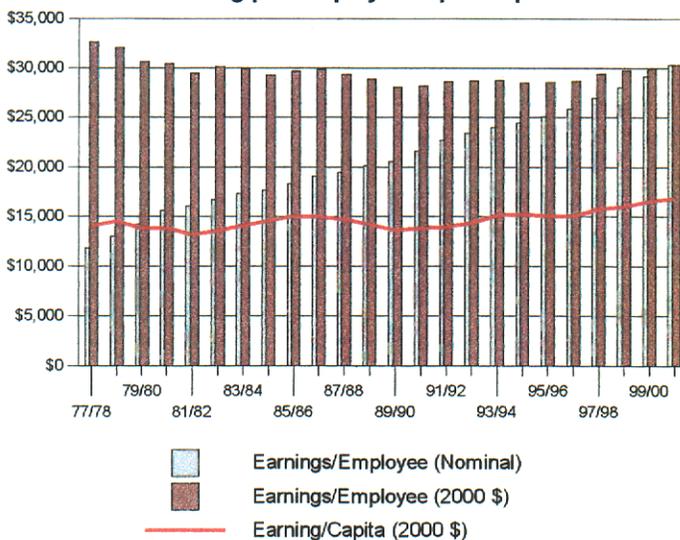
Source: Arizona Department of Economic Security

Personal Income

Personal income is comprised of five major components. The largest, component in Pima County is earnings. The other components, in order of magnitude, are dividends, interest & rental earnings, followed by transfer payments (payments made by government to individuals, e.g., Social Security payments). There is also a "residence adjustment" which is a "net" measure of the effect of people working in one county and residing in another. In Pima County, this is generally a positive number meaning that people live here while earning their income in another county. A final adjustment is made for contributions made to social insurance programs such as Medicare and Social Security.

Earnings are the moneys earned by those that are employed. Due to inflation, earnings per employee have increased substantially, but when looked at on a constant dollar basis, earnings per employee slowly declined through the seventies, eighties, and into the mid nineties. Since then, constant dollar earnings per employee have been slowly increasing. The chart titled "Earnings; Per Employee & Per Capita" illustrates this fact. The chart also indicates that on a constant dollar, per capita basis, earnings have stayed fairly flat and are now ahead of their 1978 status. In order to maintain or improve their standard of living, there are more people employed per family today than there were in the late seventies.

Earning per Employee & per Capita



Earnings have actually dropped as a percentage of total personal income. In calendar 1978, earnings was almost 69% of the total income pie. In 2000 earnings dropped to just over 63% of total personal income. Dividends, interest, and rents have risen from just over 20% to a little more than 24%. Transfer payments have increased from just under 13% to over 15% of personal income. The

residence adjustment has stayed at 1% while the social insurance contribution has changed from -2.8% to -3.8%. These figures seem to reflect the increase in the number of persons in the County that are retired. They derive most of their spending revenue from their investments and Social Security and Medicare payments.

Looking at nominal personal income, on a per capita basis, shows that personal income has also grown substantially. On an inflation adjusted basis, per capita personal income has grown also, but not nearly as fast.

[See the chart *Total Personal Income (per capita basis)*.]

Summary

From 1970 to 2000, Pima County's population increased 140%, and the number employed grew 217%. The primary forms of employment changed from mining and manufacturing in the late seventies and early eighties to a services in the nineties.

There have been large increases in income whether from employment or from sources used by retirees. However, if one looks at income on an inflation adjusted basis, the increases have not been so great. Employees have actually seen their income decrease on an earnings per employee basis. In order to maintain their standard of living, more members of the family joined the work force to increase family income. Due to stronger, and higher paying manufacturing employment, earnings per capita, on an inflation adjusted basis, have been increasing in recent years.

The discussion in the next section begins the exploration of the property tax base. The ups and downs of per capita personal income and the increases in population had significant impact on the County's tax base. Other factors such as tax law changes and levels of speculation had even more dramatic effects on the tax base. Comparing these socioeconomic factors with the changes that take place in the tax base demonstrates that there are conditions affecting the tax base that are not tied to the "real" market forces in the community.

PROPERTY TAX BASE

The current system of property taxation in Arizona was put in place in 1980. Each parcel or item of property that is taxable in the State of Arizona has two values. The values are set annually by either the County Assessor or the Arizona Department of Revenue. One value is called the *secondary value* and is used to set the taxes needed to pay for voter approved capital improvements and jurisdictions. The other value is called the *limited value*. It is used to set the revenues needed to operate jurisdictions. The secondary value and the limited value are reduced down to the secondary and limited *assessed values* by multiplying the *values* times an *assessment ratio*. The results of this calculation are reduced by any legal exemptions, to arrive at the *net assessed value (NAV)*. The *secondary net assessed value (SNAV)* is used to derive secondary taxes and the *limited net assessed value (LNAV)* is used to calculate Primary taxes. Pima County's secondary tax base is the sum of the secondary net assessed values of all the taxable property in the County. The County's primary tax base is the sum all the limited net assessed values of all taxable property in Pima County.

Each tax base is comprised of three significant parts. The first component is the initial value of the property, the second component is the assessment ratio, the third component is the exemption amount. Each of these components has its own determinants.

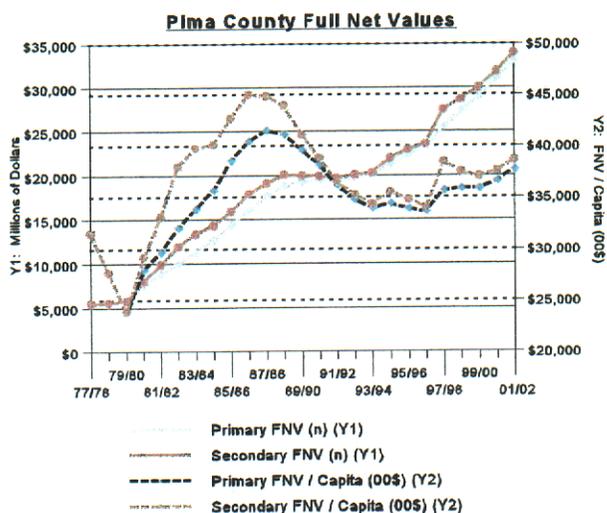
Valuation

The limited value is a calculation. The goal of the legislature in establishing the limited value was to keep the tax base from expanding as quickly as actual property values were in the early eighties. This valuation method, plus such mechanisms as spending limitations and levy limitations, were all put in place to control local government spending.

The formula for finding the limited value states, "*The limited value will change the greater of: 1) 10% of the prior years limited value or, 2) 25% of the difference between last year's limited value and the current years secondary value*¹. *The limited value can never exceed the secondary value*". This formula has been effective in restraining the rate of change of the primary tax base.

The Arizona legislature has established the "market" as the basis for property valuation for the purpose of taxation in the state². *The market is defined as the price of a property agreed on by the seller and buyer, in an arms length transaction, where neither the buyer nor the seller is under stress to buy or sell.* The secondary value, referred to as the *full cash value* is based on market factors. The Assessor and the Arizona Department of Revenue collect information about sales of all real estate in the state. This information, along with information about each parcel of property, is used to drive computer models that determine the initial value of a parcel. The computer models are analogous to the basic forms of property appraisal: 1) market, 2) cost, and 3) income. Since income information is rarely available on properties, the market and cost methods are the most commonly used basis for valuation. The computer models allow the Assessor and the state to value large volumes of parcels in a relative short period of time. To avoid as many errors as possible, there is an appeal period in which property owners can appeal the value of their property to assure accuracy of the valuation. Because the sales data used to determine value is up to three years old and the appeal process is nine months long, the secondary full cash values are probably eighteen months to three years behind the actual market.

Because Pima County has large amounts of property that are exempt from taxation, it is best to look at the market value of taxable property in the County. An approximation of the market value is computed by dividing the total net assessed value of each legislative class by its assessment ratio and summing the results. In this document this value



¹ ARS §42-13301 Limited Property Value.

² See Arizona Statutes; Title 42, Chapter 11. Certain property types have unique valuation procedures and standards which are defined by state statute.

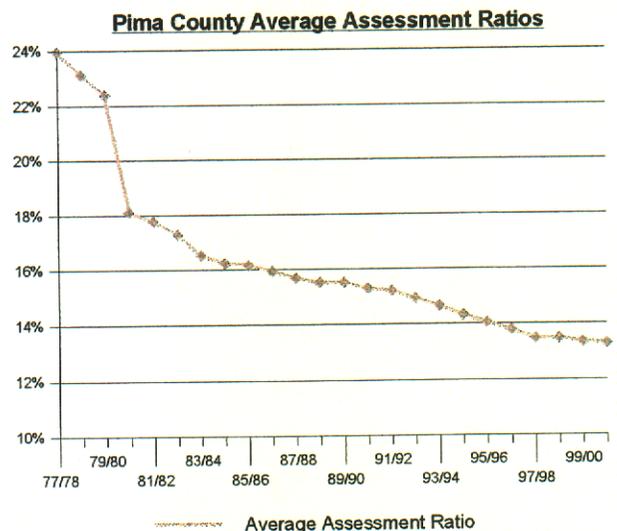
is referred to as the *full net value* of the tax base. The chart, "Pima County: Full Net Values" shows the full net value of all taxable property in the county on a nominal and per capita basis. The full net values derived from both the primary and secondary values are shown. By knowing the market value we can determine whether changes in the tax base are caused by market changes or changes in assessment ratios. It can be inferred from the chart that property values grew rapidly between 1980 and 1986 leveled off and then started to grow again. The early eighties was the period when Pima County was prospering with the arrival of IBM. It was also a period of great speculation in real estate which was encouraged by income tax laws permitting the writing off of losses on investments against income. There was a lot of money running after relatively few projects creating a great deal of inflationary pressure on real estate values. In 1986 the tax law was changed and the real estate market began to collapse. The situation in Tucson was made even more devastating because IBM decided to close a major part of its Tucson facility. When real estate markets collapsed nationally the Federal Government created the Resolution Trust to liquidate properties held by now bankrupt savings and loan organizations. This situation worked its self out by the mid 1990s and growth of the tax base has been steady, if not overwhelmingly, rapid since then.

Assessment Ratios

Assessment ratios are set by the legislature for individual types of property. The type of property is determined by its use. Last year the Legislature combined a number of property types to make fewer classifications. For this analysis the historic classifications have been retained. The major classifications are listed in the table below.

<u>Class (New Class)</u>	<u>Major Uses</u>	<u>Valuation by</u>
Class One (One)	Mining property	Arizona Department of Revenue
Class Two (One)	Utilities	Arizona Department of Revenue
Class Three (One)	Commercial	Local Assessor (primarily)
Class Four (Two)	Agriculture & Vacant Land	Local Assessor
Class Five (Three)	Owner-occupied residential	Local Assessor
Class Six (Four)	Renter occ. residential prop.	Local Assessor
Classes Seven through thirteen (5 - 11)	All other property	Local Assessor / Dept. of Rev.

Since assessment ratios are unique to each class of property, the history of the actual ratios is discussed in the section that dissects the tax base by legislative class. The chart, *Pima County Average Assessment Ratio*, shows the overall average assessment ratio for the County. The declining assessment ratio has the effect of forcing an increase in tax rates in order to raise the same amount of dollars from property taxes.



Exemptions.

An exemption is an amount that is deducted from the assessed value of a property. In some cases the property is totally exempt and in others only part of the property's net assessed value is exempt.

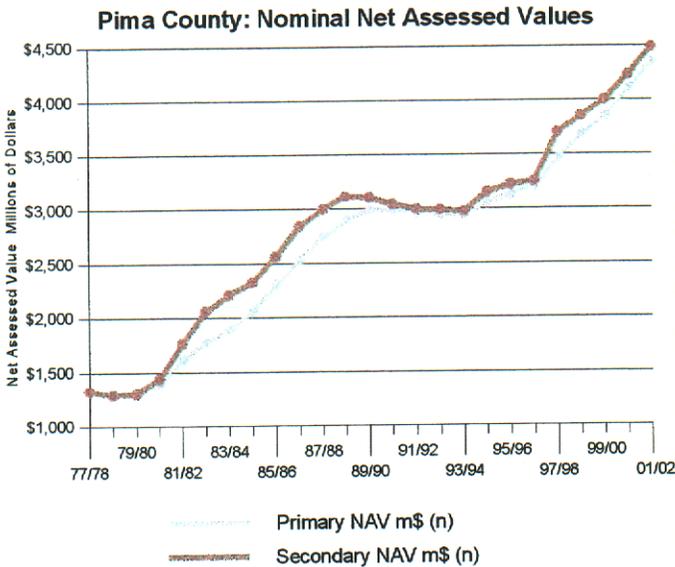
Exemptions are stipulated in Arizona's Constitution. Total exemptions are granted to federal, state, county, and municipal property. Other property that is totally exempt includes that owned by educational, charitable, and religious associations and institutions; public debts and household goods owned and used for noncommercial purposes. Stocks of raw materials, unassembled parts, work in progress and finished products held in inventory are also totally exempt. The first \$50,000 of business and agricultural equipment is exempt from taxation. Limited exemptions are granted to low income widows, veterans of foreign wars who were on active duty before the end of World War I. Disabled veterans can receive limited exemptions depending on the level of disability and the value of the person's property.

On an overall basis, exemptions comprise 12.7% of the total assessed value of Pima County. The level of exemptions varies with the class of property. For instance almost 69% of all vacant land is exempt because of large government-owned tracks. Exemptions are only 0.85% of owner-occupied residential property total assessed value.

A new, voter approved law will allow low income persons that are over 65 to have the valuation of their home fixed for a certain period of time. This in essence exempts them from changes of value caused by market forces.

Net Assessed Value

Valuation, assessment ratios, and exemptions combine to create the net assessed value of a property. Add the net assessed value of all the taxable properties in the County together to determine its tax base.

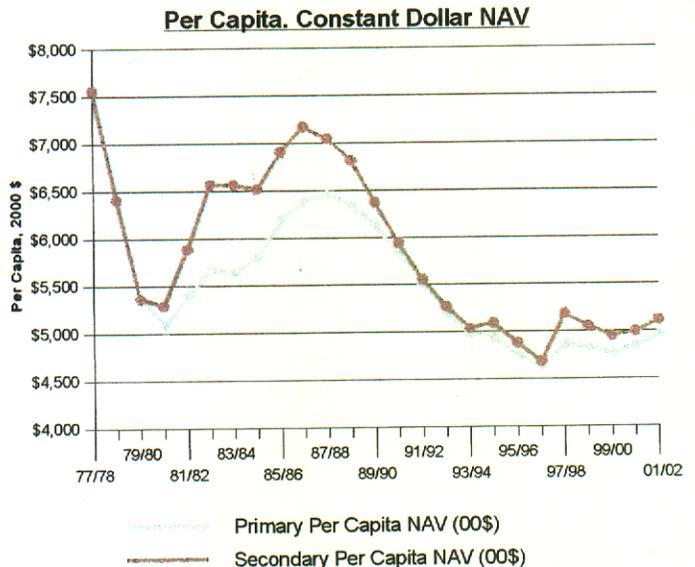


The chart, *Pima County: Nominal Net Assessed Values*, shows Pima County's primary and secondary net assessed values from 1977/78 to 2001/02. The secondary value has risen almost \$3.2 billion from 1977/78 to 2000/01. This is a 239% increase. On an annual basis the average growth rate has been over 10%.

The impact of the formulas that control the primary value can be seen in the graph. Between 1980/81 and 90/91 the secondary value grew faster than the primary value. After 1990/91, the secondary values declined or stayed constant and the primary value became almost equal to the secondary value. The total net assessed value of the primary tax base grew \$3.0 billion or 228.6%. The average growth rate over the twenty-three years of the study was just under 10%.

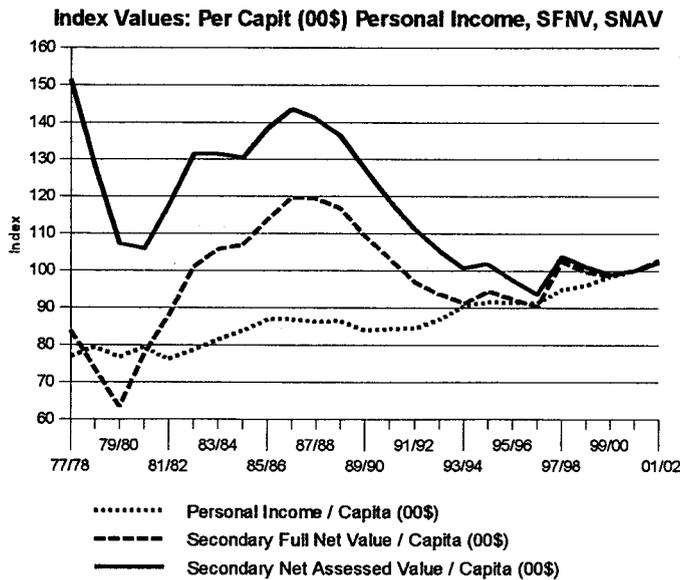
Looking at the chart of Pima County's nominal net assessed values, one would think that the values

would have stayed up with the population. Indeed they might have except that through the late seventies and early eighties the rate of inflation was very high. The chart, *Per Capita, Constant Dollar NAV*, shows that the tax base has less capacity to produce revenue than it did twenty three years ago. Instead of rising 200+% the values have dropped. The primary net assessed values ability to provide the same level of services now, as in 1977/78, has dropped 34.4%, and the ability of the secondary value has dropped 32.4%. The County is actually operating on a smaller revenue base than it was two decades ago.



Comparison of Tax System Components

The relationship between market value and the tax base is the assessment ratio. As we have seen in an earlier section, the assessment ratio has been slowly declining. Whether or not either market value (FNV) or the tax base (NAV) is related to people's income or wealth is an open question. To explore this issue each of the variables was indexed over time and graphed on the same chart with the index of personal income. The process of indexing is basically to convert the actual value of each variable to the same value, usually 100, for a given date and then use the percent change of the actual variable from year to year to change the value of the index from year to year. The variables are all expressed on the same scale to show how they relate.



The chart, *Index Values: Per Capita (00\$), Personal Income, SFNV, SNAV* shows the indexes for the secondary full net value per capita in 2000 dollars, the secondary net assessed value per capita in 2000 dollars, and personal income per capita in 2000 dollars. The per capita, inflation adjusted dollars were used because this is the most basic level at which the values could be compared. The base year of the index is 2000/01.

Some observations about how the three variables seem to relate:

- The full net value “ballooned” between fiscal 1979/80 and fiscal 1986/87. The full net value then slowly declined back to a base that is near the personal income index.
- Since 1993/94, with the exception of 1997/98, the full net value and personal income follow the same general curve. This seems to indicate that at least the secondary full net value may be related to income.
- In 1980/81, there was a 28 point difference between the SNAV and the SFNV. Now the difference is zero. This demonstrates the impact of the changes in the assessment ratio over the years. In 1980/81, the county average assessment ratio was 18.1%, in 2000/01 it is 13.2%.
- The chart demonstrates that, even though personal income and the market value of property have risen since 1980, the tax base has declined.

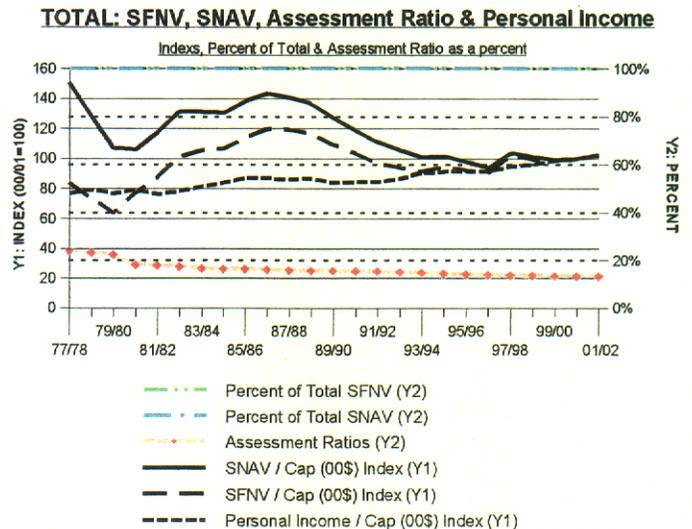
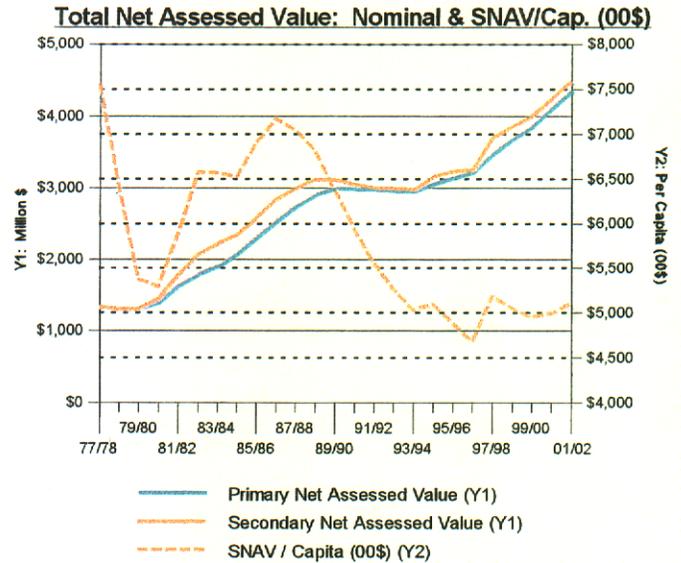
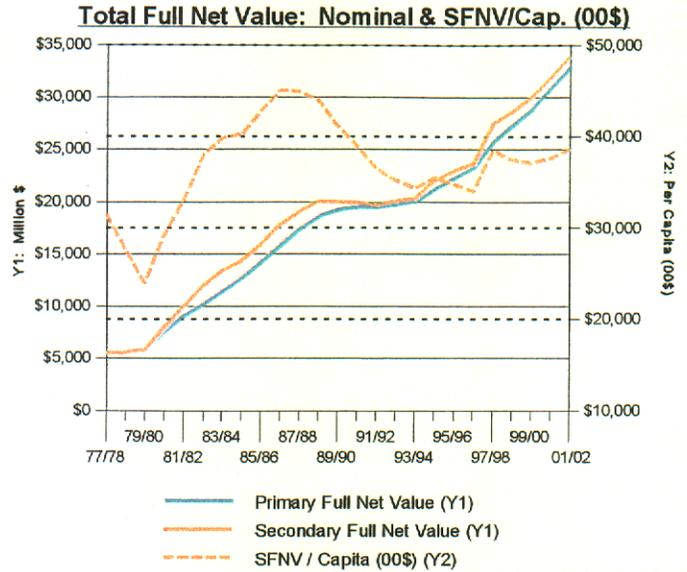
There are a multitude of reasons for these phenomenons. Looking at the tax base on a more detailed level may disclose the factors which have impacted Pima County most.

THE TAX BASE BY LEGISLATIVE CLASS

In order to have more understanding of the movements of the tax base over time, it is important to look at the individual legislative classes of property. Up until last year, the legislative classes have been defined by discrete uses of the property. Each legislative class had its own assessment ratio and basic valuation procedures. The high degree of uniqueness of each class makes them very suitable for analysis.

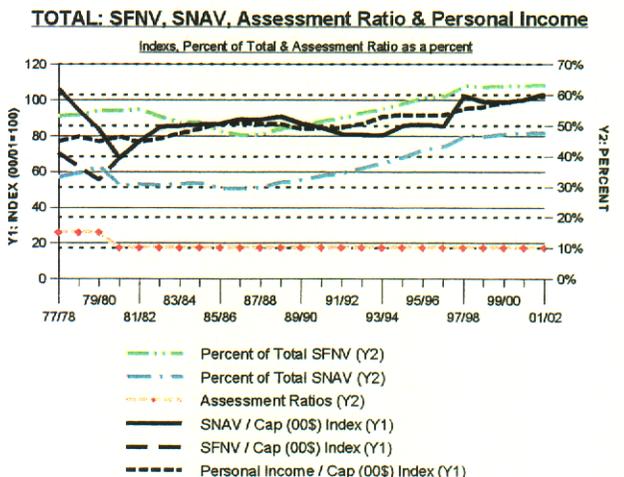
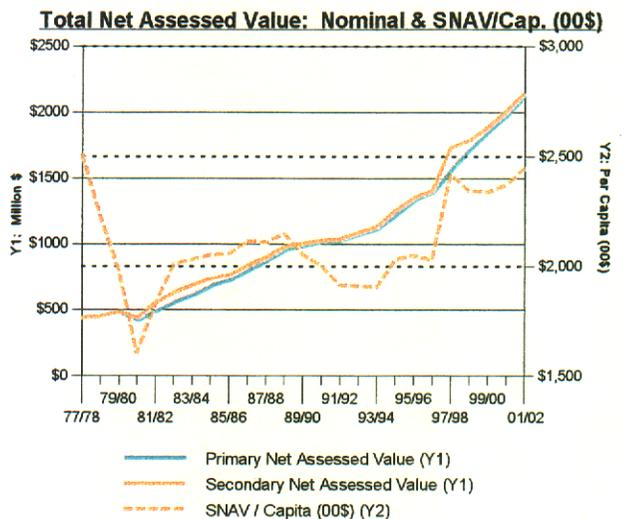
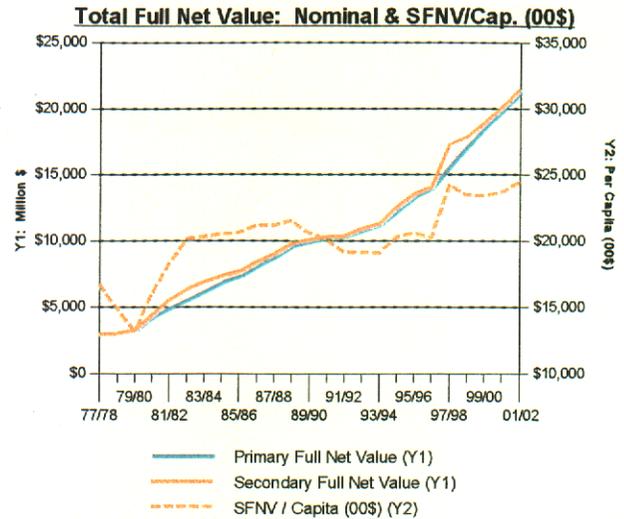
Just as the total tax base has been explored in the previous chapter, this chapter will explore each class in the same way. There will be a market value (full net value) graph, followed by a tax base (net assessed value) graph, and then a third chart with the indexes of the full net value, net assessed value and personal income on a per capita, 2000 dollar, basis. The proportion the class is of the total full net value and the secondary net assessed value is also given. The trend of the assessment ratio over time is also shown on the third chart. The charts on this page present the information about the total tax base in the same way that it will be presented for the classes of property. The classes are discussed in the order of their magnitude in the year 2001/01.

Hopefully, this review will provide some insight as to why there was a "balloon" in values from the late seventies to the mid-eighties, how related the tax base is to personal income, and most importantly why there has been a drop in the per capita, constant dollar basis of the tax base.



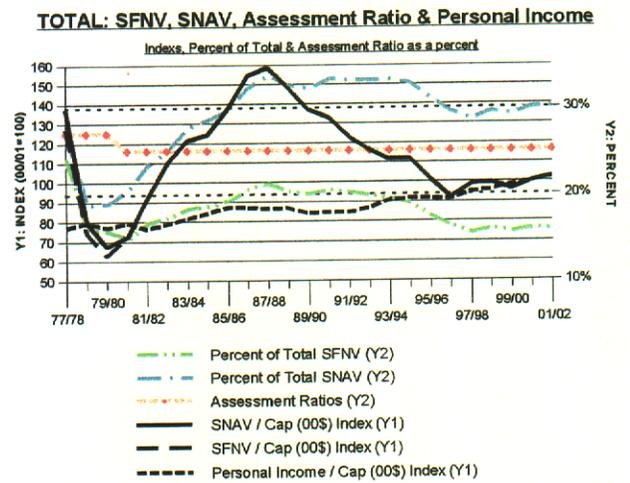
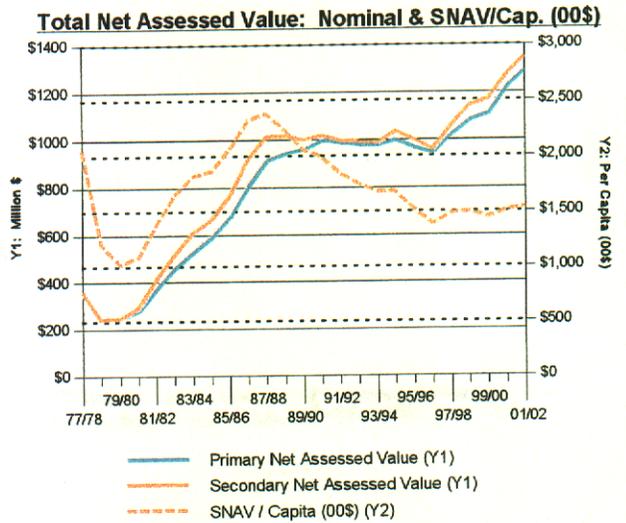
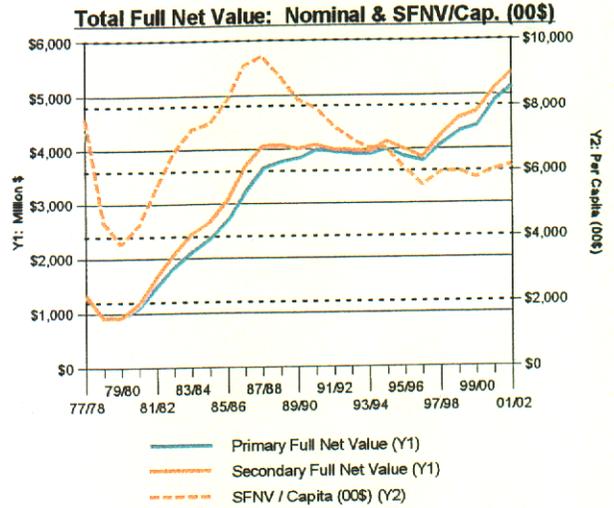
Owner-Occupied Residential Property

- In 2000/01, owner-occupied residential property is 63% of the market value of all taxable property, and it is 48% of the tax base. The difference is due to residential property's low assessment ratio of 10%.
- The full net values and the net assessed values change at the same rate because the assessment ratio has not changed from the inception of the current property tax system in 1980. This also explains why the full net value per capita (00\$) and the net assessed value per capita (00\$) form the same line.
- The effectiveness of the formulas that control the primary value changes is well demonstrated by the little bubble in the secondary value in 1997/98. Although the secondary value increased substantially, the primary value increase did not respond to the bubble but continued the general rate of increase that was occurring in the overall market at the time.
- The secondary full net value per capita (00\$) shows the rise and fall of the housing market during the great in migration of IBM workers and the arrival of workers to build the new housing and commercial centers that everybody knew the County would need. In the late eighties IBM decided to close most of its Tucson facility, and the tax laws changed so that there was no longer an incentive to build speculatively. During this period, there was a period when there was very little growth in the community and not a strong market for housing until about 1994 when Hughes Aircraft, now Raytheon Aerospace, began building up the staff at its Tucson facility.
- Even though the housing market has risen and fallen with the economic fortunes of the County, it has stayed in tune with the personal income of the population. The personal income index has been just below or just above the full net value index over the 22 years since 1980/81. An exception to the general pattern is the abrupt jump in value that occurs in 1997/98. The phenomenon was the result of a mandated moratorium on changing the value of existing properties in the prior two years to accommodate the use of a new valuation - appeals calendar. The change was even more dramatic due to one of the strongest markets in residential real estate in the County when Hughes Aircraft decided to move a major portion of its enterprise to Tucson and a number of California business decided that California was not the place to live -- and came to Tucson .
- The secondary net assessed value of owner-occupied property has been up and down, but on the whole it has increased with the rise of personal income and has not contributed to the decline of the County's tax base.



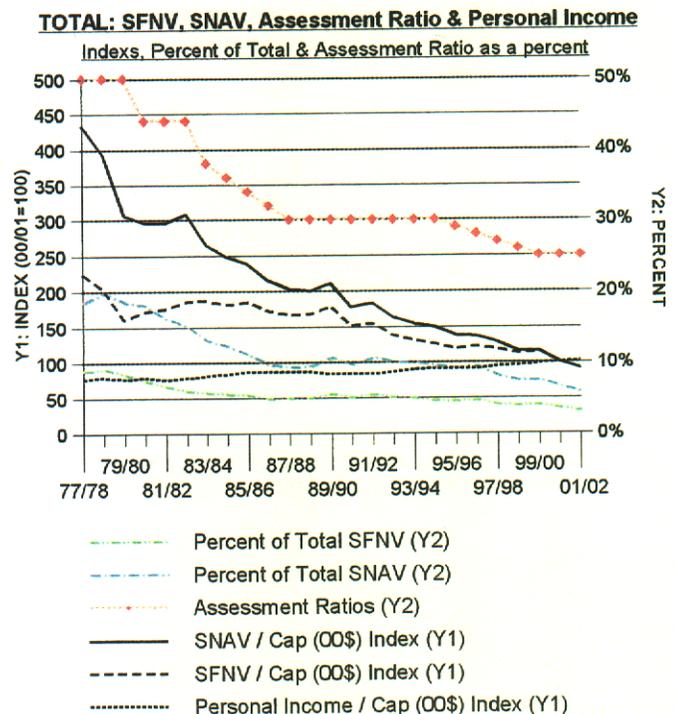
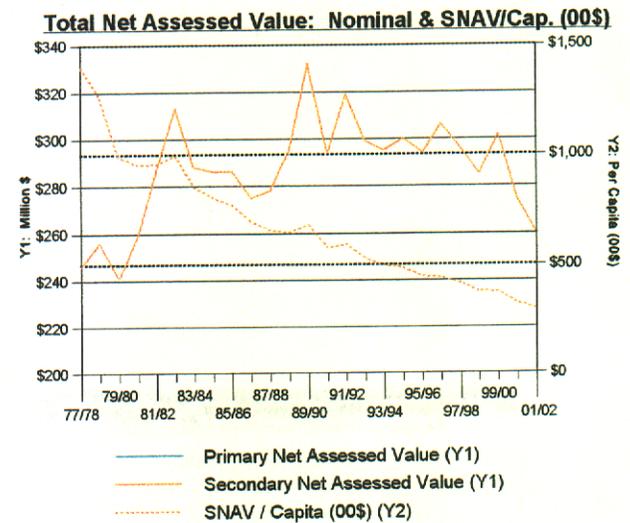
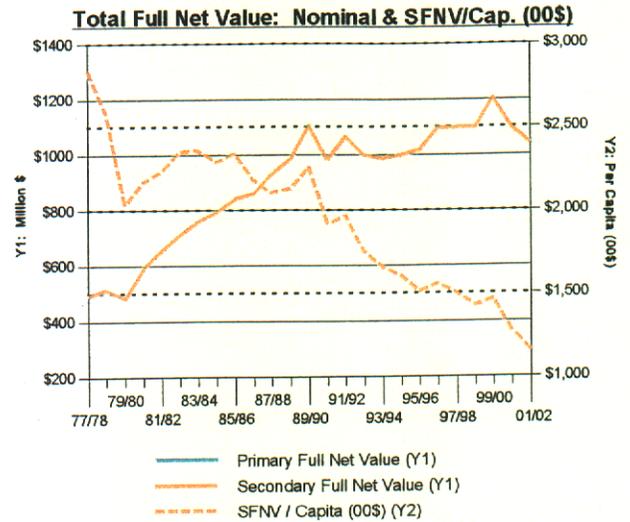
Commercial Property (Retail, Industrial, Office, Lodging, Resorts)

- Commercial property makes up 15.9% of the market value of the taxable property in the county and 30.1% of the tax base. At commercial property's maximum value in relation to the whole tax base it was 33.8% of the tax base and 21.2% of the total market value.
- There was a rapid increase in the total market value of commercial property between 1980/81 and 1987/88. Between 1987/88 and 1996/97 the value stagnated until 1997/98 when it began to rise again. The full net value per capita (00\$) rose and then dropped during that period of stagnation. Since then the real per capita value of commercial property has stayed pretty constant, growing at an average of 2.2% per year.
- The assessment ratio for commercial property has stayed the same since 1980/81. This means that the trend of net assessed value has been the same as the full net value.
- In recent years FNV and NAV indexes have been aligned with the personal income index. In all the years between 1980/81 and 1996/97, there was a *balloon* in which the values were substantially higher than the personal income index.
- Between 1980/81 and 1986/87, there was an extremely high level of commercial property construction. Much of this construction was of speculative office buildings, retail space, and industrial space. There was more building than could be absorbed by the market. Even so, the buildings were bought and sold, creating a market that the Assessor set values by. After 1986/87, until the mid nineties there were bankruptcies, no sales and low rents. The nominal values did not change. On a per capita basis they dropped. Finally, as the employment and population increased the market for commercial facilities strengthened and finally values actually began to increase. Currently the index of the values of commercial property is rising with per capita income.
- Although the market value of commercial property has risen and then fallen, it has not dropped below its 1980/81 level. The assessment ratio has not declined either. The net assessed value now seems to be sensitive to the market forces that drive the value of commercial property, as demonstrated by the movements of the NAV index corresponding to those of the personal income index. Commercial property is making a positive contribution to the County's tax base.



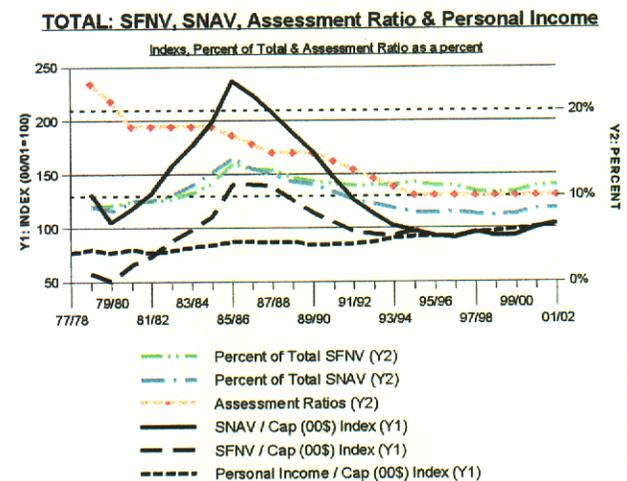
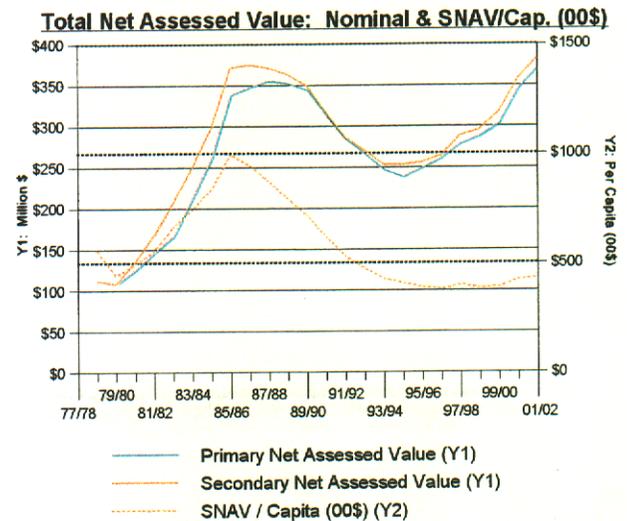
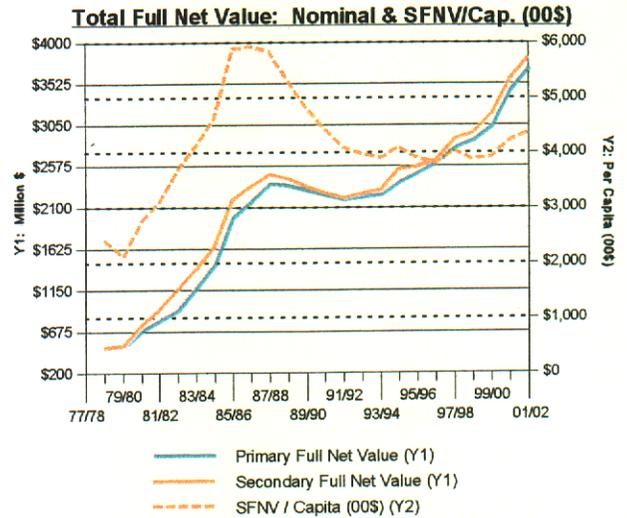
Utilities (Electric, Gas, Telephone, Water)

- Utilities are valued by the Arizona Department of Revenue. The limited value always equals the full cash value. The formula protecting home owners and locally valued business does not apply.
- The Arizona Legislature has stipulated that all utilities' full cash value will be based on the cost less depreciation approach to value. In some cases accelerated depreciation is used.
- In 2001/02, utilities will be 3.1% of the total market value of taxable property in Pima County. Back in fiscal 1980/81, they were 7.4%. Today, utilities are 7.4% of the tax base. In 1980/81, they were 18% of the base.
- The full net value of utilities rose steadily into the late 80s. Since then they have been moving laterally in a *roller coaster* fashion. On a per capita, 2000 dollar basis the FNV has steadily dropped since the mid 1980s. This is probably a function of depreciation. The utilities put new facilities in place to accommodate the growth of the eighties, and since, then depreciation has offset any new construction. The overall effect has been the drop of the per capita, constant dollar full net value by 47%.
- Due to trends in deregulation and corporate restructuring, especially for electric utilities, the basis of valuation may change in the future.
- Before 1980/81 the assessment ratio for utilities was 50%. Under the initial years of the new tax law the assessment ratio for utilities was 44%. In 1987/88 the ratio became 30% and then eventually dropped to 25% in 1999/2000.
- In the case of utilities, there is absolutely no relationship between personal income and either full net value, or assessed value.
- The utilities' contributions to the tax base have declined significantly over the years. This decline has been brought about by both a decline in value and decreases in assessment ratios.



Renter-occupied Residential Property

- Renter-occupied residential property is 8.5% of the tax base and 11.3% of the total taxable market value of Pima County. In 1985/86, rental residential property was 14.5% of the total secondary net assessed value and 13.8% of the total secondary full net value.
- The nominal market value, as measured by the full net value, rose very rapidly between 1980/81 and 1987/88. This rapid increase was as much a product of the favorable income tax laws toward speculative income real estate, as it was toward the need for rental housing. When the tax laws changed, the value of rental housing dropped. By the early nineties, the market corrected itself, and the value of renter-occupied residential property has been nominally rising ever since.
- On a per-capita, constant dollar basis, the full net value of rental housing rose during the expansion of the early eighties. The market dropped rapidly through the downturn from 1987/88 to 1993/94. Since then the value has remained somewhat constant with a strong up-turn over the last few years. Despite its ups and downs, the population and dollar constant full net value of renter-occupied is today, over 100% higher than it was in 1980/81.
- Like the full net value, the net assessed value for rental housing property increased substantially. From 1980/81 to its high point, in 19987/88, the value rose 184%. Then came *the crash*, and a lot of empty apartments. The market stagnated, and the assessment ratio declined from 15% to 10%, putting additional downward pressure on the rental housings' contribution to the tax base.
- On a per capita, constant dollar basis the tax base followed the path of the net assessed value, except instead of rebounding as the nominal value did, it has remained fairly constant. Only in the last year or so has the per-capita, 2000/01 dollar value risen to a value near where it was in 1980/81.
- The market value of renter-occupied residential property rose at a fantastic rate, fell, and has started to rise again at a more sedate rate. On a per-capita, 2000 dollar basis, it followed the same pattern, but the value has not increased until just recently. The assessment ratio has been reduced through the years. This reduction has had the effect of reducing the contribution that renter-occupied residential property makes to the over all tax base.



Agricultural, Vacant Land, and Miscellaneous Property

■ The old legislative class four, now class two, includes two primary property uses which are valued very differently. Vacant land which is not treated as ranch land, and land that is prepared for development is treated as "normal" real estate that is traded on the open market. Its value is based on actual market forces. On the other hand, land that is used for grazing cattle or other livestock, or used to produce a marketable crop, is valued on the basis of the economic productivity of the land. The value is based on the number of pecan trees, the number of cotton plants, or the number of animals that the land can support. The value derived using this basis is generally much lower than vacant land that is build-able. Because of this differential in full cash value, developers will often allow their vacant reserve lands to be used as grazing land. The classification contains both of these types of property, plus other types of property that also receive special treatment, such as golf courses. Because of the special valuation formulas for many of the types of property in the class the overall values used in this study are not representative of real market value. Most of the rules for valuation of property in this classification were developed and passed into law during the span of years covered by this study.

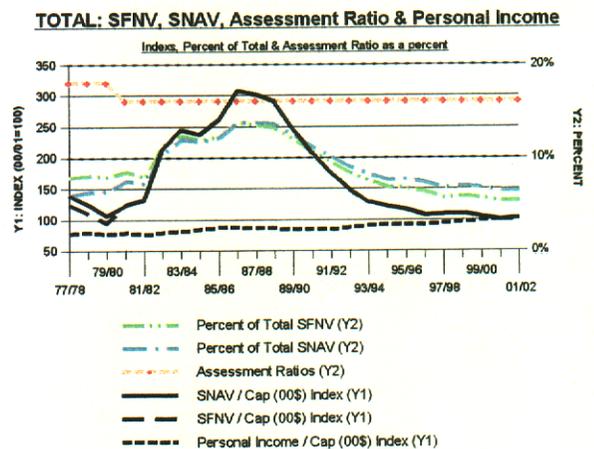
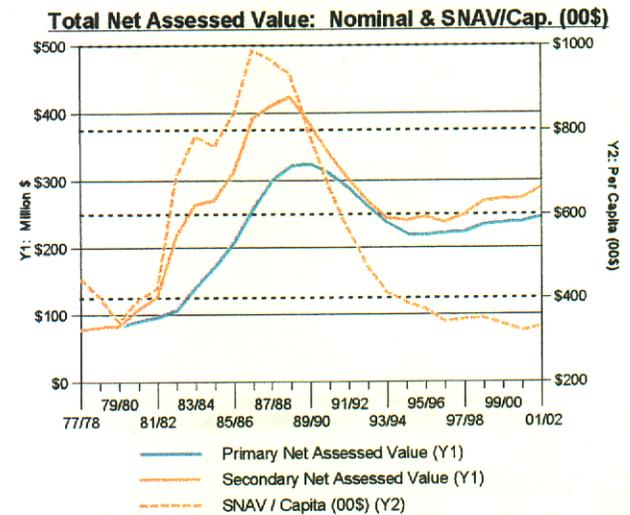
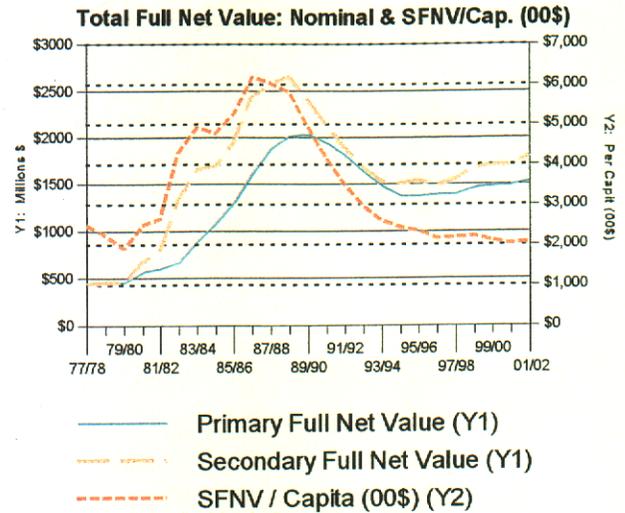
■ Today the full net value of this class of property is 5.3% of all taxable value. At its peak, in 1986/87, it was 13.7%. The net assessed value is 6.5% of total NAV. At its peak, in 1987/88, it was 13.8% of the tax base.

■ The trend lines for the market value of the property followed the overall themes of the community. From 1980/81 through 1988/89 the full net value grew 19.4% per year. Between 1988/89 and 1996/97 land value dropped as properties were auctioned off to the highest bidders (which weren't so high) in RTC auctions. The values declined an average of 6.9% per year. Since 1996/97, the nominal market value of land has been rising at about 4.1% per year.

■ The full net value per capita in constant dollars followed the same trends through the eighties and early nineties. But while the nominal value has been increasing the per capita, constant dollar value is still slowly declining. Over the last five years the decline has been about 0.7% per year.

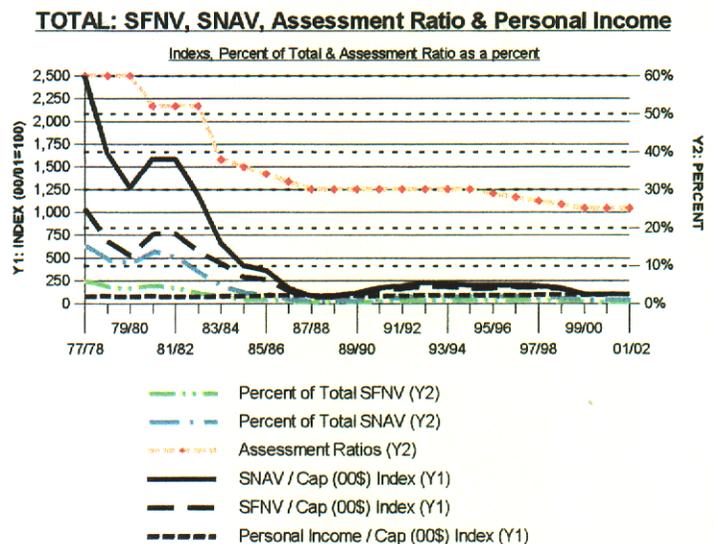
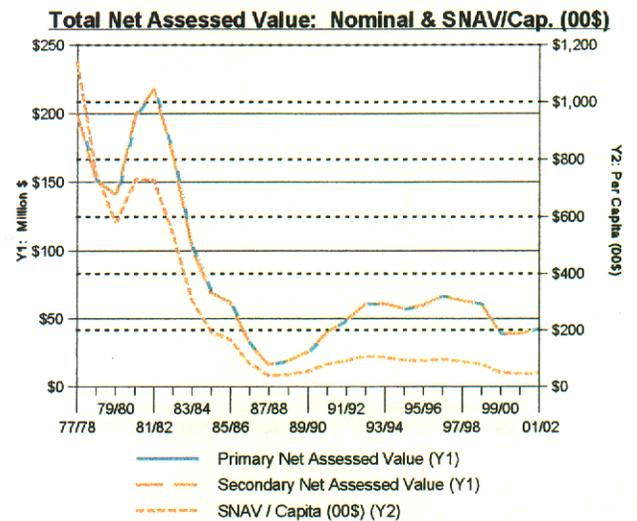
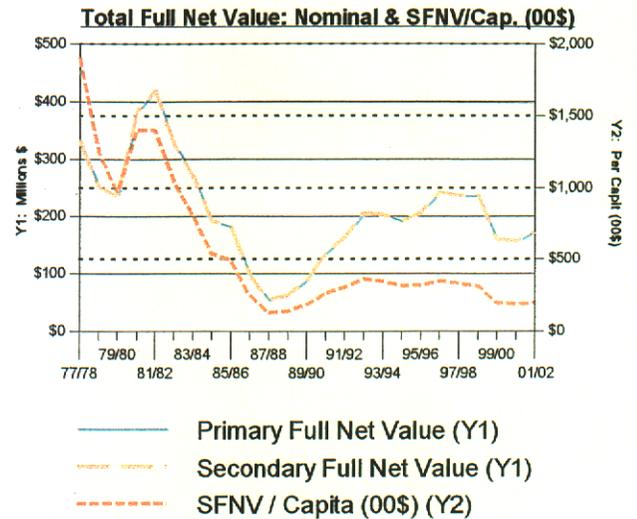
■ The assessment ratio for this class of property has not changed since the start of the current system of property taxation in 1980/81. The net assessed values have followed the same trend of the full net values. The exception has been the primary value which, due to the dampening nature of the formulas, has stayed well below the secondary net assessed value.

■ On a per capita, constant dollar basis the net assessed value is declining. There seems to be very little relationship between the value of class four (new two) property and personal income. In 2000/01, the SNAV per capita, 00\$ equaled \$321. In 1980/81 it was \$396. Today the value is 19% less than it was in the early eighties.



Mining Property

- Mines are valued by the Arizona Department of Revenue.
- The valuation of mining property is a combination of replacement value less depreciation on facilities at the mines and the current value of ore reserves less the cost of extraction. The value of ore reserves is a function of the price of the ore on international markets.
- The full net value of mines is 0.5% of the total value of taxable property in the County. At its maximum, in 1980/81, it was 4.8%. Mines are 0.96% of the total tax base. In 1980/81, it was 13.8% of the tax base.
- The market value of mines has fluctuated with the nature of acquisitions, consolidations, and the world commodity markets. From 1979/80, to 1981/82, the full net value of mines rose to \$420m from about \$250m. By 1987/88, it had dropped to \$53m, a drop of 87.4%. From this low, the value has risen to a high of \$241m and has stayed near \$200m since then.
- The full net value on a per-capita, constant dollar basis fell 87% from 1980/81 to the present. There is no relation between mines and personal income or population.
- Before the new tax law, the assessment ratio on mines was 60%. When the law changed in 1980, the ratio dropped to 52%. By 1987/88, the assessment ratio had declined to 30%. Then between 1994/95 and 1999/2000 the assessment ratio of mines declined to 25%. From 1980/81 to the present there has been a 52% drop in the assessment ratios of the mining classification.
- With the drop in full net value and the decrease in the assessment ratios the net assessed value of has declined 80.4% from 1980/81 to 2000/01. The net assessed value per person has dropped 94%.
- The value of mines is a product of world forces. They will continue to rise and fall with the price of commodities and the strategies of global corporations. Possibly, it is a positive turn of fortune that mines are no longer a major force in Pima County's economy or tax base.



Other Property Classes

■ The remaining property classifications have been grouped together because of they have relatively little impact on the tax base. In the early eighties, this group was comprised solely of railroad property and owner-occupied historic properties. Over the years, other classes have been added. Now there is the historic commercial class and, the historic rental residential class and, uses now include environmental technology manufacturing operations.

■ The full net value of this group of classes is just over one half percent of the total taxable full net value of the county. The maximum full net value was 0.7% in 1998/99 when a new environmental facility went on line. Because the assessment ratios of these properties are so low these properties currently comprise only 0.4% of the tax base. The maximum was 0.5% in 1986/87.

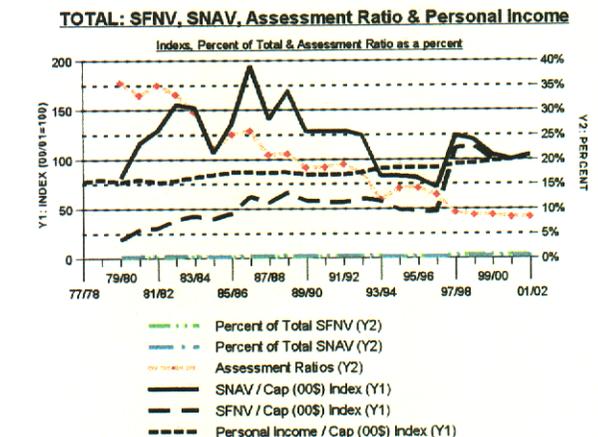
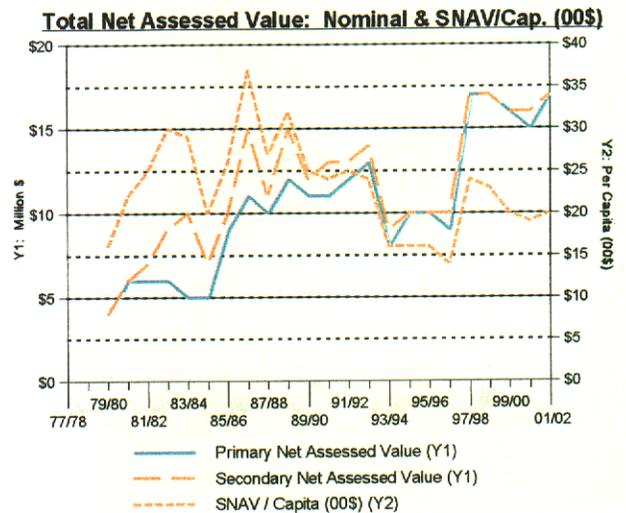
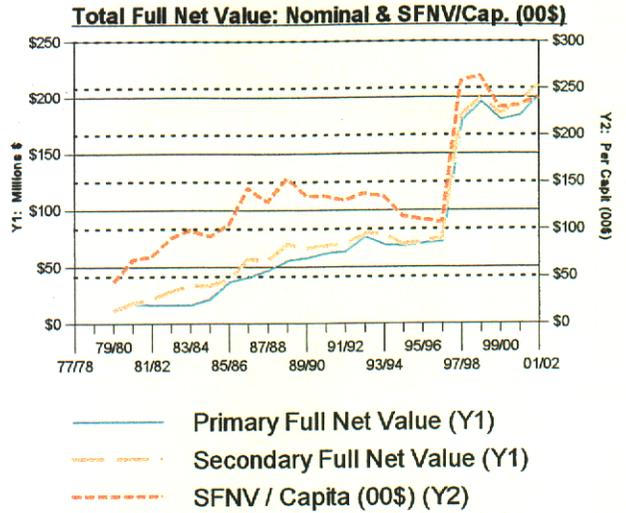
■ As can be seen from the chart at the upper right, the full net value has been erratic. The only element which really is obvious is the change brought about when environmental technology equipment was installed at a mine site in the County. Between 1996/97 and 1997/98 the full net value increased almost 150%.

■ Except for railroads, the key to this group of properties is **low assessment ratios**. Historic owner-occupied properties and environmental technology manufacturing have an assessment ratio of 5%. The renter-occupied residential property and commercial historic properties have an assessment ratio of 1% on the portion of the historic property that has been renovated. The remainder of the property is carried with the standard assessment ratio for the use, 10% for residential, and 25% for commercial.

■ The net assessed value has been even more erratic than the full net value. Looking at the scale of the changes though reveals that the value has been running in a narrow range of \$7.5m to \$15m. The new environmental equipment brought the full net value up significantly, but because of its low assessment ratio, the net assessed value increase was only 78%.

■ Neither the net assessed nor the full net values relate to personal income.

■ The low assessment ratios that many of the classes of property have will be attractive to many property owners. Those owners who are in a position to take advantage of these lower rates will take advantage of them. It is expected the value of these property classifications will continue to grow.



SUMMARY & CONCLUSIONS

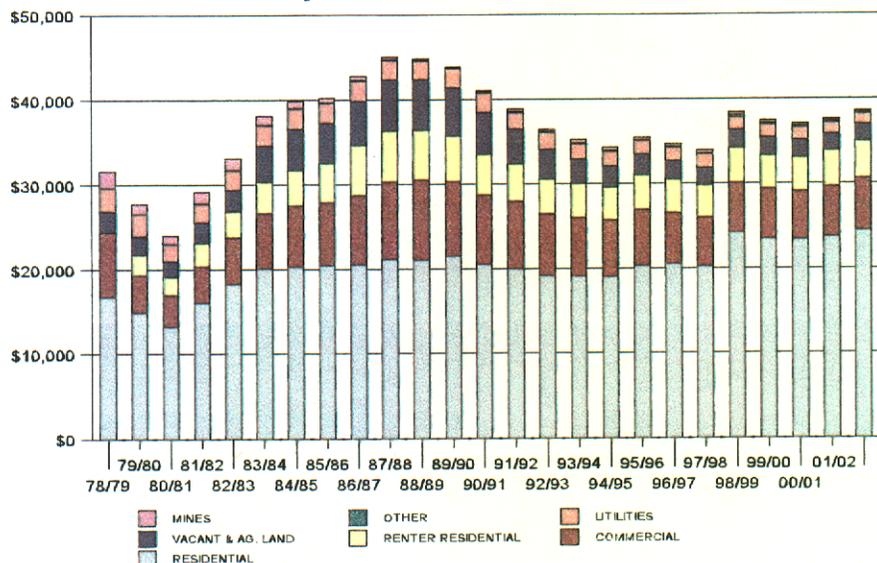
Pima County's population has grown from 531,443 in 1980 to 843,746 in 2000. There are 312,000 more people, a 59% increase in twenty years. Employment has grown 95%, from 234,749 to 457,785 people. The County has a greater percentage of the population working in 2000 than ever before.

Personal income has grown from \$5.7 billion in 1980, to \$22.4 billion in 2000. This is a 292% increase in total personal income. Adjusted for inflation the increase is a little over 100%. Expressed in 2000 dollars personal income in 1980 was \$11.1b. and \$22.4b. in 2000. Looking at inflation adjusted income on a per-capita basis the rise in income is only 25.7%, \$21,047 per person in 1980 to \$26,464 per person in 2000. Pima County has grown and, although its citizens are not the richest in the nation, there has been progress in raising per-capita personal income.

Has the tax base of the community been able to keep up with the growth of the County? The value of the tax base (net assessed value) is a function of the market value of the tax base, assessment ratios and exemptions. This study neutralized the impact of exemptions by defining the market value in terms of the full net value of taxable property. The full net value is derived by dividing the net assessed value of each class by its assessment ratio. The secondary value is used because the secondary value is based on market driven factors, while the primary value is calculated.

The nominal full net value of Pima County has risen from \$7.9b. in 1980 to \$31.8b. in 2000. In terms of constant dollars, full net value was \$15.5b. in 1980 and by 2000 had risen to \$31.8b. On a per-capita, constant dollar base the value has increased from \$29,228 per person in 1980 to \$37,578 per person, in 2000, a 28.6% increase. Looking at just two points on the continuous year by year changes in value leaves out the rapid rise of the per-capita, constant dollar full net value to a peak of about \$45,000 in 1986/87. Then there was the decline and then the slow rise to where the County's per-capita, constant dollar, full net value is today. In this twenty-year period, residential and commercial property became much more prominent in terms of their portion of the overall tax base.

Secondary Full Net Value: Per-capita, (00\$)



LEGISLATIVE PROPERTY CLASSES VALUATION CHANGE FACTORS

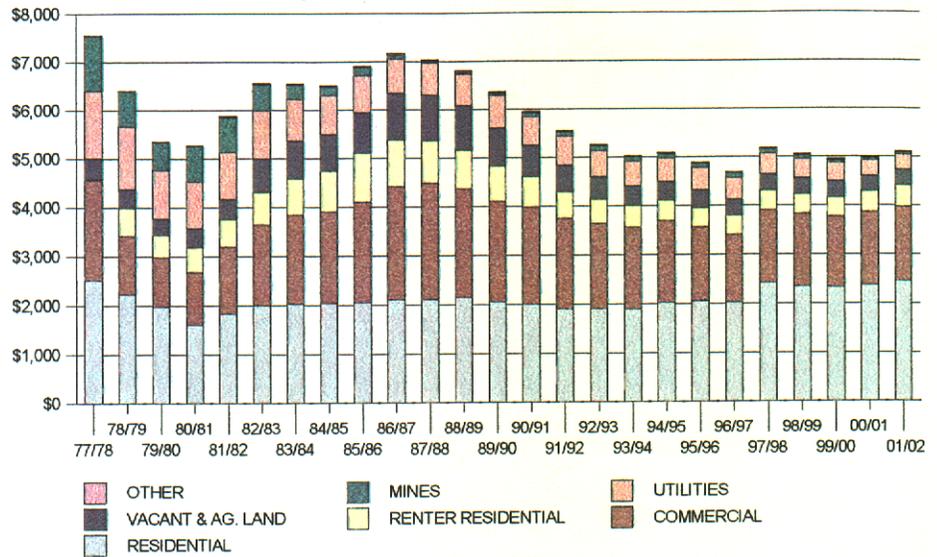
	Assessment Ratio	
	No Change	Decrease
Market	Rise	Owner-occupied Residential Commercial
	No Change	Renter-occupied Residential
	Decline	Agricultural & Vacant Land Utilities Mines

The other major component influencing the tax base over this twenty-year period has declined. The overall assessment ratio in the County dropped from 18.1% in 1980, to 13.3% in 2000, a 26.5% decrease. The decline was brought about by a combination of increased market values of properties with low assessment ratios, declines in value of properties with high assessment ratios and legislated changes in the assessment ratios of other classes of property. The Table *Legislative Property Classes Valuation*

Change Factors, shows the factors which have caused the change in the individual property classes. There have been no legislative property classes which have not been affected by at least one of the forces of change.

Market value, and assessment ratios have combined to create the changes in the tax base from 1980 to 2000. On the surface the tax base has risen. In 1980/81, the secondary net assessed value was \$1.44b., and the primary value was \$1.39b. By 2000 they had grown to \$4.24b. and \$4.11b., respectively. Both values increased by almost 200%. On a constant dollar basis, the net assessed values have risen. The secondary has gone from \$2.8b. in 1980/81 to \$4.24b. in 2000. The constant dollar primary value went from \$2.7b. to \$4.1b. So the tax base, on a constant dollar basis has risen over 50%. But when looking at the constant dollar valuation in terms of the numbers of people to be served, the direction of growth changes. The per-capita, constant-dollar, secondary net assessed value in 1980 was \$5,286, by 2000 it had declined to \$4,994. The primary net assessed value had changed from \$5,088 to \$4,848. The burden of taxation has fallen more and more on commercial property and home owners. The value of the tax base has not kept up with the needs of the County – on a constant-dollar, per-capita basis -- in comparison with fiscal 1980/81. This decline is the impact of market conditions and of decisions of the legislature, not of local government.

Secondary Net Assessed Value: Per-Capita, (00\$)



If the tax base has fallen how much is it costing the County taxpayer? To answer this, a rate was calculated that, when multiplied times the per-capita, constant-dollar, net assessed value would produce the same amount each year. The base amount was determined by taking one dollar times the per-capita, constant \$, NAV for the peak year; 1986/87 for the secondary; and 1987/88 for the primary. That amount was used to determine a rate for each of the other years. The results for fiscal 1980/81, 1986/87, 1990/91, and 2000/01 are given in the top row of the chart *Rates and Burden to Raise the Same Amount Each Year*. The indexes for the values are also given. If compared with 1980 the secondary rate would have to be 5.5% higher in 2000. If compared with

RATES AND BURDEN TO RAISE THE SAME AMOUNT EACH YEAR

		First Year FY 80/81		Peak Years 86/87 / P 87/88		FY 90/91		FY 2000/01	
Tax rate to raise same amount each year (Rate in peak year = \$1.00)	Sec.	\$1.36	94.5	\$1.00	68.7	\$1.21	84.0	\$1.44	100
	Pri.	\$1.27	95.3	\$1.00	75.1	\$1.11	83.2	\$1.33	100
Personal Income (Index of per capita, constant \$ value.)		79.4		88.0 / 86.3		84.3		100	
Owner Residential	Sec.	30.3%	63.9	29.5%	62.2	33.7%	71.2	47.4%	100
	Pri.	30.6%	63.6	31.8%	66.1	34.1%	70.8	48.1%	100
Commercial	Sec.	20.6%	68.6	32.3%	107.5	33.4%	111.3	30.0%	100
	Pri.	20.3%	68.3	32.2%	111.9	33.4%	112.7	29.7%	100
Renter Residential	Sec.	9.4%	111.1	13.2%	156.6	10.4%	123.4	8.4%	100
	Pri.	9.0%	107.7	13.0%	154.4	10.5%	125.2	8.4%	100
Ag. & Vacant Land	Sec.	7.4%	116.6	13.8%	214.4	11.2%	174.1	6.4%	100
	Pri.	6.6%	112.5	10.9%	188.1	10.4%	178.6	5.8%	100
Utilities	Sec.	18.1%	279.5	9.7%	149.7	9.6%	149.3	6.5%	100
	Pri.	18.8%	281.8	10.1%	152.4	9.8%	147.9	6.7%	100
Mines	Sec.	13.8%	1,506.8	1.1%	123.4	1.3%	144.8	0.9%	100
	Pri.	14.3%	1,519.7	0.6%	61.6	1.4%	143.5	0.9%	100
Other	Sec.	0.4%	110.5	0.5%	135.2	0.4%	107.6	0.4%	100
	Pri.	0.4%	116.0	0.4%	97.1	0.4%	103.1	0.4%	100
Net Assessed Value (Index of Per capita, constant \$ value)	Sec.	105.8		143.6		119.1		100	
	Pri.	104.9		133.1		120.2		100	

fiscal 86/87, it would have to be 45% higher. Respectively, the primary rate would have to be 4.5% higher in 2000/01 compared with 80/81 and 33% higher between 1987/88 and 2000/01. The index of the per-capita, constant-dollar, personal income is also shown. All indexes are using FY 2000/01 as the base year. Comparing the personal income index with the index of the rate shows that in 1990/91 the burden was about the same as in 2000/01. The burden in 1986/87, 1987/88 was 19 to 20 points less, and the tax burden in 1980/81 was about 16 points higher than now.

The chart also gives the percentage of the amounts paid by legislative class. This is the "burden" which each class is carrying. The index of the amount is given as well as the percent of the total amount. As can be seen on the chart, the indexes for owner-occupied residential property and commercial property were well below the personal income index for the same years. This indicates, that for these property classes, the burden was less in relation to income than in years where the index was higher.

The general conclusion of this research is that the tax base is less, now, than it was for many years, and that the burden for raising government income has moved to owner-occupied residential property and local commercial properties. This is due to the nature of the growth of the community, market forces, and legislative changes of assessment ratios.

On an overall basis the per-capita income of the community has almost kept up with the real per-capita value increases, but when looked at on a property class basis, the burden on owner-occupied residential and commercial property has outstripped personal income.

APPENDIX I: TERMS

Assessment ratios.

A percentage that is multiplied by the full cash value and the limited value to determine the assessed value of a property. Assessment ratios are specified by statute and vary by the use of the property.

Constant dollar value (2000 \$).

Sometimes referred to as Real Dollars, it is a monetary amount that has had the influences of inflation taken from it. The values for one year compared to another year will have equal purchasing power. For this report Constant Dollars have been adjusted to the value of a dollar in the year 2000.

Full Net Value (FNV)

The equivalent of the market value of taxable property. It is determined by dividing the total net assessed value of a given legislative class of property by the property class' assessment ratio.

Full Cash Value.

This is the estimate market value of a property unless the method of valuation has been stipulated by statute. Valuation is by the County Assessor's Office or the Arizona Department of Revenue.

Indexing (2000).

A numerical method for expressing values of dissimilar items. The values in a given year are given the value of 100. For all years before and after the base year quantities are calculated based on the percentage change of the underlying values from the base year.

Limited Value.

The procedure for finding the limited value is: The limited value will change the greater of: 1) 10% of the prior years limited value, or 2) 25% of the difference between last year's limited value and the current years secondary value. The limited value is used to determine the primary property tax. ARS §42-13301 Limited Property Value.

Net Assessed Value (NAV)

The value of the property after computing the assessed value with the assessment ratio and subtracting any legal exemptions.

Nominal value

A monetary value that has not been adjusted for inflation. (See Constant dollar value (2000 \$))

Market value

The price of an item arrived at by a willing seller selling to a willing buyer, with neither the seller nor the buyer under stress to buy or sell.

Primary Taxes

Property taxes that are used for daily operations of a jurisdiction.

Secondary Taxes

Property taxes that are used for the payment of debt or jurisdictions that have been approved by the voters.

APPENDIX II: POPULATION ESTIMATES

The following is the method used to determine the population in the years between the 1990 Census and the 2000 Census.

1. Adjustment: April 1, 2000 Census to July 1, 2000 Adjusted Census;

A: 1990 April 1, 1990 Census ³	666,880
B: 2000 April 1, 2000 Census ⁴	<u>843,746</u>
C: Change	176,866
D: Number of days 4/1/90 to 4/1/00	<u>3,653</u>
E: Change per Day (C/D)	48.42
F: Number of Days 4/1/00 to 7/1/00	<u>91</u>
G: Number of People added 4/1/00 to 7/1/00 (E x F)	4,406
H: Census adjusted to July 1, 2000 (B + G)	<u>848,152</u>

2. Adjust years between 1990 and 2000 to the Census 2000 adjusted July 1 population.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
DES Population Estimates ⁵	668,500	682,890	700,265	712,600	728,425	758,575	780,750	789,650	823,900	845,775	866,125 ⁶
Year to Year Change DES		14,390	17,375	12,335	15,825	30,150	22,175	8,900	34,250	21,875	20,350
Total Change 1990 - 2000 DES											197,625
DES Annual Change as % of Total		7.28%	8.79%	6.24%	8.01%	15.26%	11.22%	4.50%	17.33%	11.07%	10.30%
Census; (adjusted to 7/1)	668,500										848,152
Total Change 1990 - 2000 Census											179,652
Calculated Change (Census Total Change Times DES annual % Change)		13,081	15,795	11,213	14,386	27,408	20,158	8,091	31,135	19,886	18,499
Adjusted annual populations between Census	668,500	681,581	697,376	708,589	722,975	750,383	770,541	778,632	809,767	829,653	848,152

³ U. S. Census Bureau: http://www.census.gov/Press-Release/www/2001/tables/az_tab_6.PDF

⁴ U.S. Census Bureau: http://www.census.gov/Press-Release/www/2001/tables/az_tab_6.PDF

⁵ Arizona Department of Economic Security: Intercensal Population Estimate of Arizona Counties, October 2000: [//www.de.state.az.us/links/economic/webpage/popweb/betty70-99.html](http://www.de.state.az.us/links/economic/webpage/popweb/betty70-99.html)

⁶ Arizona Department of Economic Security: July 1, 2000 Population Estimates for Arizona Counties and Incorporated Places. [//www.de.state.az.us/links/economic/webpage/popweb/EEC00.html](http://www.de.state.az.us/links/economic/webpage/popweb/EEC00.html)