Monitoring Our Progress

This monitoring section of the study follows directly from a recommendation found in the Final Report of the Prosperity Strategy completed in 1998. Recommendation 11 in the final report states:

> *Direct SANDAG Staff to support an on-going monitoring process that would result in periodic evaluation of the region's economy, as well as a status report on the ability of the collaborative effort to carry out the main thrust of the Prosperity Strategy[16].*

To monitor the region, data are gathered for more than 30 indicators that are grouped into the categories of economy, environment and equity. More indicators are gathered and presented in this section than utilized in the Sustainable Competitiveness Index section. The Index section uses indicators germane to the construction of the index while this section provides a broader picture of the region and requires more indicators. For some topics, additional San Diego data are presented to provide a more comprehensive view for policy makers. As the Comprehensive Regional Plan is developed, it is likely more indicators will be added to help government officials monitor the region with regard to the goals and objectives enumerated in the regional plan. The groupings and indicators used in this study are presented below:

> ➢ **Economic Indicators**
> 1. The standard of living as measured by real per capita income with supporting employment and wage rate information
> 2. Unemployment rate
> 3. Inflation as measured by the Consumer Price Index [CPI]
> 4. Business investment as measured by venture capital – both dollars raised and the number of companies receiving funding
> 5. Business investment as measured by initial public offerings – both dollars raised and the number of companies going public
> 6. Exports
> 7. Capital facilities investments on air transport as measured by governmental capital outlays on air transport
> 8. Capital facilities investments on sea and inland ports as measured by governmental capital outlays on sea and inland ports
> 9. Capital facilities investments on highways as measured by governmental capital outlays on highways
> 10. Innovation as measured by patents per million population
> 11. Education as measured by the level of attainment of the population aged 25 years or older
>
> ➢ **Environmental Indicators**
> 12. Air quality as measured by the number of days not meeting the US Environmental Protection Agency air quality standards with supporting data on ozone concentration
> 13. Water quality as measured by the Index of Watershed Indicators compiled by the US Environmental Protection Agency with additional information on local tap water quality
> 14. Crime as measured by the total crime rate per thousand population.
> 15. Capital facilities investments on sewerage as measured by governmental capital outlays on sewerage
> 16. Capital facilities investments on solid waste management as measured by governmental capital outlays on solid waste management with additional information on recycling

---

[16] "Evaluating Economic Prosperity in the San Diego Region: 1998 Update", June 1998, page 55.

17. Capital facilities investments on water utilities as measured by governmental capital outlays on water utilities

> ## Equity Indicators
>> 18. Income Distribution as measured by the ratio of mean household income to median household income with supporting data on the percent of individuals above, below, and in the middle income category
>> 19. Housing as measured by the housing opportunity index, median home prices and home ownership
>> 20. Health care as measured by the number of hospital beds per thousand population with additional data on the percent of population without health insurance
>> 21. Education as measured by the number of institutions of higher education, the number of students enrolled in higher education, and the percent of pre-school children in kindergarten and nursery school.
>> 22. Transportation as measured by the average commute time, roadway congestion and unlinked passenger trips per thousand population which is an indicator of mass transit utilization
>> 23. Capital facilities investments on mass transit as measured by governmental capital outlays on mass transit

There are two types of **quantitative analysis** performed for each indicator:
- *Snapshots* – comparing San Diego's data to the data of 20 other metropolitan regions for several years [typically 1990, 1995 and 2000] and rank ordering the results.
- *Time Series Analysis* – tracking the indicators over time. In the time series analysis, San Diego data are compared to similar data for the state of California and the United States for each year for the period 1990 through 2000.

The strengths and weaknesses of each category are ascertained by asking the following three questions of each indicator:
- How are we doing?
- How do we compare?
- Have We Improved?

When answering the question "How do we compare?" the response is based on pre-determined terminology. If San Diego is ranked 1st through 4th, the answer is "Excellent", if ranked 5th through 8th, the response is "Above Average" and so forth. The details of the grading scheme are outlined in Figure 17.

Figure 17
Evaluation Terminology for Key Questions – Grading Scheme

	Description				
	Excellent	Above Average	Average	Below Average	Poor
Rank	1 2 3 4	5 6 7 8	9 10 11 12 13	14 15 16 17	18 19 20 21

When answering the question "Have we improved?" the response is based on examining historical San Diego data and the answer is either yes, no, or mixed results if it is not clear.

An indicator that appears in all three elements of the monitoring section is Capital Facilities Investment, also referred to as Capital Outlays. Highlighted in the following paragraphs are a

discussion about pertinent data issues and a detailed description of the indicator. Much care was taken in the collection of these data in an attempt to accurately capture the implications of Capital Outlays on the future of a region.

Capital Facilities Investment

Capital Facilities Investment refers to capital outlays made by a governmental body. In the San Diego region there is the County government, 18 City governments, and hundreds of Special Districts. All of these organizations have the potential to make capital outlays. Capital outlay indicators are found in each of the sections and this overview provides some insights into the data.

Capital outlays are expenditures to purchase assets or create value that add to the government's net worth and can include real estate, construction, and other assets that have a useful life longer than one year [automobiles, computers, etc.]. For greater detail on the definitions of capital outlays used in this study, see the glossary.

Local governmental capital outlays are examined for two reasons. First, they are under the control of local government jurisdictions and reflect local government policy. Second, capital outlays have an impact on a region today and in the future. For example, capital outlays spent to expand an airport will increase the number of passengers and the amount of cargo that can be transported in and out of a region. Capital outlays, therefore, have long term implications for the development of the economy, the environment, and issues dealing with social equity.

Compiling data on capital outlays for the metropolitan regions is a formidable task. Within a region different jurisdictions have responsibility for different categories of expenditures and this pattern varies between metropolitan regions. In addition, different jurisdictions use different fiscal years, use different schemes to classify their expenditures, and use different accounting systems. Thus, comparing data between metropolitan regions is a major undertaking. To facilitate the process we utilize data from the Bureau of the Census, Governments Division. These data hold merit because of their uniformity and consistency across both geographical and topical areas. The Census Bureau obtains these data from each state's controller's office, after which they classify and compile the database. This "census" of government finance is conducted every five years and this study contains data from the 1982, 1987, 1992 and 1997 census[17].

Using the Census database to obtain local government capital outlays is not without problems. The Census data does not capture Federal government and State government capital outlays made *directly* in a region. In San Diego, for example, the California Department of Transportation [CALTRANS] has direct invests in infrastructure and these expenditures are classified as capital outlays by the State government. However, the Census data are not able to capture these capital outlays as local government capital outlays because they are not "funneled" through a local government agency. Therefore, the Census data undercounts capital outlays made in a region by an outside organization when the funds are not channeled through a local government.
A category for which we have complete data on capital outlays is Mass Transit. In San Diego in 1997, the Bureau of the Census records about $4.5 million in capital outlays. For the same year and category, the Federal Transit Administration [FTA], records about $81.4 million – a difference of about $76.9 million. On a nationwide basis for mass transit, the Bureau of the Census records local governments had capital outlays of about $5.3 billion in 1997. According to the FTA, the total is about $7.6 billion. The difference is $2.3 billion or about 43% of the amount reported by the Bureau of the Census.

---

[17] The Census Department undertakes a sample of jurisdictions every year to compile revenue and expenditure data, however, these sample data are not utilized because they omit jurisdictions that are responsible for certain categories of expenditures. Thus, the sample data are misleading for certain categories of expenditures.

The District of Columbia [part of the Washington DC metropolitan region] has its own unique issues because it is a combination of local and state government. Part of the government's revenues comes from the Federal Government, and in many states these categories of transfers might go to a State government. Thus, DC's capital outlays may include items usually done at the state level in other states. From this perspective, the District of Columbia may have capital outlays that are higher than might normally be expected. In addition, the Federal government often makes direct investments in the District of Columbia. This problem may also occur in cities that are State government capitals – such as Sacramento, Boston, etc.

For this report we note the differences between FTA and Census data and hope to be able to uncover the cause of the divergence the next time the Index is compiled. For now, we use the Bureau of the Census data because it offers consistency across all jurisdictions and all categories of expenditures and revenues.

For local governments, the share of total expenditures spent on capital outlays varies between jurisdictions. For San Diego, about 15% of all expenditures are capital outlays. For all local jurisdictions in the United States, the average spent on capital outlays is about 13% [see Figure 18].

Figure 18

Local Government Expenditures in 1997
in nominal dollars

San Diego Total Expenditures
$9.7 billion

United States Total
Expenditures = $852.0 billion

Expenditures (not including capital outlays)
$8.2 billion
85%

Capital Outlays
$1.5 billion
15%

Expenditures (not including capital outlays)
$738.5 billion
87%

Capital Outlays
$113.6 billion
13%

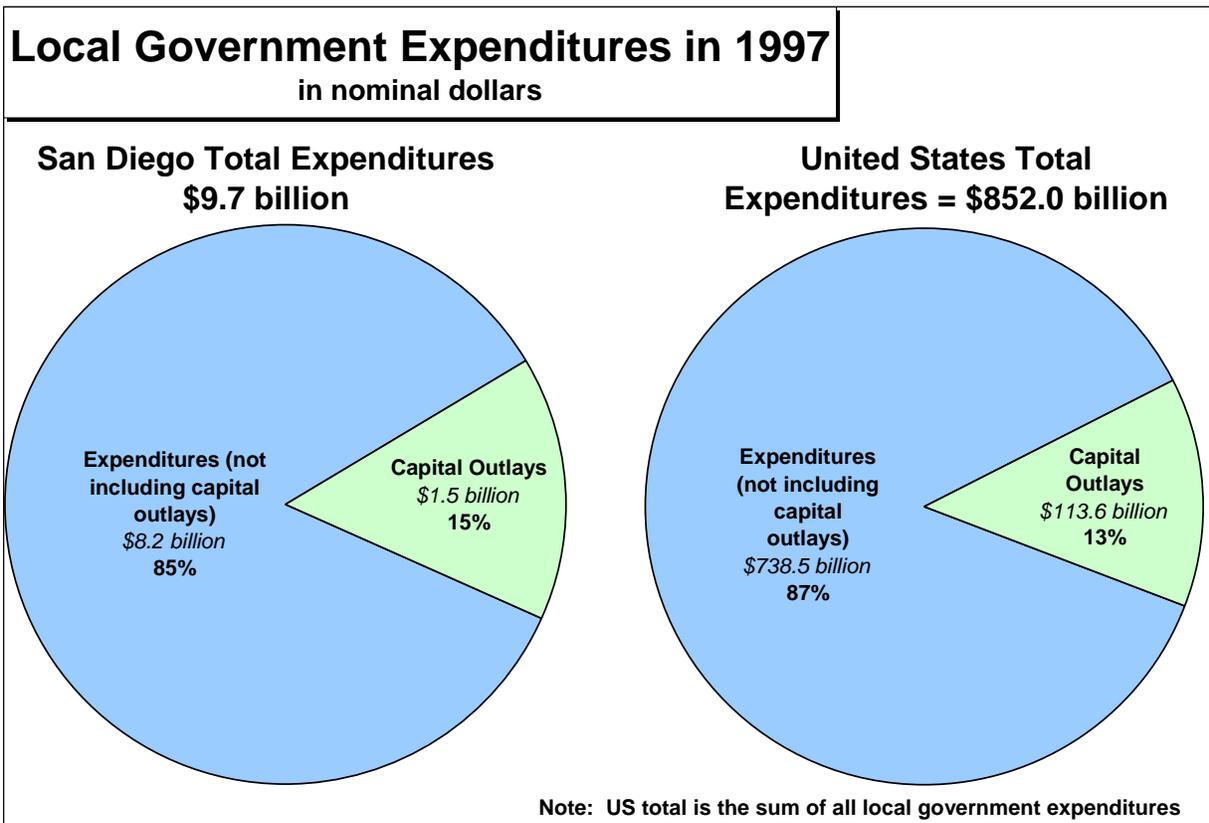**Note: US total is the sum of all local government expenditures**

Figure 19

This study focuses on capital outlays in seven Core areas – Air Transport, Highways, Mass Transit, Sewerage, Solid Waste, Sea & Inland Ports, and Water Utilities. The share of Capital Outlays spent on these Core areas varies dramatically by region. For the jurisdictions in San Diego, about 56% of all capital outlays are spent on these seven areas in 1997 [see Figure 19].
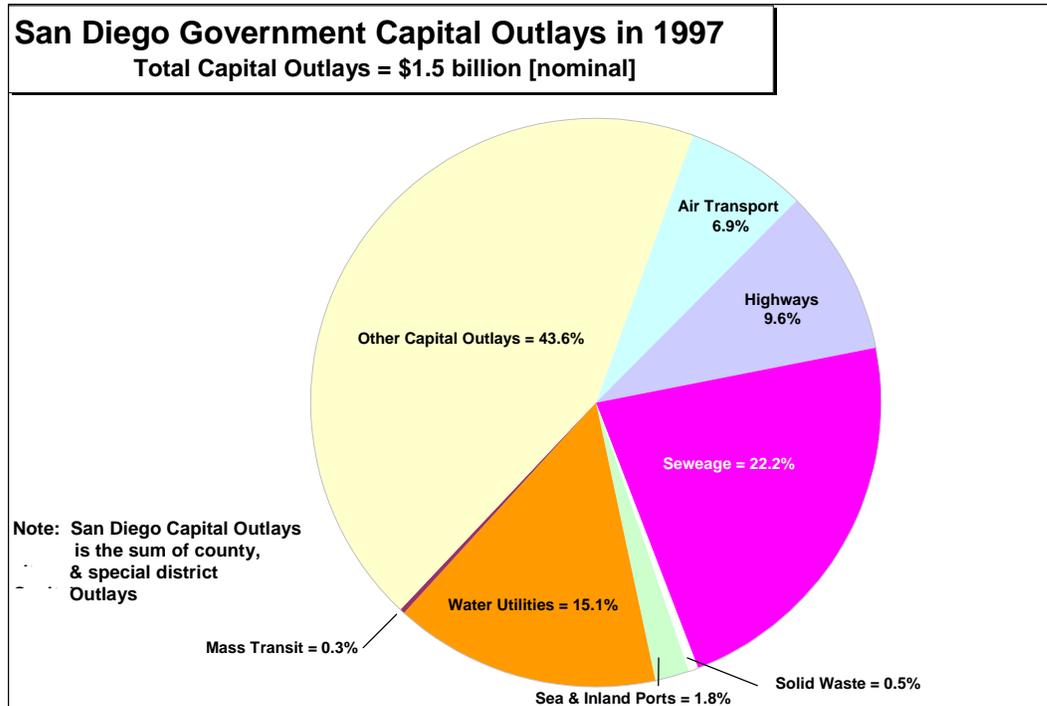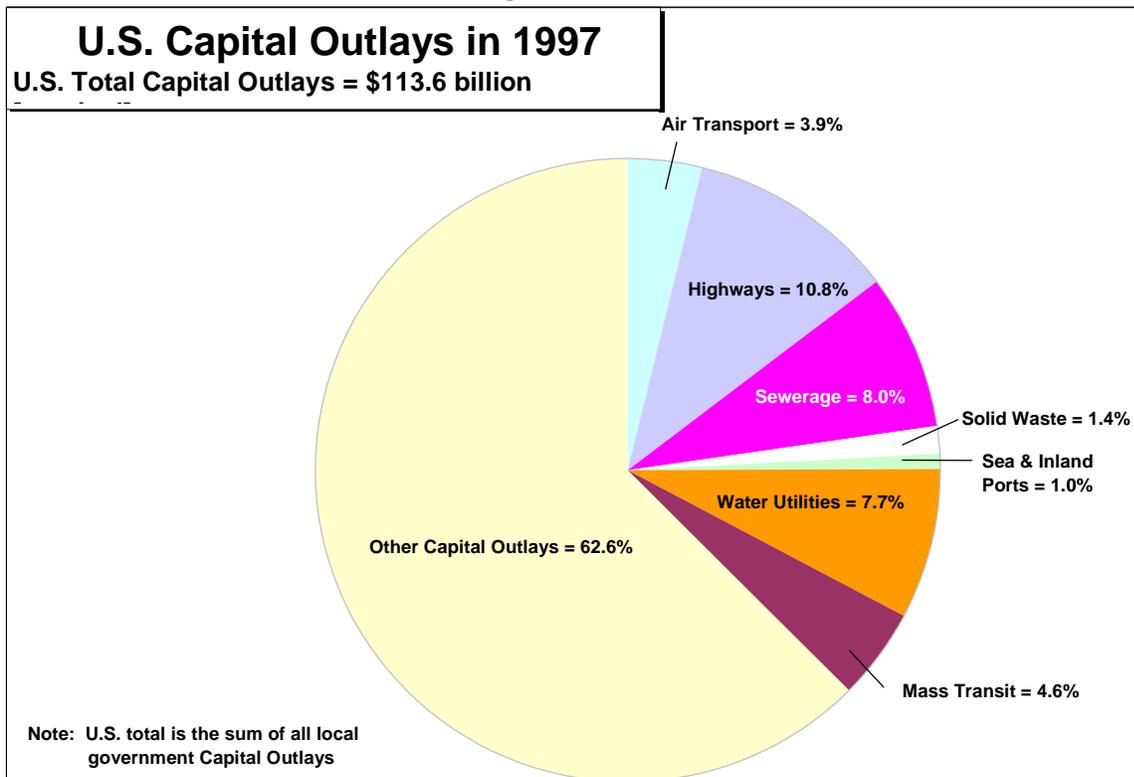
**San Diego Government Capital Outlays in 1997**
Total Capital Outlays = $1.5 billion [nominal]

- Air Transport 6.9%
- Highways 9.6%
- Seweage = 22.2%
- Other Capital Outlays = 43.6%
- Water Utilities = 15.1%
- Mass Transit = 0.3%
- Sea & Inland Ports = 1.8%
- Solid Waste = 0.5%

Note: San Diego Capital Outlays is the sum of county, & special district Outlays

Figure 20

U.S. Capital Outlays in 1997
U.S. Total Capital Outlays = $113.6 billion

- Air Transport = 3.9%
- Highways = 10.8%
- Sewerage = 8.0%
- Solid Waste = 1.4%
- Sea & Inland Ports = 1.0%
- Water Utilities = 7.7%
- Mass Transit = 4.6%
- Other Capital Outlays = 62.6%

Note: U.S. total is the sum of all local government Capital Outlays

Nationwide, local jurisdictions spent about 33% of their capital outlays on these seven categories [see Figure 20].

To determine if there have been any "real" changes in capital outlays, the nominal dollars data presented above are converted to dollars that are adjusted for inflation using the Implicit Price Deflator [IPD]. After conversion it is learned that San Diego total capital outlays in constant 2000 dollars increase from about $609.7 million dollars in 1982 to about $1.55 billion in 1997 – an increase of about 154%. Nationwide, in constant 2000 dollars, all local jurisdictions increased their total capital outlays from about $60.5 billion in 1982 to about $119.1 billion in 2000 – an increase of about 97%.

To determine the rate at which capital outlays are spent per resident, the inflation adjusted capital outlay data are divided by the regions population to obtain capital outlays per capita in constant 2000 dollars. After the computation it is learned that San Diego governments and special districts spent about $308 per capita in 1982 and about $569 per capita in 1997. This represents an increase of about 84% over the fifteen-year period. In short, there have been "real" increases in capital outlays per capita in San Diego. For the U.S., total capital outlays per capita in constant 2000 dollars increased about 70% during the same time period – from $261 in 1982 to about $444 in 1997 [see Figure 21]. For the four years for which we have data, governments in the San Diego region have spent more on total capital outlays than the average observed nationwide. Further, the increase in capital outlays has been at a faster rate in San Diego when compared to the U.S.

Figure 21
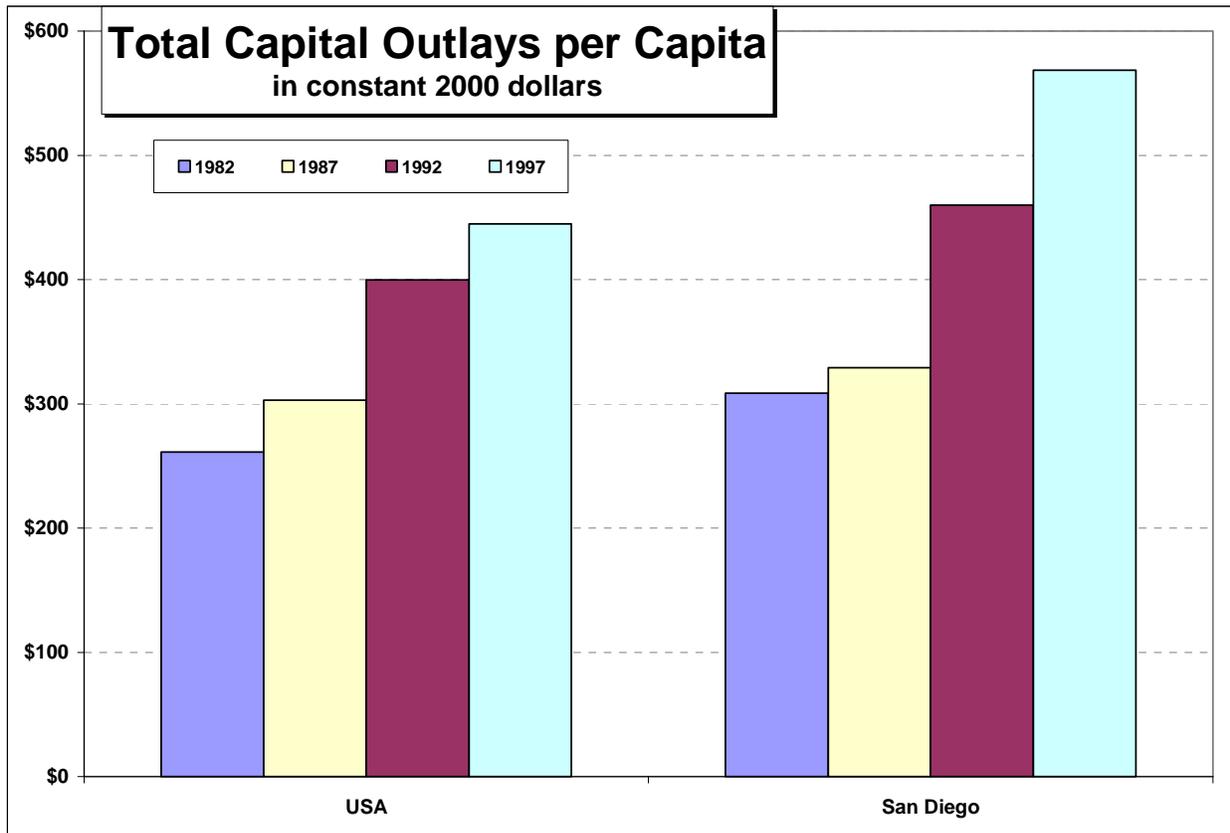
Most of the remaining capital outlay analysis in this study uses capital outlays per capita data in constant 2000 dollars. By doing so, we account for inflation and differences in regional populations.

➢ Economic Indicators

The focus of this category is on the economic vitality of San Diego. Indicators include real per capita income, the unemployment rate, inflation as measured by the consumer price index, revenue raised from venture capital [VC], revenue raised from initial public offerings [IPOs], exports, governmental capital outlays on air transport, sea and inland ports, and highways, patenting and the level of educational attainment for the population aged 25 years and older. All of these indicators are chosen because of their direct link to the economic well being of the region.

Figure 22

How Does San Diego Compare? - Economy					
To 20 Other Metropolitan Regions					
Indicator	**Excellent**	**Above Average**	**Average**	**Below Average**	**Poor**
Per Capita Income				✔	
Unemployment Rate				✔	
Inflation			✔		
Venture Capital [2 indicators]		✔	✔		
Initial Public Offerings [2 indicators]	✔✔				
Exports		✔			
Capital Outlays on Air Transport		✔			
Capital Outlays on Sea and Inland Ports		✔			
Capital Outlays on Highways			✔		
Patenting		✔			
Education				✔	
SUM OF ECONOMY INDICATORS	2	5	3	3	0
Distribution	15.4%	38.5%	23.1%	23.1%	0.0%

Strengths
San Diego shows strength in its ability to raise money via initial public offerings where it is ranked 3rd. San Diego's innovation ability as measured by patenting is rated above average as it is ranked 7th. The ability to raise money via Venture Capital is another San Diego strength as San Diego is rated above average or average depending on the indicator selected. The level of monies raised from IPOs has grown dramatically in San Diego during the last decade. While VC funds also experienced a dramatic increase, the growth of the VC indicator lagged that of the leading regions due to the "dot.com bubble". In other areas, exports from San Diego are ranked 8th, governmental capital outlays on sea and inland ports are ranked 5th, and capital outlays on air transport are ranked 6th. These capital outlay data are on a per capita basis in constant 2000 dollars.

San Diego is ranked Excellent or Above Average for about 54% of all the comparisons made for all the Economic indicators.

Weaknesses

San Diego was not ranked "poor" for any economic indicator, however, San Diego was rated below average for the unemployment rate, which is ranked 14th, real per capita income, which is ranked 16th, and the level of educational attainment, which is ranked 14th. Although the unemployment rate in San Diego declined between 1993 and 2000, San Diego's unemployment rate did not decline as fast as that of other metropolitan regions. Further, San Diego continues to add jobs in low paying industries at a faster rate than jobs added in high paying industries. The effect has been a slow increase in real per capita incomes. Only when the numbers of jobs in high paying industries are added as fast as the number of jobs in low paying industries will real per capita income show substantial improvement in the region.

Figure 23

Has San Diego Improved? - Economy			
Compared to historical San Diego data			
Indicator	**Yes**	**No**	**Mixed Results**
Per Capita Income	⇧		
Unemployment Rate	⇧		
Inflation		⇩	
Venture Capital	⇧		
Initial Public Offerings	⇧		
Exports	⇧		
Capital Outlays on Air Transport	⇧		
Capital Outlays on Sea and Inland Ports			⇔
Capital Outlays on Highways	⇧		
Patenting	⇧		
Education	⇧		
SUM OF ECONOMY INDICATORS	9	1	1
Distribution	81.8%	9.1%	9.1%

Another strong point, San Diego has seen improvement in about 82% of the Economic indicators during the last decade.
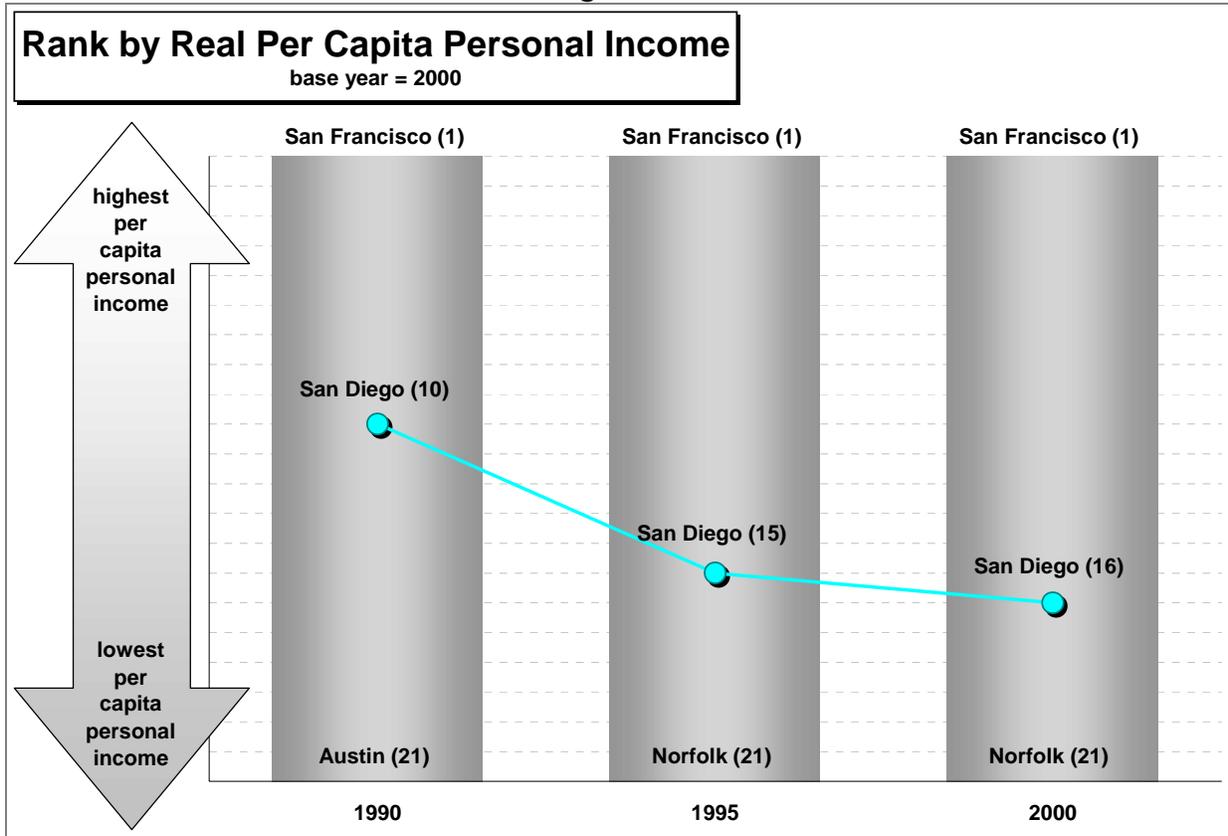
1. Per Capita Income

How Is San Diego Doing?

Between 1990 and 2000 real per capita income increased from about $27,703 per year to $31,357 [both figures in constant 2000 dollars]. This increase represents a compound annual growth rate of about 1.25% per year.

Below Average for 2000. When compared to 20 other metropolitan regions, San Diego's ranking fell from 10th in 1990 to 15th in 1995 and 16th in 2000 [see Figure 24]. San Francisco is ranked first during all three periods with the highest per capita income. Austin is ranked last in 1990 while Norfolk is ranked last in 1995 and 2000.

Figure 24

Rank by Real Per Capita Personal Income
base year = 2000

Compared to California and United States data, San Diego's per capita income is slightly better but still average. San Diego's per capita income is higher than the US average for every year between 1990 and 2000 [see Figure 25]. However, the US grew at a faster rate (1.5% annual average) between 1990 and 2000. Compared to California, San Diego's per capita income is less than the state average between 1987 and 1996, then increased above the state average for 1997, 1998 and 1999. The 2000 data reveal San Diego's per capita income is again below the state average.

Figure 25

Real Per Capita Personal Income: 1980-2000
base year = 2000

Legend:
- San Diego
- California
- United States
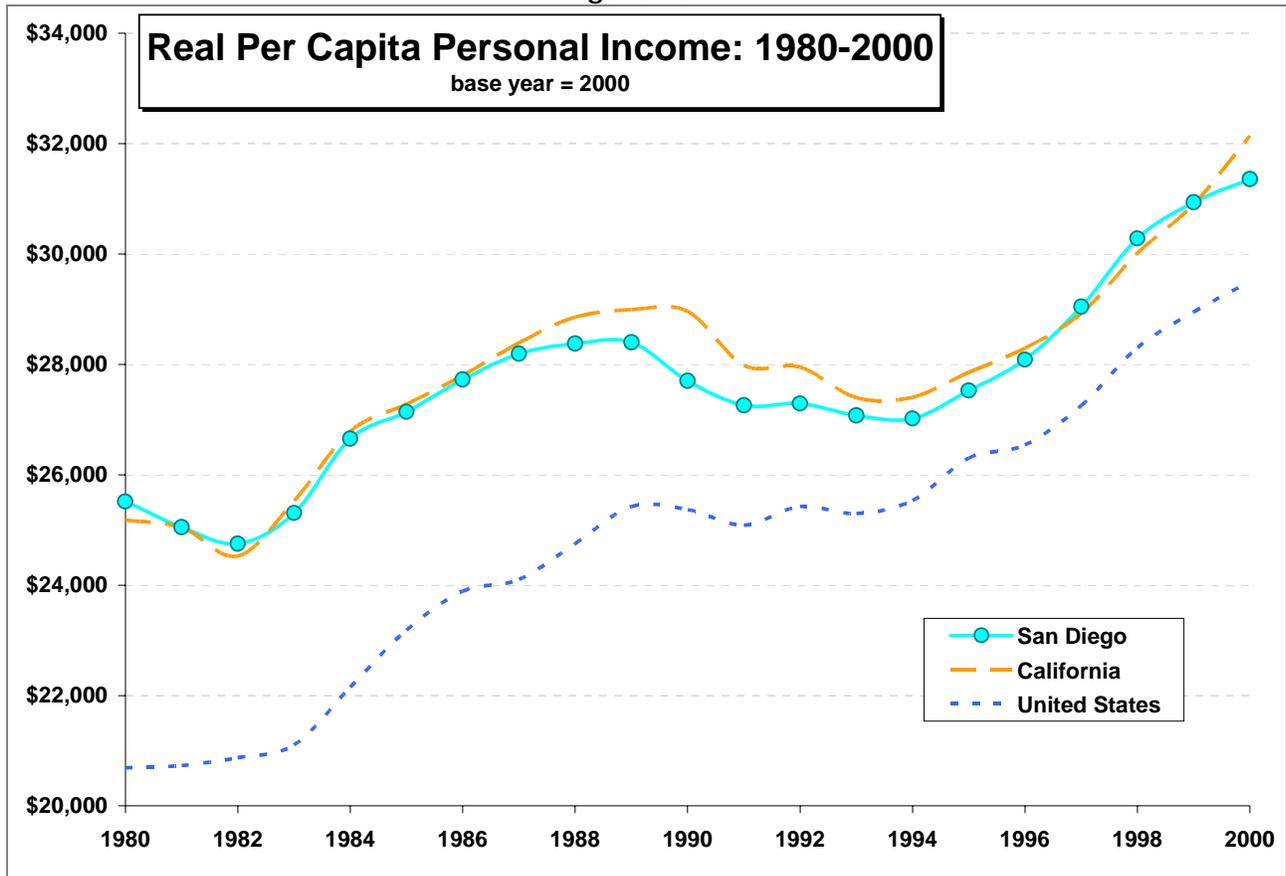
Have We Improved?
Yes. Based on historical San Diego data, these per capita incomes are adjusted for inflation, thus, the standard of living improved – but barely. United States per capita income grew faster than San Diego's, and, since San Diego's ranking amongst the 21 metropolitan regions declined after 1990, it appears San Diego's per capita income did not maintain pace with the nation or other regions. To highlight this fact an index is created with 1980 as the base year for San Diego, California and the US. It becomes clear from the graph that San Diego's rate of increase in real per capita income has fallen behind that of the US since 1980. While the absolute level of income is higher in San Diego compared to the US, the difference between the two has declined over the last 20 years. In fact, there are only six years in the last 20 when the rate of increase in San Diego's real per capita income has been greater than the increase of real per capita income for the US [see Figures 26 and 27 on the following page].
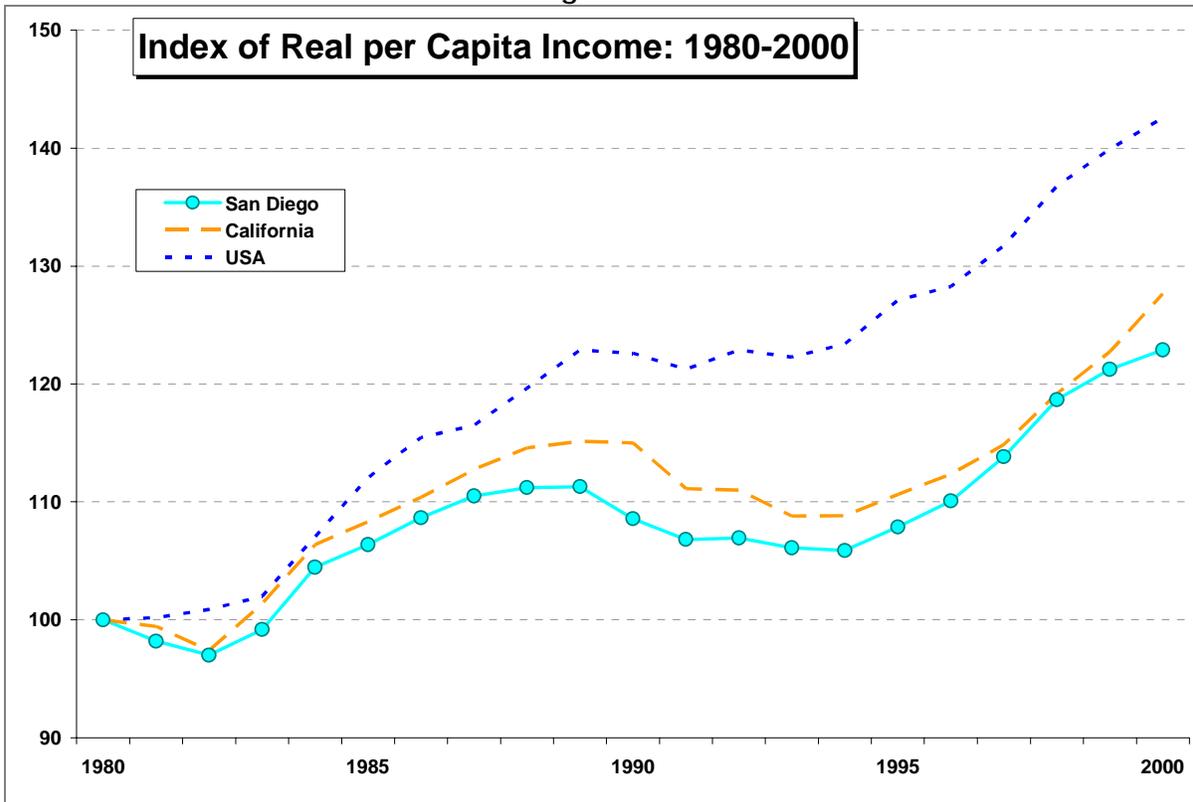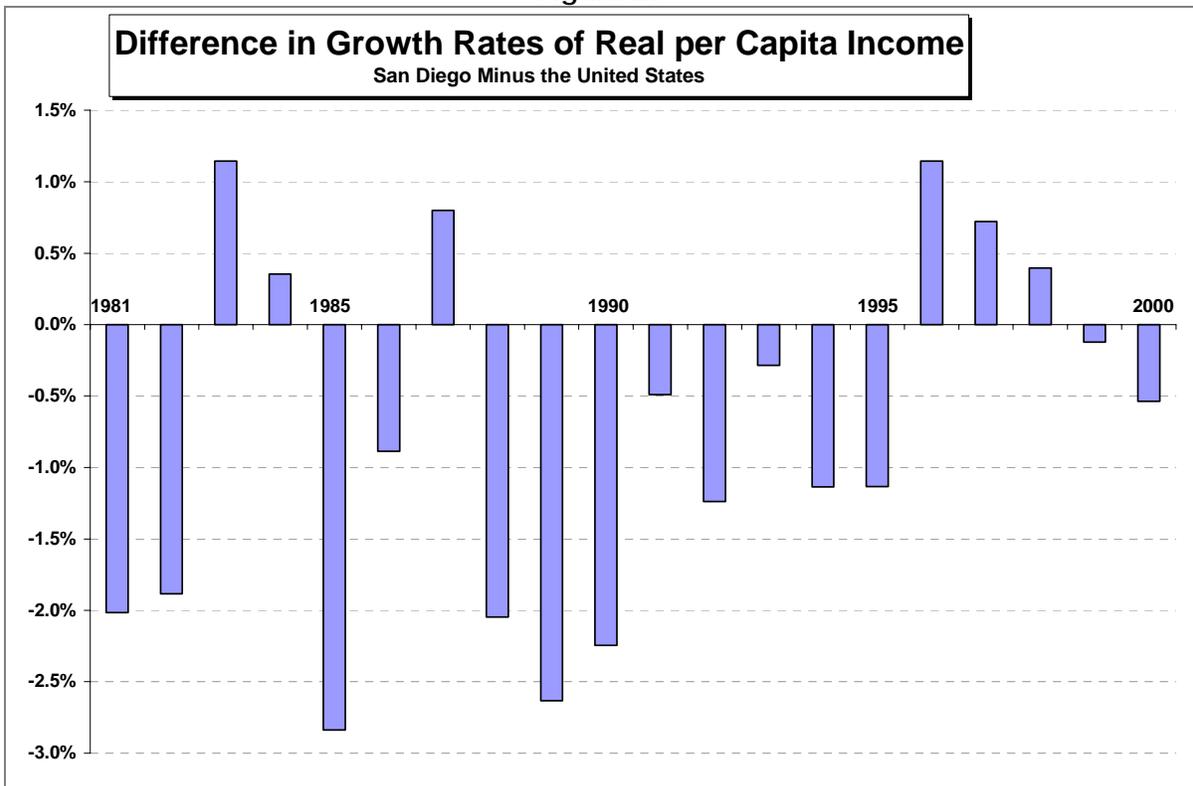
Figure 26

Index of Real per Capita Income: 1980-2000

Legend:
- San Diego
- California
- USA

Figure 27

Difference in Growth Rates of Real per Capita Income
San Diego Minus the United States

Between 1990 and 1994 San Diego's real per capita income **declined** from $27,703 to $27,018 – a compound annual decline of 0.6% per year. Between 1994 and 2000 real per capita income **increased** from $27,018 per year to $31,357 – a compound annual growth rate of 2.5% per year. Thus, 1994 marks the turning point where per capita income stopped declining and actually began increasing. What causes real per capita incomes to increase after 1994? Was job growth the driver, or was wage growth responsible for the increase? The Prosperity Strategy from 1998[18] pointed to an imbalance in job creation where low paying industries were hiring more people than high paying industries. If this trend continued, it would suggest that job growth would not alone lead to income growth.

To investigate these issues, employment and wages by 2-digit Standard Industrial Classification [SIC] code for the years 1991, 1994 and 2000 are selected and analyzed for the San Diego region. By comparing employment and average wage for these three years, we can determine if employment in high paying industries is growing faster than employment in low paying industries. To conduct this analysis, average wages per employee by 2-digit SIC code industry are rank ordered from the highest average wage to the lowest average wage. High paying industries are defined as those industries with the highest wages whose aggregate payroll accounts for 50% of the region's total payroll. The remaining industries are divided into two categories – medium paying industries and low paying industries.

Figure 28

---
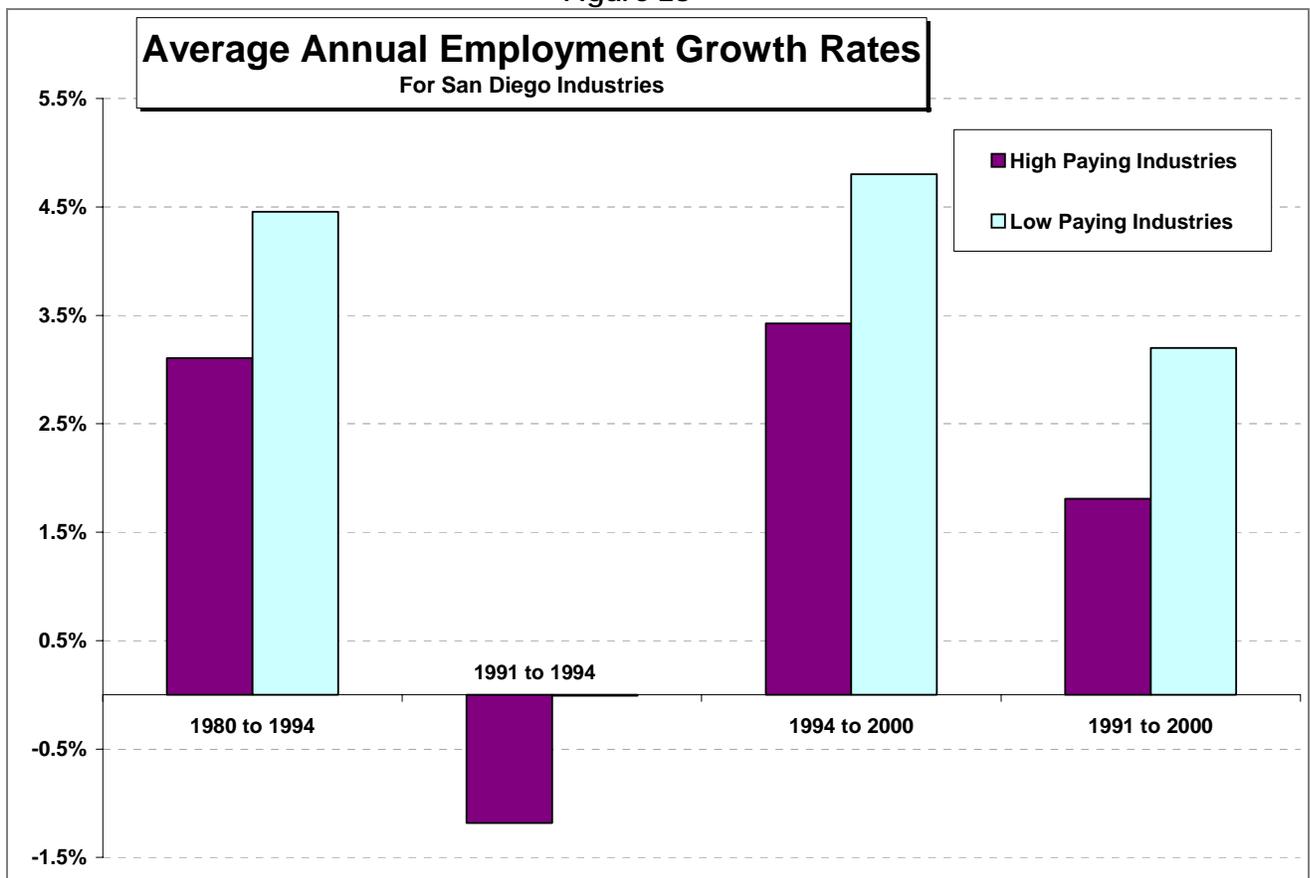
[18] "Evaluating Economic Prosperity in the San Diego Region: 1998 Update", June 1998

Results for 2000 reveal that the high paying industries account for about 32% of total employment. Industries with the lowest average wage per employee account for about 34% of regional employment but only 17% of total payroll. The growth rate for employment by the high paying and low paying industries are calculated, and it becomes clear that the number of low paying jobs has consistently grown faster than the number of high paying jobs [see Figure 28, previous page].

Between 1980 and 1994, seven jobs were created in high paying industries for every ten jobs created in low paying industries and the ratio remained almost unchanged between 1994 and 2000[19]. Since the number of jobs created in low paying industries continues to dominate, what causes the increase in real per capita income? To answer this question we examine the growth rate of average wages for all industries. Results reveal that the average wages in higher paying industries increase substantially faster than wages for lower paying industries – and this is a major factor leading to increases in real per capita income [see Figure 29].

Figure 29
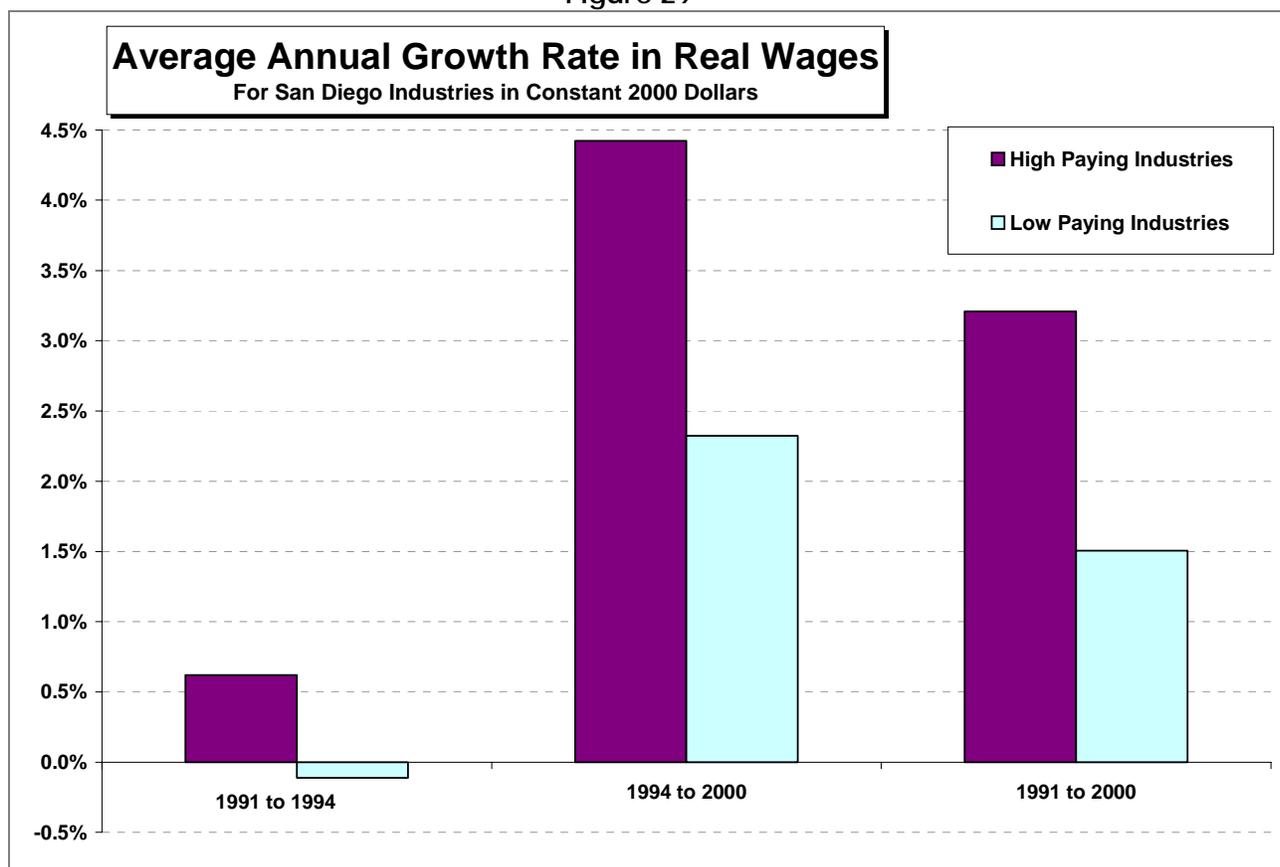
Between 1991 and 1994 real wages only increased in the high paying industries. Between 1994 and 2000 real wages for the high paying industries increased at an annual average rate of 4.4% compared to 3.3% for the entire region and 2.3% for low paying industries. In other words, real wages in the high paying industries rose 91% faster than real wages in low paying industries for the period 1994 to 2000. While jobs are being created at a faster rate in the low paying industries, the slow growth in wages in the low paying industries are being offset by much faster growing wages in the high paying industries. All of the data for this analysis is contained in the appendices.

---

[19] This ratio is estimated by dividing the growth rate in employment in high paying industries by the growth rate in employment in low paying industries. The ratio for the period1980 to 1994 ratio is 0.697 while the ratio for the period 1994 to 2000 is 0.714.

Next we seek to understand where the growth in wages and employment is occurring. Rather than use the industry data previously examined, we examine employment clusters in the San Diego region[20]. These clusters are Biomedical Products, Biotechnology and Pharmaceuticals, Business Services, Communications, Computer and Electronics Manufacturing, Defense and Transportation Manufacturing, Entertainment and Amusement, Environmental Technology, Financial Services, Fruits and Vegetables, Horticulture, Medical Services, Recreational Goods Manufacturing, Software and Computer Services, Visitor Industry Services and the Uniformed Military. Data from the Uniformed Military cluster are omitted since local government has no influence on employment or pay for this group. Thus, the analysis focuses on 15 clusters and all of these data are found in the appendix.

The major insights from the cluster analysis:
- Employment is increasing at a faster rate in the clusters when compared to employment outside the clusters.
- Wages are increasing at a faster rate in the clusters when compared to wages outside the clusters [analysis in nominal dollars – see Figure 30].

Figure 30
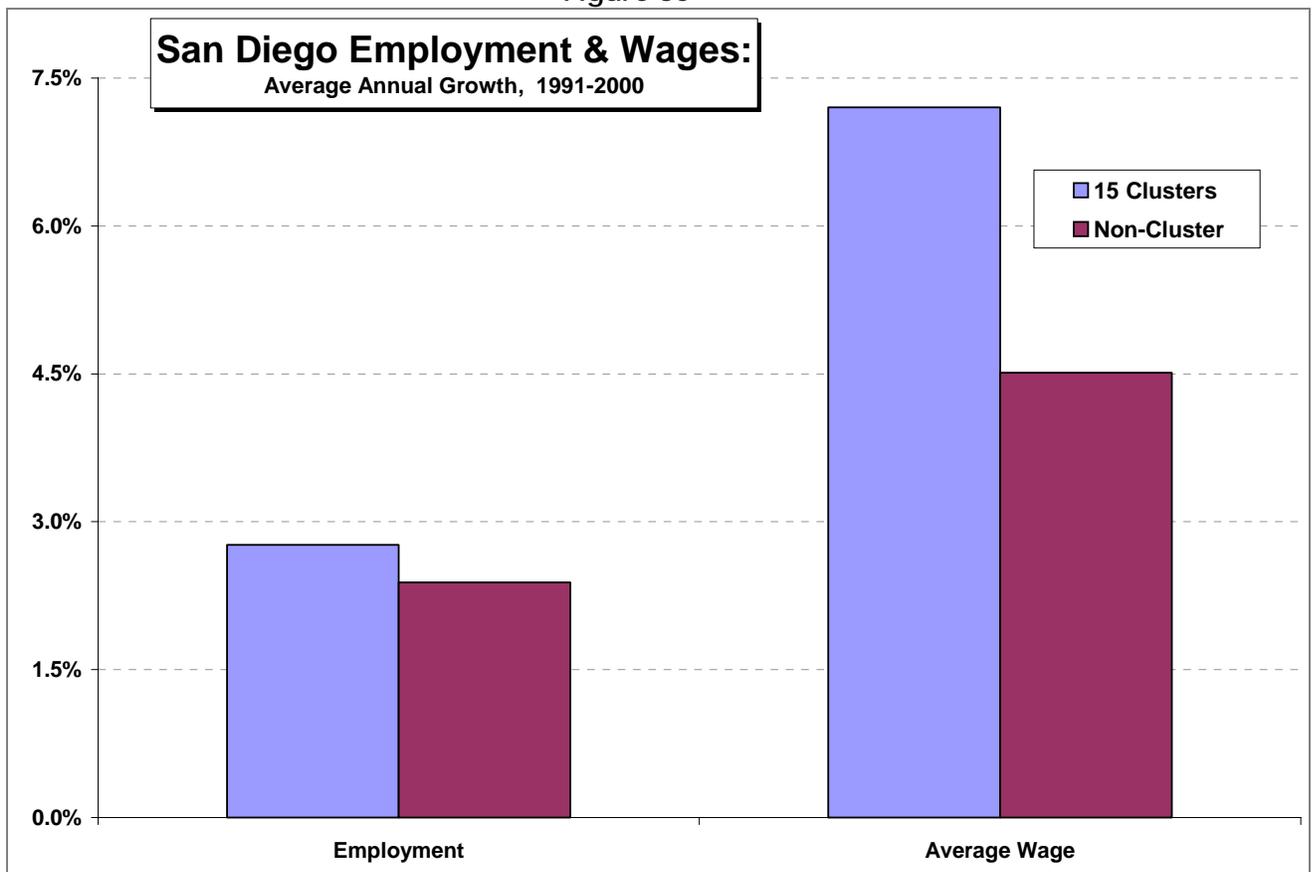
In 1991 about 35% of San Diego's employment was located in the 15 clusters. By 2000 this had increased slightly to 35.7%. The main reason employment in the clusters did not grow faster between 1991 and 2000 is because employment in Defense and Transportation Manufacturing cluster declined at an annual rate of 6.2% between 1991 and 2000. Most of the contraction in this cluster occurred between 1991 and 1995 as employment shrank by about 20,400 people or about

---

[20] Clusters are defined as groups of complimentary, competing and interdependent industries that drive wealth creation in a region.

50%. Excluding the Defense and Transportation Manufacturing cluster, the remaining 14 clusters grew an average of 4.0% per year for the period 1991 to 2000. The fastest growing clusters between 1991 and 2000 in terms of average annual rate of growth in employment are the following:

- Software and Computer Services, up 15.4% per year
- Recreational Goods Manufacturing, up 13.7% per year
- Communications, up 11.3% per year

The largest clusters in terms of employees in 2000 are the following:

- Business Services with 97,062 employees or 22.7% of the cluster total
- Visitor Industry services with 83,255 employees or 19.5% of the cluster total
- Medical Services with 71,889 employees or 16.8% of the cluster total

In terms of wages, the clusters with the fastest growing average annual wages between 1991 and 2000 are the following:

- Communications, up 21.0% per year
- Computer & Electronics Manufacturing, up 9.9% per year
- Biotechnology & Pharmaceuticals, up 9.5% per year
- Recreational Goods Manufacturing, up 9.3% per year

The clusters with the highest average annual wages in 2000 are the following:

- Communications, with $116,301
- Software and Computer Services, with $79,360
- Computer and Electronics Manufacturing, with $72,616
- Biotechnology and Pharmaceuticals, with $70,259

The average wage for employees in the 15 clusters is $45,549 per year. The average wage for all *non-cluster* employees is $33,145 in 2000, while the average wage for all employees in the region is $37,571. In short, the clusters are leading the region to higher employment and higher wages.
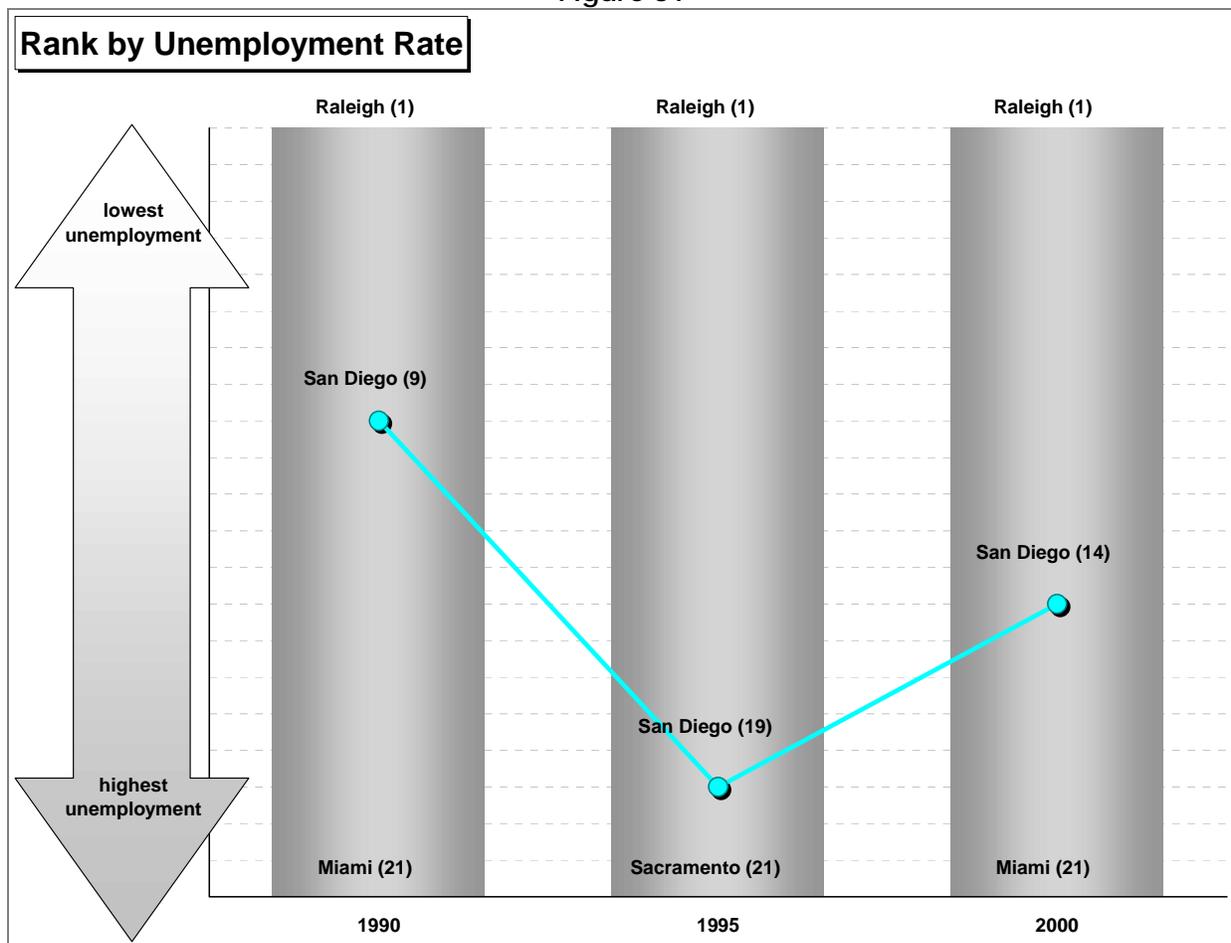
2. Unemployment Rate

How Is San Diego Doing?
San Diego's unemployment rate declined from 4.4% in 1990 to 3.0% in 2000. However, the years in between were difficult as San Diego underwent a major restructuring during a period when the economy was sluggish. The unemployment rate peaked in 1993 at 7.7% before falling to the 3.0% level in 2000.

How Do We Compare?
Below Average for 2000. When compared to 20 other metropolitan regions, San Diego's ranking fell from 9th in 1990 to 19th in 1995 before rising to 14th in 2000 [see Figure 31]. Raleigh-Durham-Chapel Hill is ranked first for all three periods implying it is the best and has the lowest unemployment rate. Miami is ranked last in 1990 and 2000 while Sacramento is ranked last in 1995 implying they have the highest unemployment rates.

Figure 31

Rank by Unemployment Rate

Compared to California and United States data, San Diego's unemployment rate is slightly better. In fact, San Diego's unemployment rate over the decade is lower than that of California while there were only three years [1993 and 1995] in which it was higher than the US average [see Figure 32].

Figure 32

Unemployment Rate: 1990 - 2000
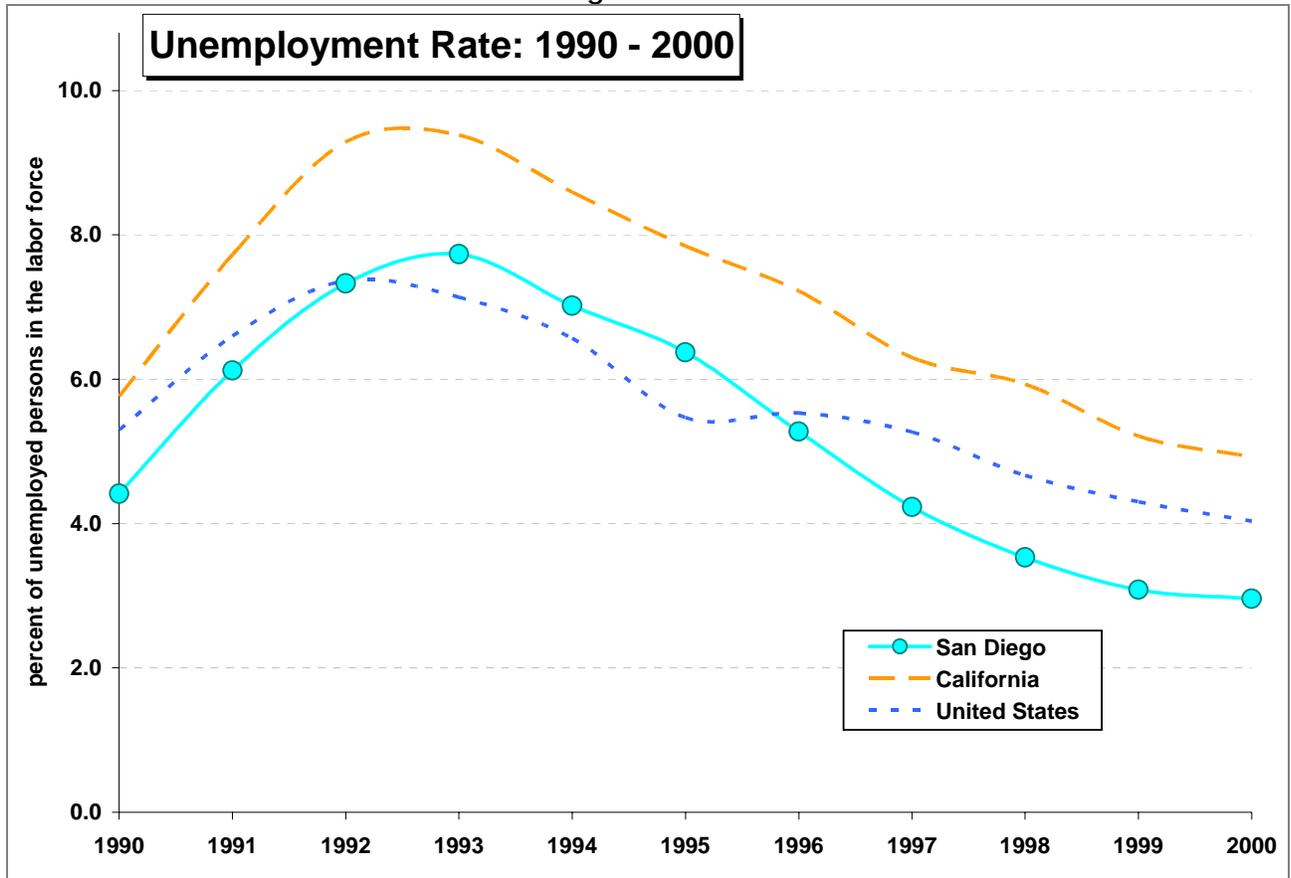
Have We Improved?

Yes. Based on historical san Diego data, not only is the unemployment rate lower, but San Diego's ranking amongst 21 regions improved between 1995 and 2000. In fact, San Diego's unemployment rate is lower than the United States rate for every year since 1996.

3. Inflation as measured by the Consumer Price Index [CPI]

The consumer price index [CPI] is a measure of the average change in prices over time for a "market basket" of goods and services purchased by all urban consumers. The basket of goods includes food, clothing, shelter, fuels, transportation fares, charges for doctors and dentists' services, medications, etc.
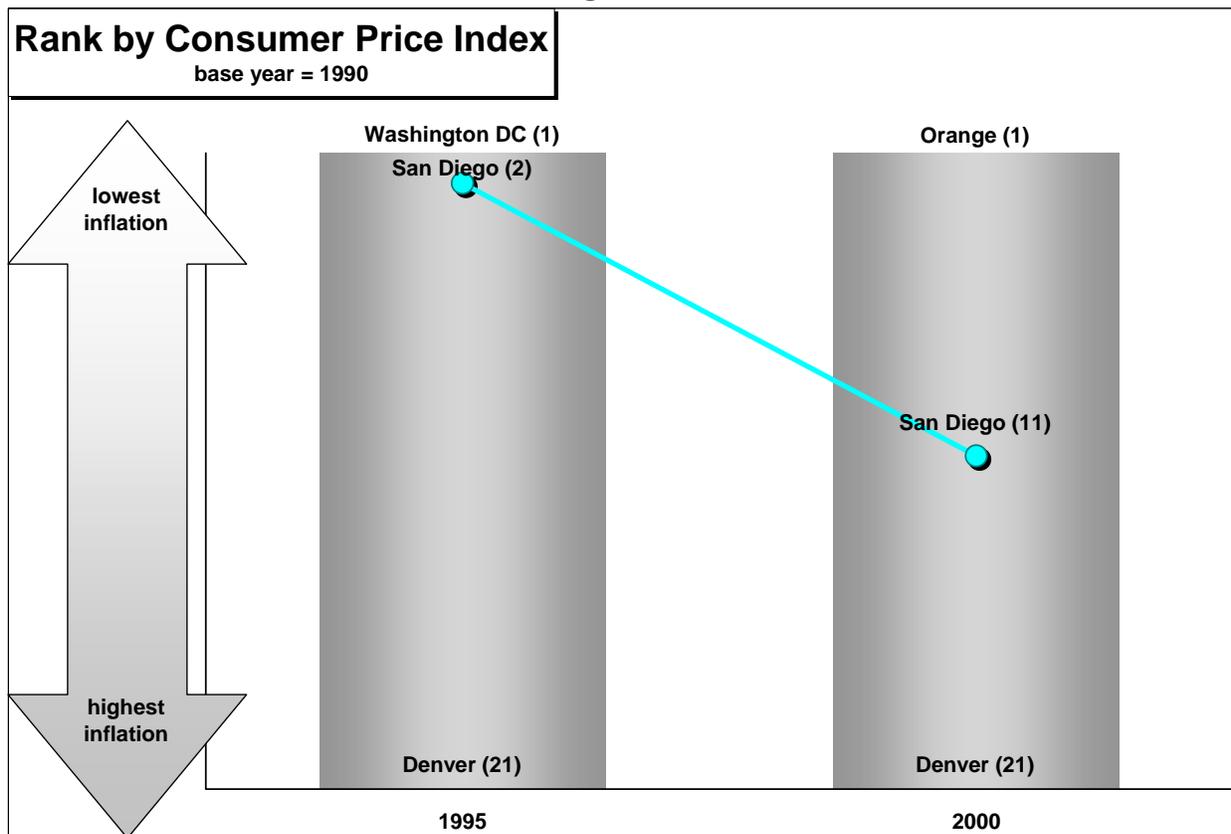
How Is San Diego Doing?
With 1990 as the base year, the CPI increased from 100 in 1990 to 132.1 in 2000. This is a 32.1% increase in consumer prices over the period for an average increase of 3.2% per year.

How Do We Compare?
Average for 2000. Ranking the CPI for all 21 metropolitan regions reveals that San Diego ranked 2nd in 1995 and 11th in 2000, indicating that its rate of inflation was higher than most of the other metro areas [see Figure 33]. Washington DC ranked 1st in 1995 and Orange ranked 1st in 2000 implying these regions are best with the lowest rate of inflation. Denver is ranked last in 1995 and 2000 with the highest rate of inflation.

Figure 33

Rank by Consumer Price Index
base year = 1990

lowest inflation

highest inflation

Washington DC (1)
San Diego (2)

Orange (1)

San Diego (11)

Denver (21)

Denver (21)

1995

2000

San Diego's rate of inflation is lower compared to inflation data for the US and California for the years 1990 through 1997. Beginning in 1997 the rate of change in inflation accelerates and by 2000, San Diego's CPI is very similar to that of California and the US [see Figure 34]. Between 1990 and 1997, San Diego's CPI increased at an average rate of 2.4% per year. Between 1997 and 2000 San Diego's CPI increased at an average of 3.7% per year. The major cause of the post-1997 increase has been rising housing costs, which are reflected in a rapid increase in the housing component of CPI.

Figure 34

Consumer Price Index: 1990-2000
base year = 1990

Legend:
- San Diego
- California
- United States
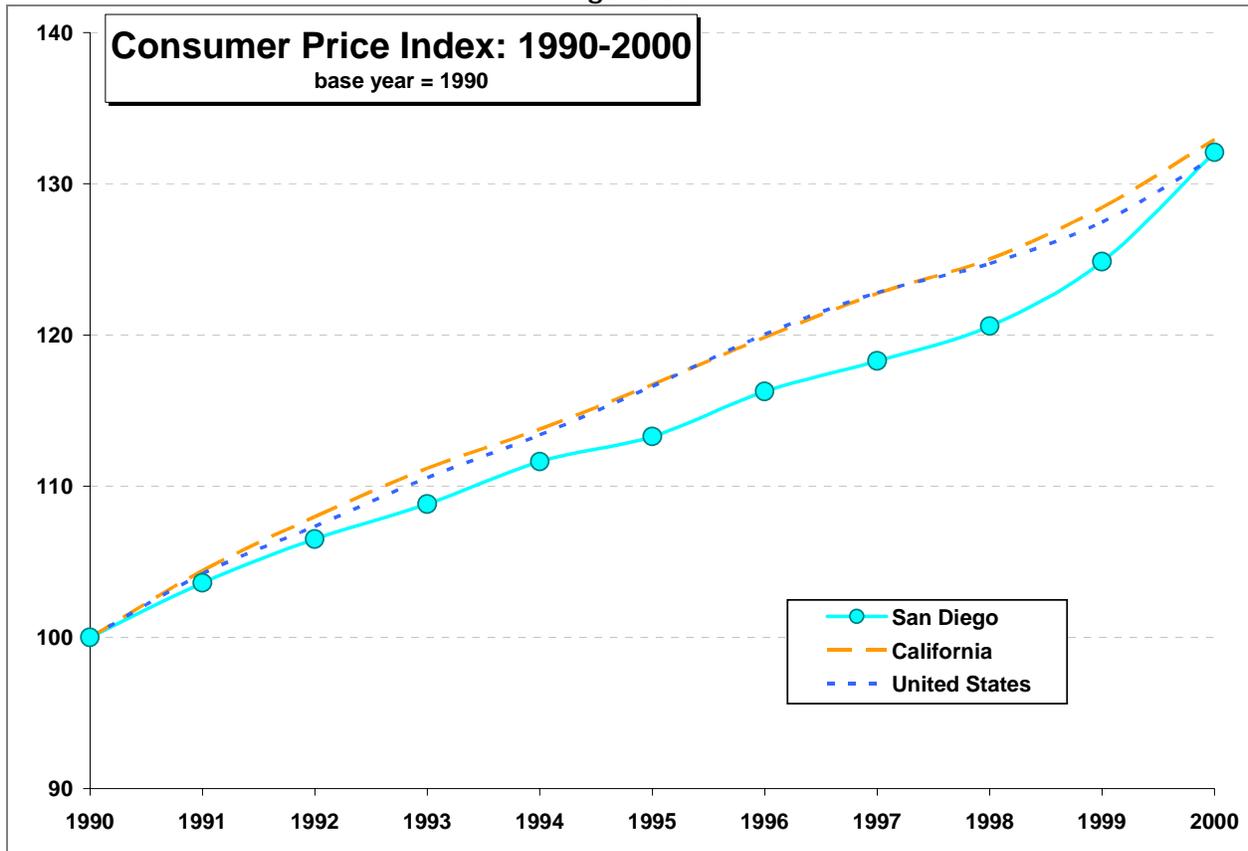
<u>Have We Improved?</u>

No. Based on historical San Diego data, the last few years' inflation has surged with the cost of housing being the main culprit. Between January 1997 and January 2000, the median price of homes sold in San Diego increased to $220,000 from $165,000 – a 33.3% increase or $55,000 in three years [see Figure 35]. By February 2002 the median price of homes sold in San Diego rose to $300,000 – another 36% increase over the 2000 figure.

Figure 35
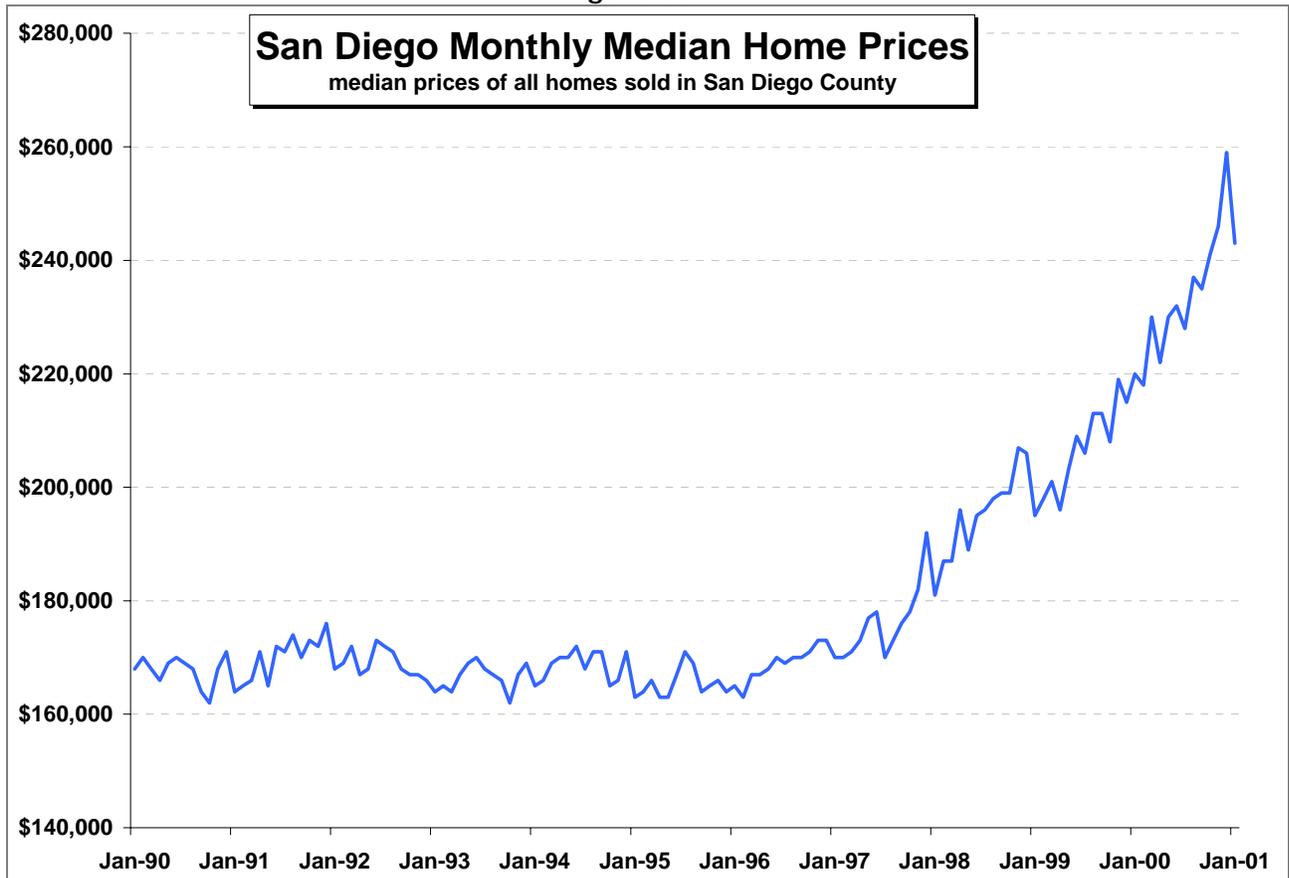
This increase in housing prices caused the CPI to increase at a much faster rate than other metropolitan regions – and that is the reason San Diego's ranking dropped from 2nd to 11th amongst the 21 regions.

4. Venture Capital [VC]

How Is San Diego Doing?
The number of firms receiving venture capital funding increased almost four-fold from 46 in 1990 to 162 in 2000. At the same time, the amount of money invested increased fifteen-fold from $0.145 billion in 1990 to $2.185 billion in 2000.

How Do We Compare?
Average for 2000. Two comparisons are made. First the total dollars of VC funding is rank ordered for all 21 regions. In this analysis San Diego is ranked 4th in 1990, 5th in 1995 and 9th in 2000. San Jose is ranked first in 1990 and San Francisco is ranked first in 1995 and 2000 implying these regions raised the most VC money. Norfolk is ranked last in all three periods implying it raised the least amount of VC funds.
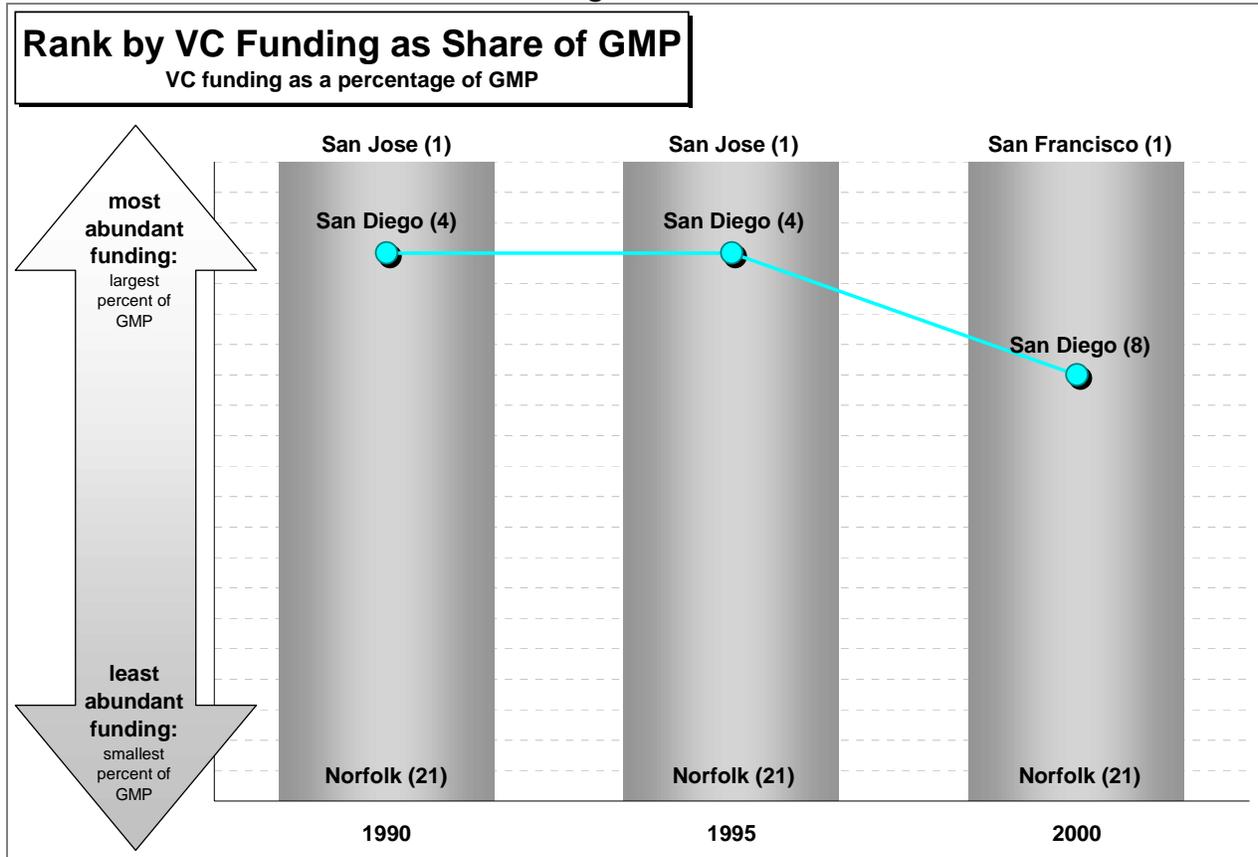
Figure 36
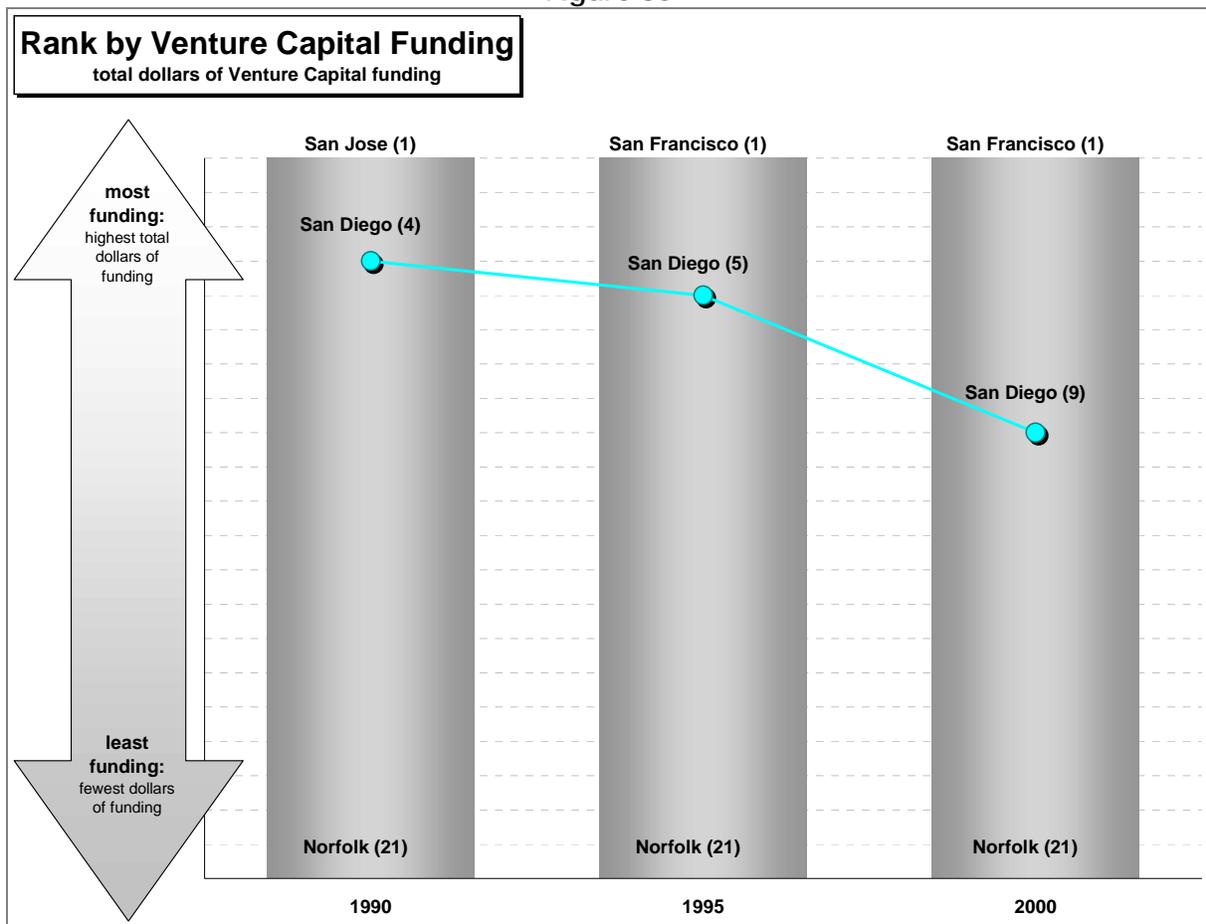
The range of dollars raised is broad as San Francisco raised over $16.0 billion in 2000 while Norfolk raised only 3.8 million. San Diego raised about $2.2 billion. The top three metropolitan regions all raised more than $9.0 billion while Denver, the next highest, raised $4.4 billion.

Figure 37

Venture Capital Funding: 2000
billions of dollars
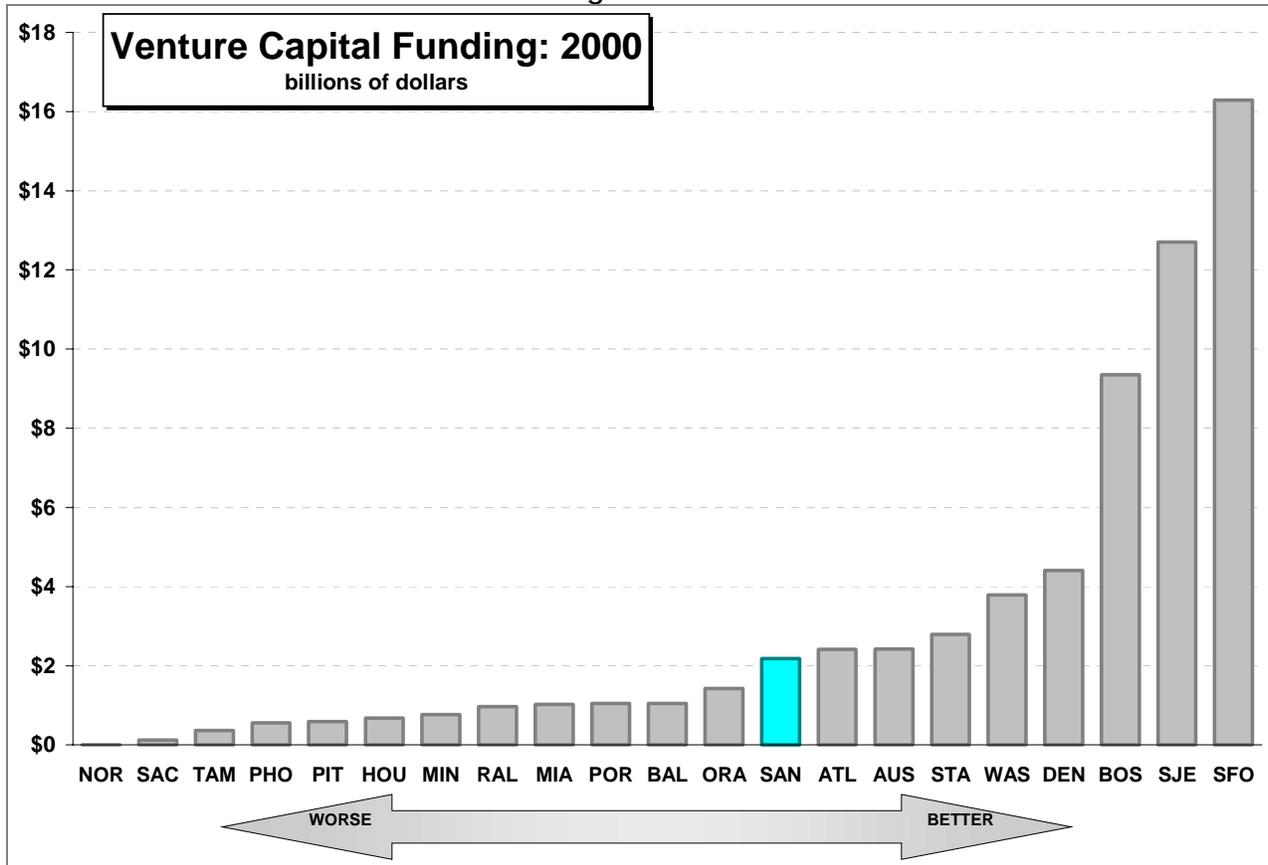
In the second comparison, the ratio of VC dollars invested to Gross Metropolitan Product [GMP] is calculated for all 21 regions. San Diego is ranked 4th in 1990 and 1995, however, its ranking falls to 8th in 2000 [see Figure 38]. San Jose is ranked first for 1990 and 1995 while San Francisco is ranked first in 2000 implying the amount raised from VC is a larger percent of their economies. Norfolk is ranked last for all three years implying it raised the least amount of capital relative to its economy.

Figure 38

Rank by VC Funding as Share of GMP
VC funding as a percentage of GMP

most abundant funding: largest percent of GMP

least abundant funding: smallest percent of GMP

San Jose (1)   San Jose (1)   San Francisco (1)

San Diego (4)   San Diego (4)

San Diego (8)

Norfolk (21)   Norfolk (21)   Norfolk (21)

1990   1995   2000

Compared to California and the US, San Diego's VC data appear more volatile and cyclical [VC funding share of GMP]. While the San Diego data is higher than the US share for the decade, it is not always higher than California [see Figure 39]. Beginning in 1996 California VC as a share of GMP accelerates and surpasses San Diego.

Figure 39
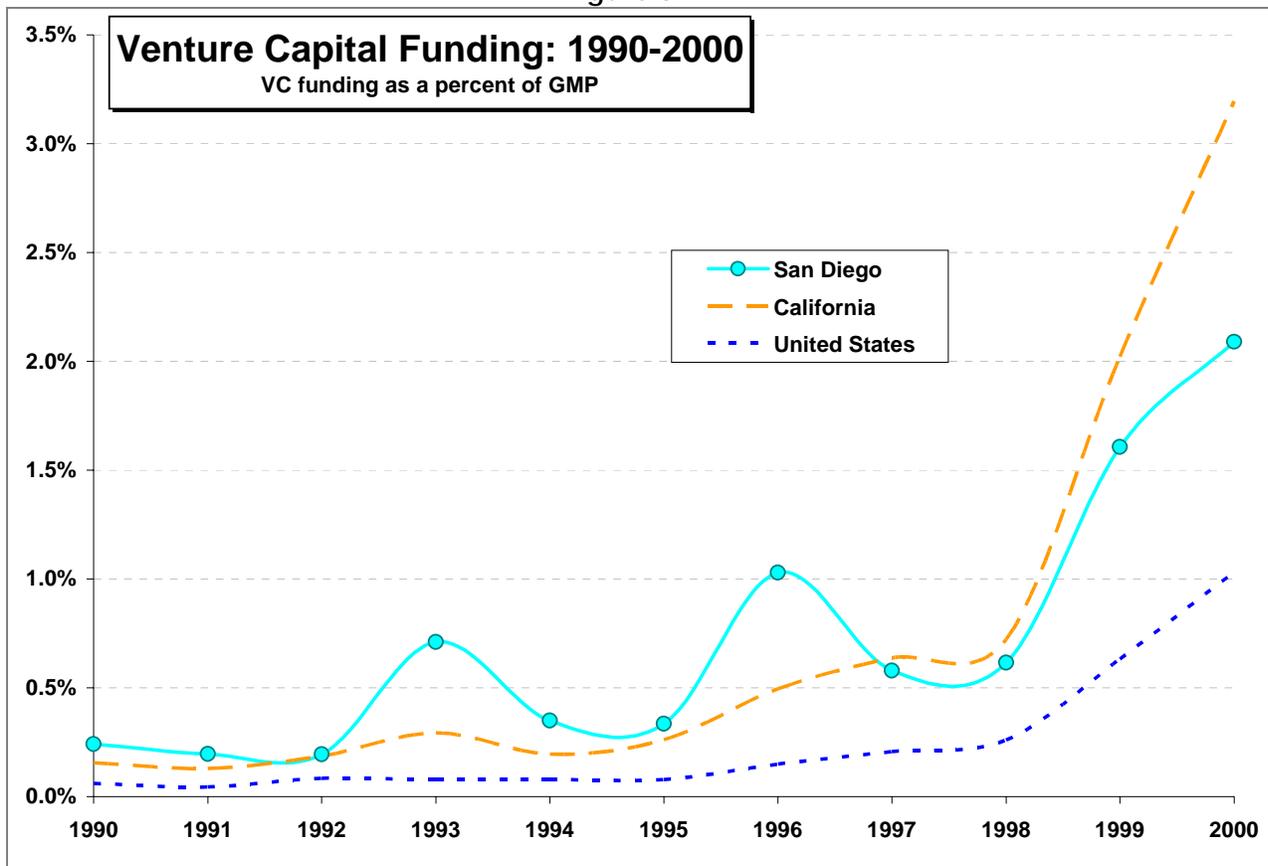
Venture Capital Funding: 1990-2000
VC funding as a percent of GMP

Legend: San Diego, California, United States

Have We Improved?

Yes, dramatically. Based on historical San Diego data, the amount of dollars raised from VC increased fifteen-fold between 1990 and 2000 and the importance of these to the San Diego economy increased ten-fold from about 0.2% of the local economy in 1990 to 2.1% of the economy in 2000[21]. However, San Diego's ranking declined from 4th to 8th. Thus, while there were large increases in VC funding, the rate of increase in San Diego lagged that of other metropolitan regions.

Preliminary data for San Diego reveal that VC funding declined over 30% to about $1.4 billion in 2001 [from about $2.2 billion in 2000]. Venture Capital funding experienced a slump nationwide in 2001. The California total declined about 62% (to $15.4 billion in 2001, from $40.7 billion in 2000), and the United States total declined about 66% (to $36.5 billion in 2001, from $99.6 billion in 2000). Fortunately, recent data suggests that Venture Capital funding may again be on the upswing.

---

[21] Dividing the dollars of venture capital by the GMP provides a ratio of the importance of VC to the regional economy. In 1990 this ratio was .0024 implying VC raised represented about 0.2% of the local economy. By 2000 this ratio increased to 2.1% of the economy. Thus, dollars invested in venture capital startups are about 10 times more important to the local economy in 2000 when compared to the same data for the year 1990.

5. Initial Public Offerings [IPOs]

How Is San Diego Doing?

The number of IPOs in San Diego increased from 1 in 1990 to 11 in 2000. The years 1992, 1993 and 1997 each saw 12 firms go public. Over the period, there was a total of 90 IPOs. At the same time, the amount of money raised from these IPOs increased three hundred-fold from $3.3 million in 1990 to $981 million in 2000.

How Do We Compare?

Excellent for 2000. Two comparisons are made. First the total dollars from IPOs are rank ordered for all 21 regions. In this analysis San Diego is ranked 10th in 1990, 7th in 1995 and 3rd in 2000 [see Figure 40]. San Diego has increased the dollar value of its IPOs faster than most other regions. Houston is ranked first in 1990, San Francisco is ranked first in 1995 and Atlanta is ranked first in 2000 implying these regions raised the most money from initial public offerings. Ten regions are tied for the last place ranking in 1990, three regions are tied for last place in 1995, and six regions are tied for the last place ranking in 2000 with no money raised from IPOs. Norfolk and Sacramento are found in the lowest ranking regions for all three periods while Orange is found in the list for two of the periods [1995 and 2000].
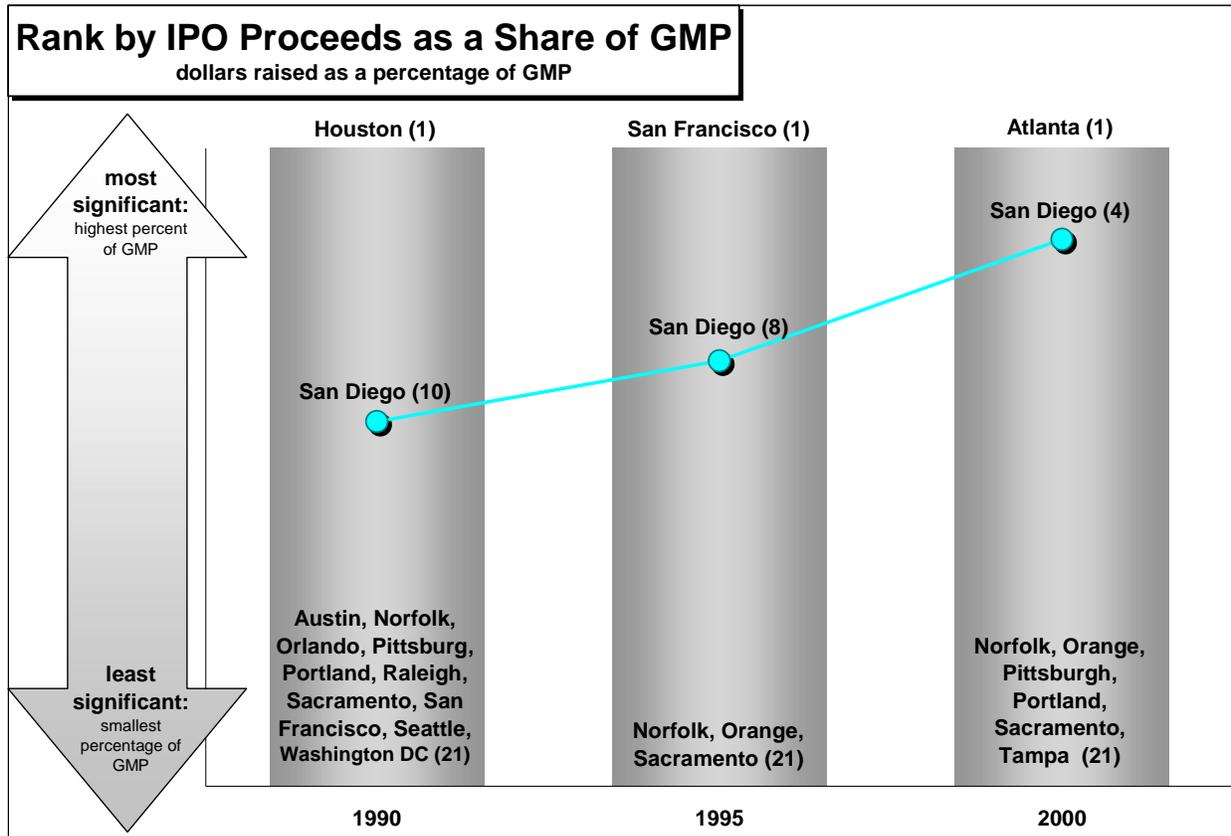
Figure 40
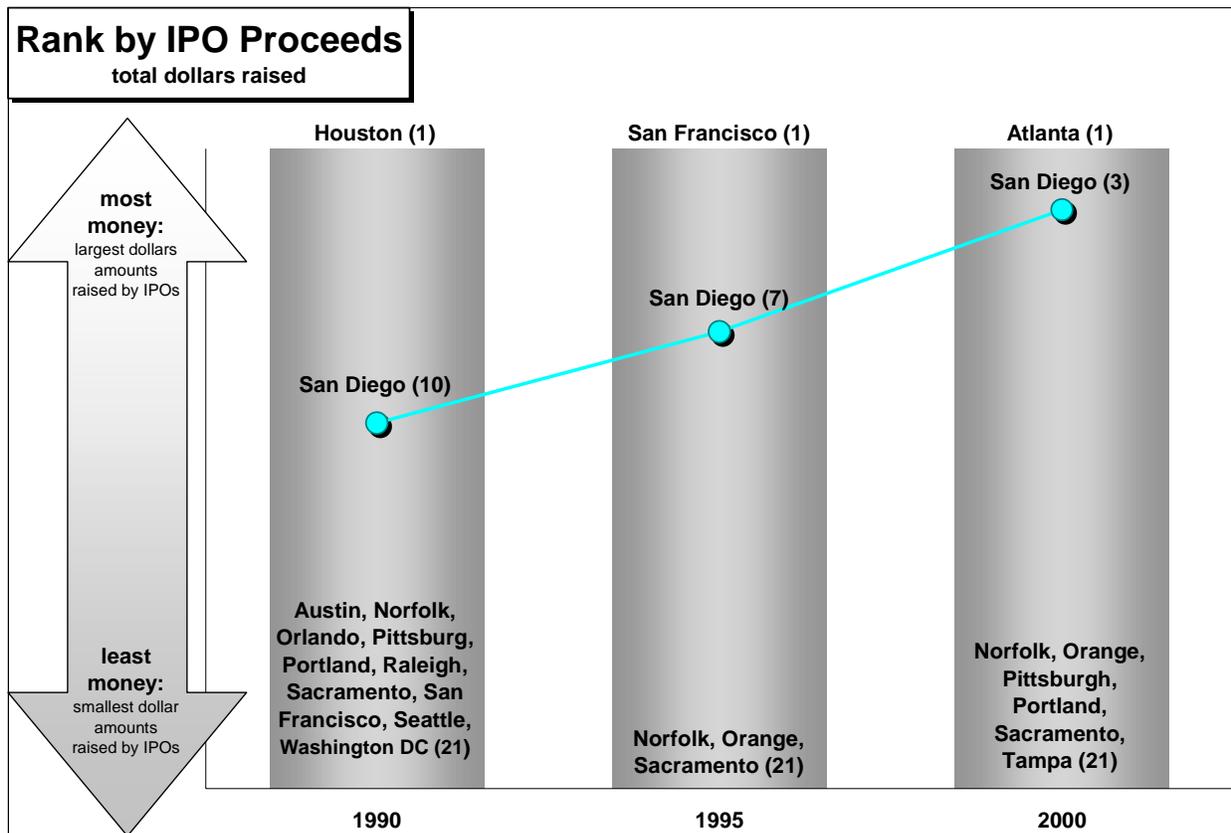
In the year 2000, IPOs in Atlanta raised about $1.83 billion followed closely by Boston with $1.77 billion and San Diego with about $0.98 billion. The six metropolitan regions ranked last had no IPOs in 2000.

Figure 41

IPO Proceeds: 2000
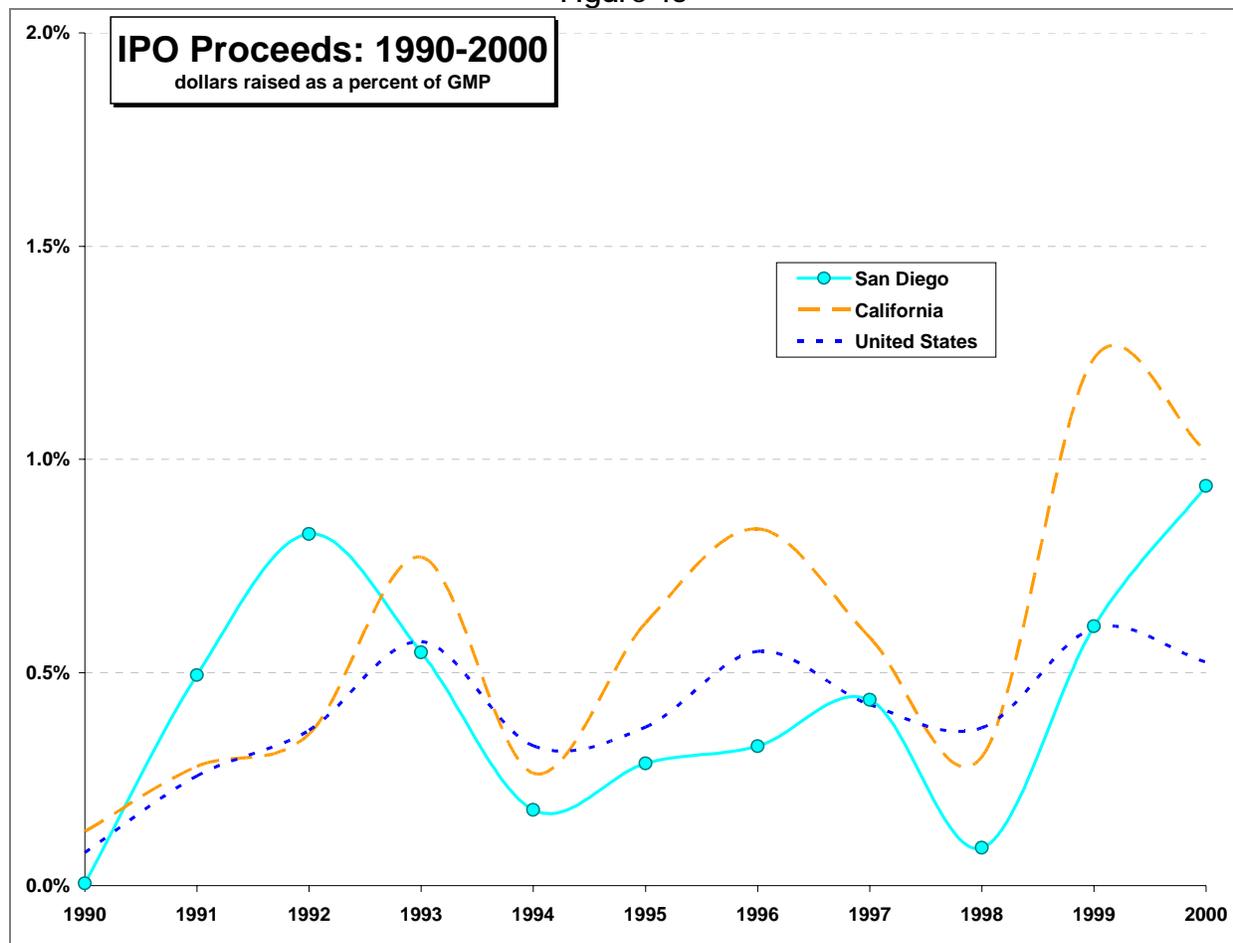**billions of dollars raised**
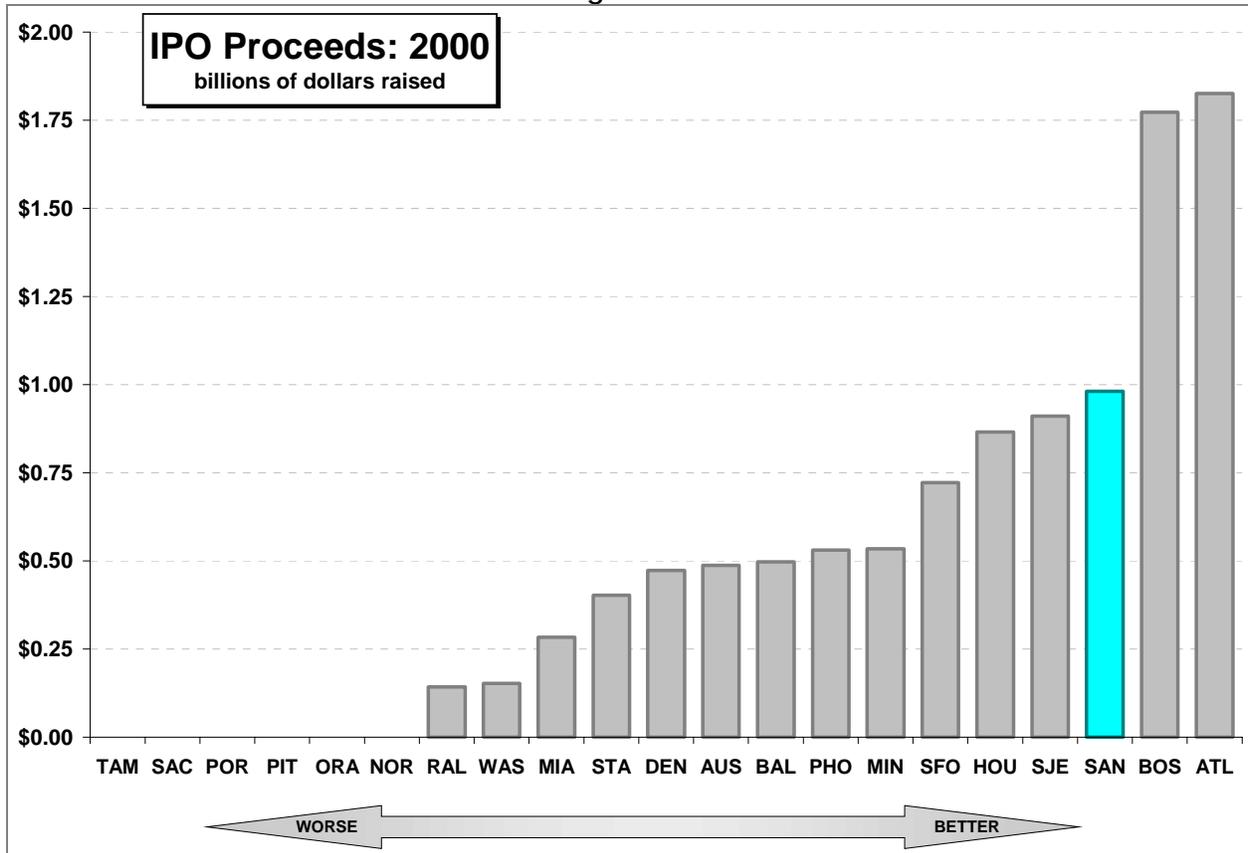
In the second comparison, the ratio of dollars raised to GMP is calculated for all 21 metropolitan regions. San Diego's performance improved steadily as it ranked 10th in 1990, 8th in 1995, and 4th in 2000 and is graded as average for 1990, above average for 1995, and excellent for 2000 [see Figure 42]. Houston is ranked 1st for 1990, San Francisco is ranked first in 1995 and Atlanta is ranked 1st in 2000 implying the amount raised from IPOs is a larger percent of their economies. The same regions ranked last in the absolute dollar values are ranked last in this graphic since the firms had no IPOs in the years in which they are ranked last.

Figure 42

Rank by IPO Proceeds as a Share of GMP
dollars raised as a percentage of GMP

most significant: highest percent of GMP

least significant: smallest percentage of GMP

Houston (1)

San Francisco (1)

Atlanta (1)

San Diego (4)

San Diego (8)

San Diego (10)

Austin, Norfolk, Orlando, Pittsburg, Portland, Raleigh, Sacramento, San Francisco, Seattle, Washington DC (21)

Norfolk, Orange, Sacramento (21)

Norfolk, Orange, Pittsburgh, Portland, Sacramento, Tampa (21)

1990

1995

2000

Utilizing the ratio of IPO money raised to GMP, San Diego and California data appear more volatile than the US data [see Figure 43]. The data appear to move in a cyclical fashion, however, without additional analysis, no definite conclusions are reached.

Figure 43

Have We Improved?

Yes, dramatically. Based on historical San Diego data, the amount of dollars raised from IPOs increased three hundred-fold between 1990 and 2000 and the importance of these monies raised to the San Diego economy increased from about 0.01% of the local economy in 1990 to 0.9% of the economy in 2000[22]. Concurrently, San Diego's ranking amongst the 21 metropolitan regions increased from 10th to 3rd in dollars raised and from 10th to 4th in IPO proceeds as a share of GMP.

Preliminary results from 2001 reveal that there were three [3] IPOs in San Diego that raised about $390 million – about a 60% decline from the 2000 levels. By contrast, total US IPO proceeds declined about 35% and California proceeds from IPOs declined about 85%.

---

[22] Dividing the dollars raised from IPOs by the GMP provides a ratio of the importance of IPOs to the regional economy. In 1990 this ratio was .00005 implying dollars raised from IPOs represented about 0.01% of the local economy. By 2000 this ratio increased to 0.9% of the economy. Thus, dollars raised from IPOs were about 94 times more important to the local economy in the year 2000 when compared to the same data for the year 1990.

Overall, San Diego has been able to attract increasing volumes of venture capital funding while companies going public have been able to raise substantially more revenue [see Figure 44]. The importance of both of these to the local economy has grown cyclically during the last decade [see Figure 45].
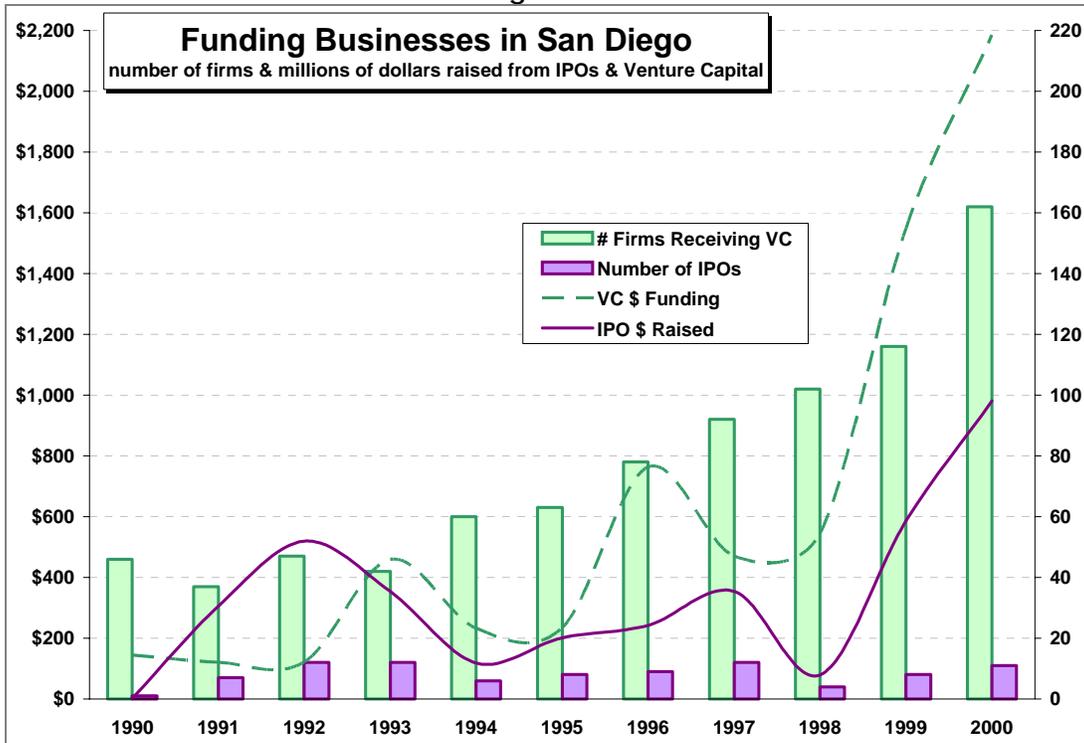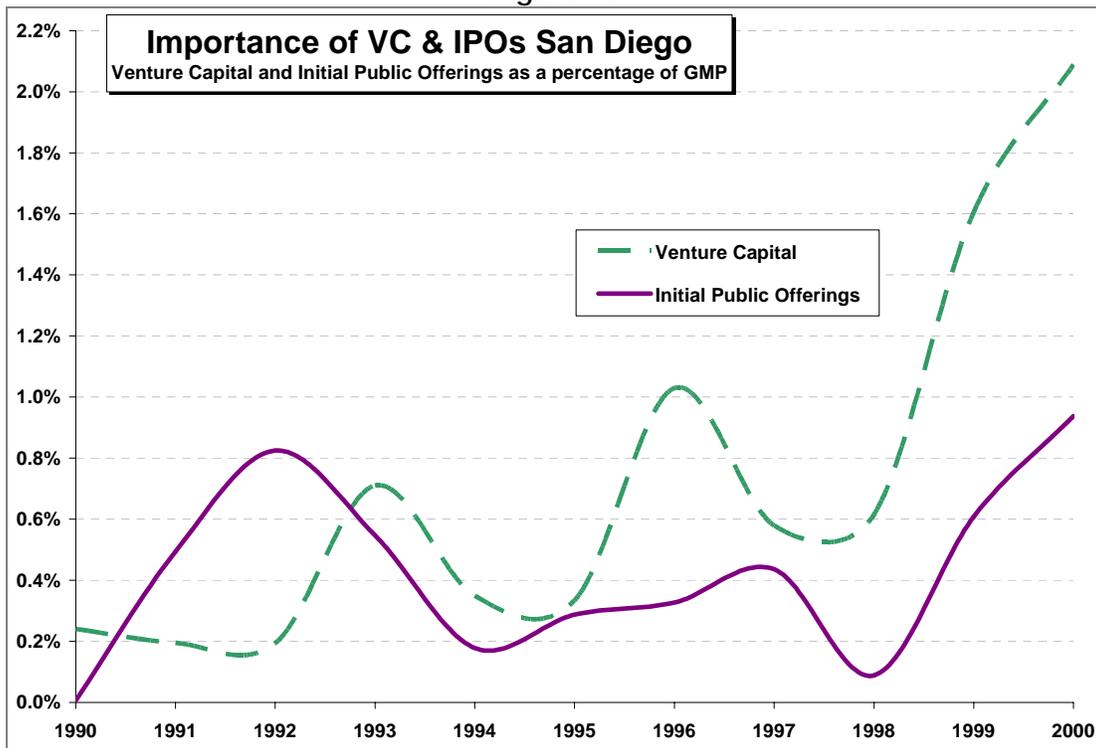
Figure 44

Funding Businesses in San Diego
number of firms & millions of dollars raised from IPOs & Venture Capital

Legend:
- # Firms Receiving VC
- Number of IPOs
- VC $ Funding
- IPO $ Raised

Figure 45

Importance of VC & IPOs San Diego
Venture Capital and Initial Public Offerings as a percentage of GMP

Legend:
- Venture Capital
- Initial Public Offerings

6. Exports

How Is San Diego Doing?
Merchandise exports more than doubled from $4.35 billion in 1993 to $8.96 billion in 1999 – an increase of about 106%.

How Do We Compare?
Above Average for 1999. To make this comparison, each region's export share of GMP is estimated [export values for each region are divided by the regions GMP to estimate a share or percent of the economy accounted for by exports]. When these shares are compared, San Diego ranked 11th in 1993 and 1995, and 8th in 1999 [see Figure 46]. Thus, although its export share is still in the middle of the pack, it climbed three places. In short, its rate of increase is faster than some other metropolitan regions. Seattle is ranked first in 1993 and San Jose is ranked first in 1995 and 1999 implying these metropolitan regions are best and have the highest share of exports to their GMP. Norfolk is ranked last in 1993 and 1995 while Baltimore is ranked last in 2000.

Figure 46
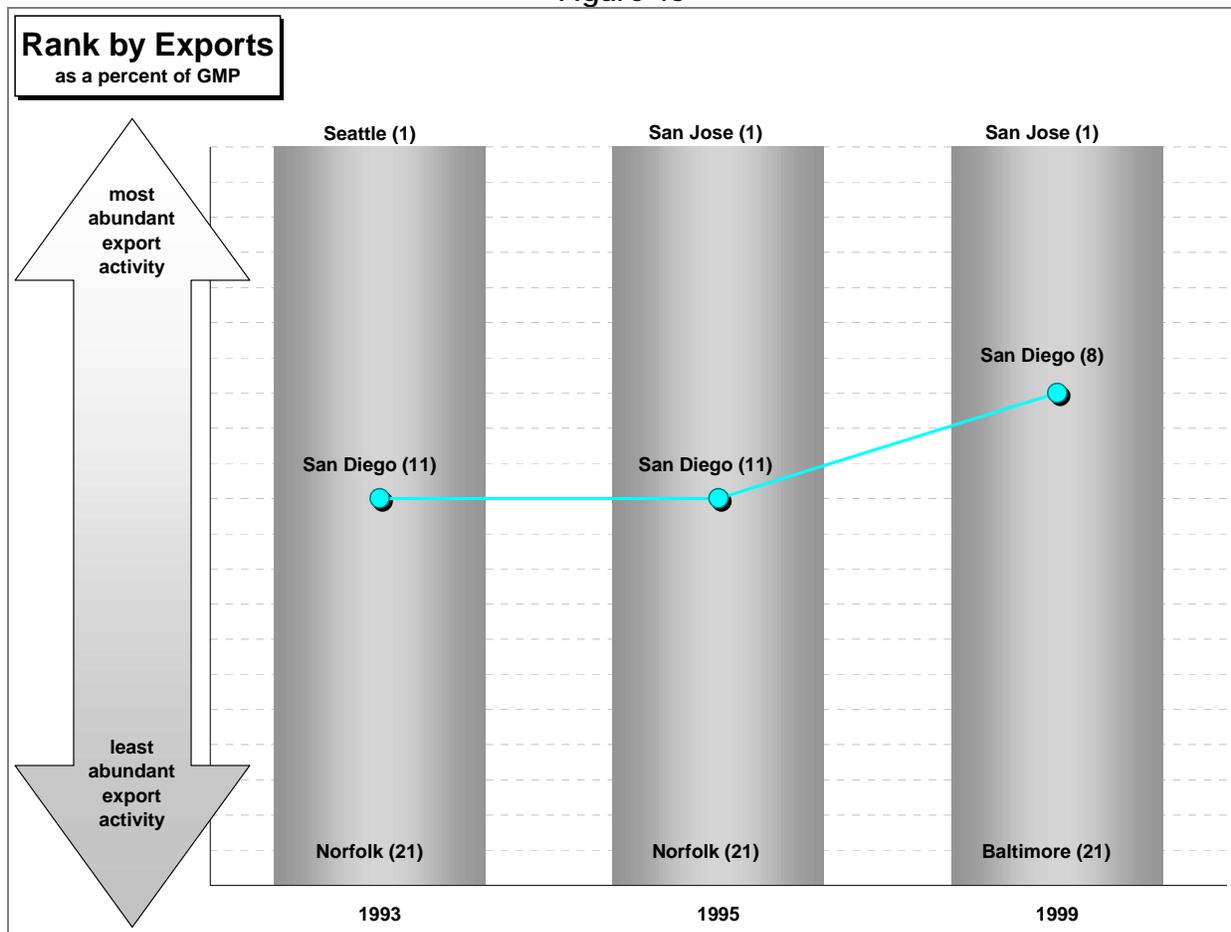
Compared to California and United States data, San Diego's export share of GMP improved. In 1993 San Diego's export ratio is lower than the export ratio for the California and the US, but by 1998, its ratio is higher than both the California and the United States [see Figure 47].

Figure 47
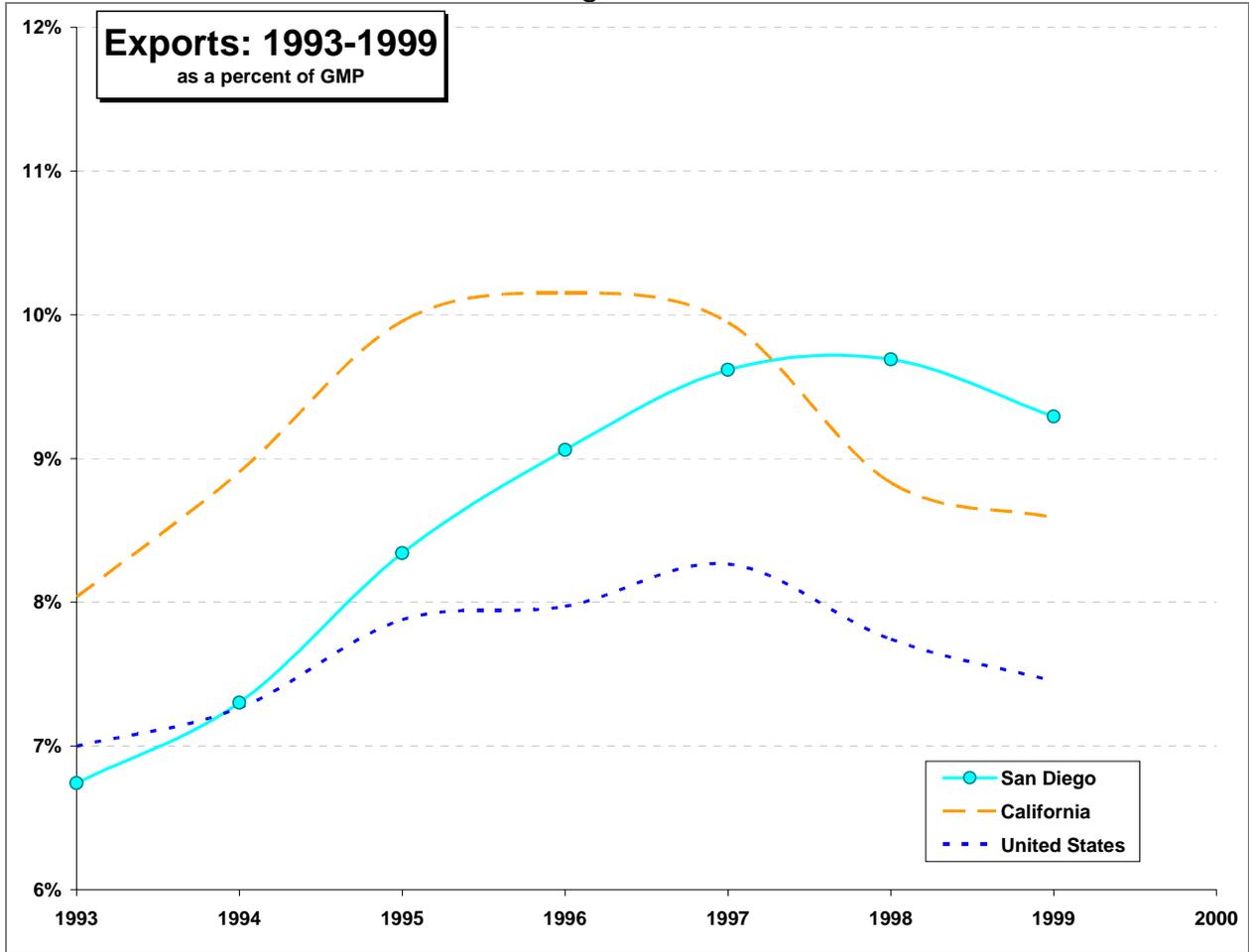
Have We Improved?

Yes. Based on historical San Diego data, between 1993 and 1999 the dollar value of San Diego's exports increased at an annual average rate of 17.6%. During the same time period inflation [as measured by the CPI] only increased about 2.5% per year. Thus, there have been "real" increases in exports. Additionally, San Diego's ranking amongst the 21 regions improved and the ratio of exports to GMP for San Diego is now greater than the US or California average.

Examining San Diego's export data by product sector for 1999 reveals the following: more than half of all exports fall into two product sectors – Electric and Electronic Equipment [38.8%] and Industrial Machinery & Computers [17.7%]. The next largest category is Scientific and Measuring Instruments with a distant 6.8% of exports [see Figure 48].
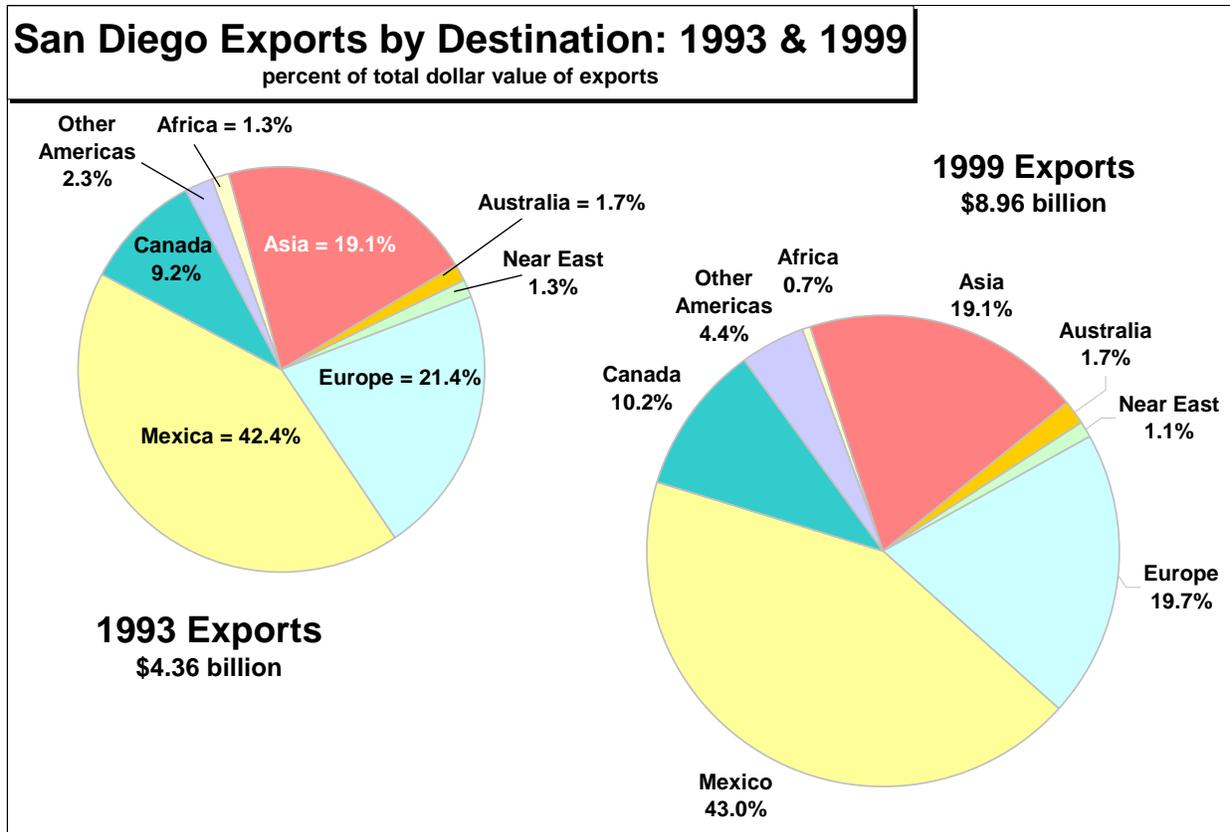
Figure 48
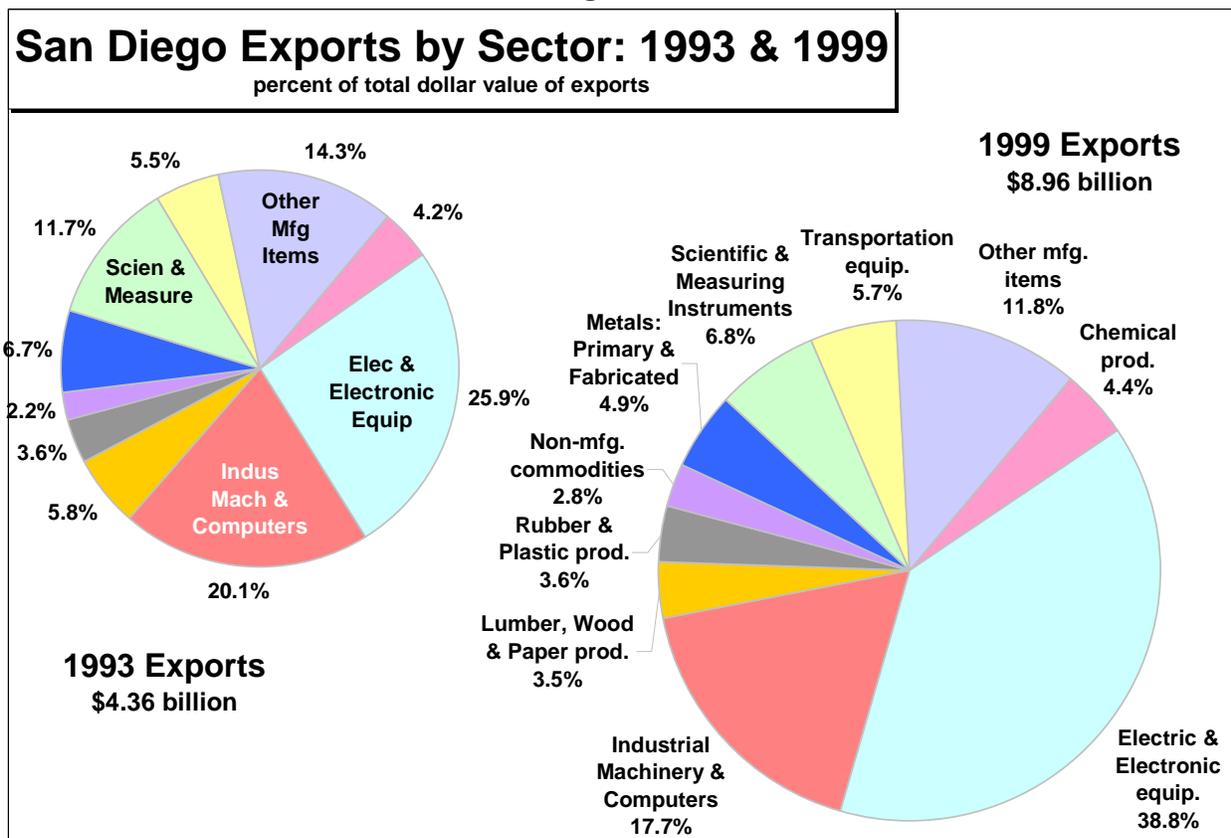
Total exports more than doubled between 1993 and 1999. The fastest growing sector during this period is Textile Mill Products, which more than tripled or grew 211% from $16 million to $50 million [this sector is very small and only accounts for 0.6% of total exports in 1999]. Ranked second is Electric and Electronic Equipment [includes televisions] which more than tripled from $1.1 billion in 1993 to $3.5 billion in 1999 [it grew 208%]. In 1999 this is the largest export sector for San Diego accounting for almost 39% of all exports. Thus, the largest sector is also one of the fastest growing sectors.

Regarding export destinations, the Americas received 57.7% of all San Diego exports. Europe is ranked second with 19.7% of the exports while Asia is ranked third with 19.1%. By country, Mexico is the destination for 43% of San Diego's exports [see Figure 49]. Ranked a distant second is Canada receiving about 10% of San Diego's exports.

Of all the regions, the Americas have the fastest growth rate between 1993 and 1999 as exports more than doubled from $2.4 billion in 1993 to $5.2 billion in 1999 – an increase of about 120%. Thus, the destination accounting for the largest share of San Diego's exports is also the fastest growing destination.

Figure 49

San Diego Exports by Destination: 1993 & 1999
percent of total dollar value of exports

1993 Exports pie chart:
- Other Americas 2.3%
- Africa = 1.3%
- Asia = 19.1%
- Australia = 1.7%
- Near East 1.3%
- Canada 9.2%
- Europe = 21.4%
- Mexica = 42.4%

1993 Exports
$4.36 billion

1999 Exports pie chart:
- Other Americas 4.4%
- Africa 0.7%
- Asia 19.1%
- Australia 1.7%
- Near East 1.1%
- Canada 10.2%
- Europe 19.7%
- Mexico 43.0%

1999 Exports
$8.96 billion

7. Capital Facilities Investment on Air Transport

Compiling data on capital outlays for the metropolitan regions is a formidable task. Within a region different jurisdictions have responsibility for different categories of expenditures and this pattern varies between metropolitan regions. In addition, different jurisdictions use different fiscal years, use different schemes to classify their expenditures, and use different accounting systems. Thus, comparing data between metropolitan regions is a major undertaking. To facilitate the process we utilize data from the Bureau of the Census, Governments Division. These data hold merit because of their uniformity and consistency across both geographical and topical areas. The Census Bureau obtains these data from each state's controller's office, after which they classify and compile the database. This "census" of government finance is conducted every five years and this study contains data from the 1982, 1987, 1992 and 1997 census[23]. Capital outlays are expenditures to purchase assets or create value that add to the government's net worth and can include real estate, construction, and other assets that have a useful life longer than one year [automobiles, computers, etc.]. For greater detail on the definitions for capital outlays in this section see the glossary.

Variations in capital outlays, over time, are to be expected if one considers the process of executing a capital project. The project has to be conceptualized, planned, funded and then implemented. Implementation can occur in stages or can be a one-time effort. Because our data are only "snapshots" at four different periods of time, we do not know from which part of this process we are obtaining data, and the results may reflect lump-sum expenditures, or long-term projects.

How Is San Diego Doing?
In nominal dollars, governmental capital outlays for Air Transport increase about fourteen fold to $101.3 million in 1997 from $6.8 million in 1982 – an increase of $95.5 million or about 1,390%.

To determine if there have been any "real" changes in capital outlays, the nominal dollars data presented above are converted to dollars that are adjusted for inflation using the Implicit Price Deflator [IPD]. After conversion it is learned that capital outlays in constant 2000 dollars increase about 800% to $106.3 million in 1997 from $11.8 million in 1982.

To determine the rate at which capital outlays are spent per resident, the inflation adjusted capital outlay data are divided by San Diego's population to obtain capital outlays per capita in constant 2000 dollars. After the computation it is learned that capital outlays per capita in constant 2000 dollars increase about 554%, to about $39 per capita in 1997, from about $6 per capita in 1982.

In short, there have been "real" per capita increases in governmental capital outlays on air transport in San Diego.

---

[23] The Census Department undertakes a sample of jurisdictions every year to compile revenue and expenditure data, however, these sample data are not utilized because they omit jurisdictions that are responsible for certain categories of expenditures. Thus, the sample data are misleading for certain categories of expenditures.
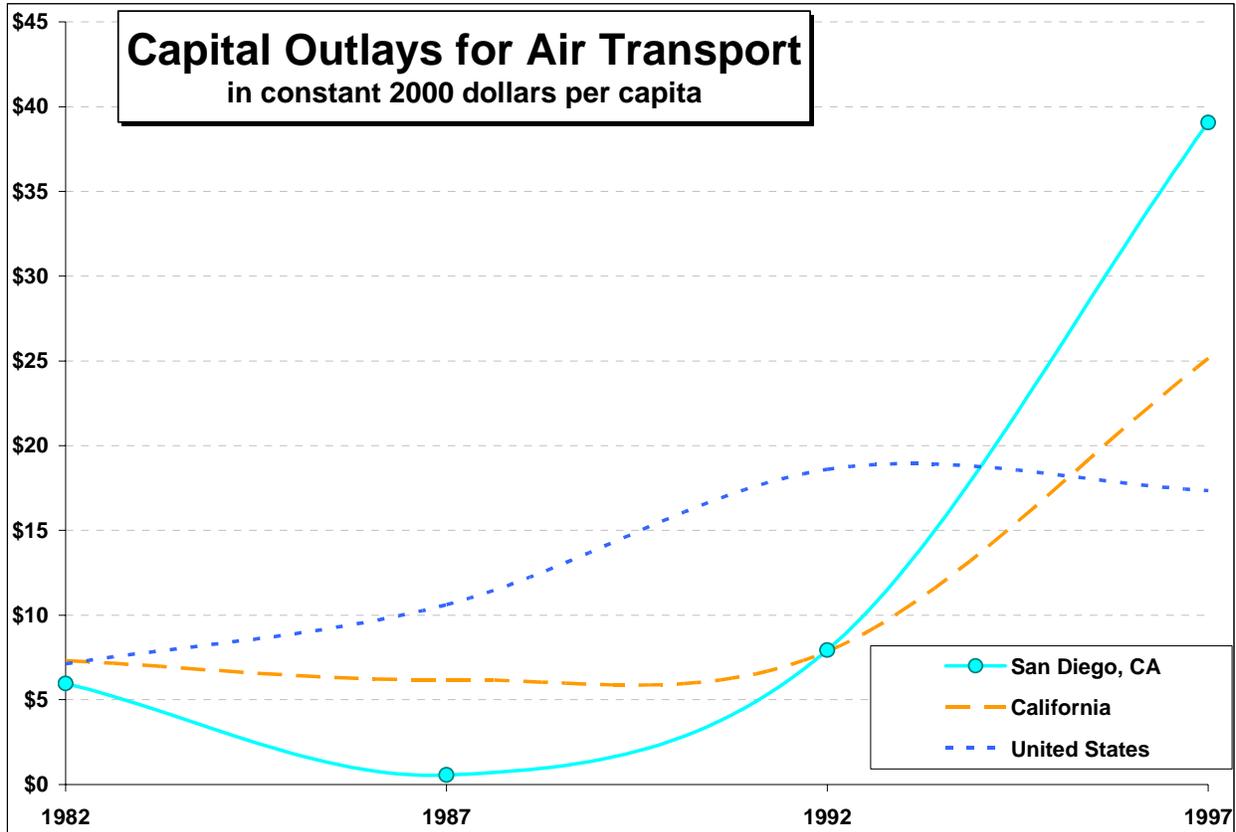
How Do We Compare?

Above Average for 1997. For capital outlays per capita in constant 2000 dollars on air transport in 1997, San Francisco is ranked 1st with $221 while Baltimore is ranked last with no air transport capital outlays and San Diego is ranked 6th with $39 per capita. For the four periods for which we have data, various regions have been ranked 1st implying a changing emphasis on capital outlays for air transport. By contrast, Baltimore is ranked last in three out of the four periods for which we have data and in the period it was not ranked last, it was tied for 19th. Over the 15 years San Francisco has seen its capital outlays per capita in constant 2000 dollars increase about 36,750%. San Diego's change over the period is about 554%. Within San Diego, over 99% of the capital outlays on air transport come from the San Diego Unified Port District.

Figure 50

Rank Air Transport Capital Outlays Per Capita
in constant 2000 dollars
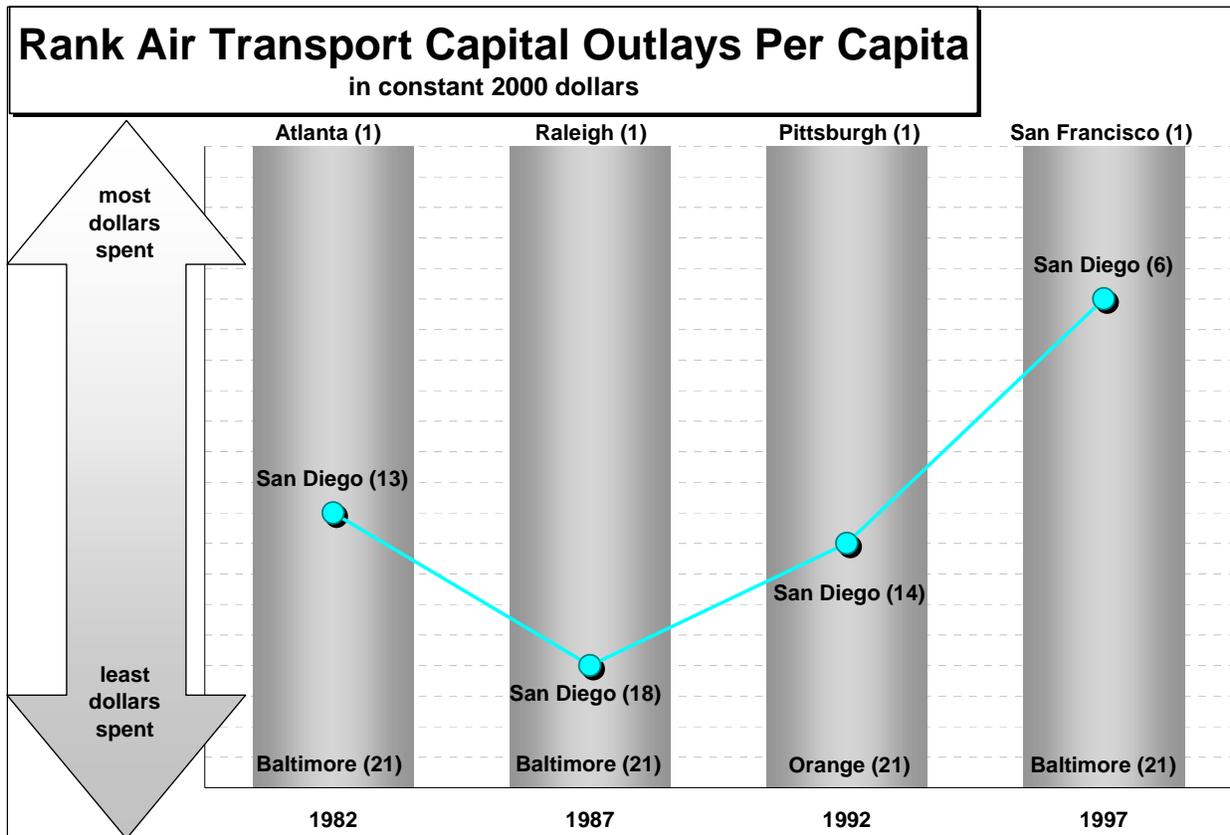
Compared to California and United States data, San Diego's capital outlays per capita on air transport in 2000 dollars are below the national average until 1997 when they are higher than the California or United States data [see Figure 51].

Figure 51

Capital Outlays for Air Transport
in constant 2000 dollars per capita

Legend:
- San Diego, CA
- California
- United States

X-axis: 1982, 1987, 1992, 1997

Y-axis: $0 to $45

Have We Improved?
Yes. Based on historical San Diego data, capital outlays in nominal terms, in inflation adjusted terms, and on a per capita basis adjusted for inflation all reveal that San Diego has improved in the area of capital outlays on air transport.

8. Capital Facilities Investment on Sea and Inland Ports

How Is San Diego Doing?
In nominal dollars, governmental capital outlays for Sea and Inland Ports increase about five fold to $26.4 million in 1997 from $4.3 million in 1982 – an increase of $22.1 million or about 510%.

To determine if there have been any "real" changes in capital outlays, the nominal dollars data presented above are converted to dollars that are adjusted for inflation using the Implicit Price Deflator [IPD]. After conversion it is learned that capital outlays in constant 2000 dollars increase about 270% to $27.7 million in 1997 from $7.5 million in 1982.

To determine the rate at which capital outlays are spent per resident, the inflation adjusted capital outlay data are divided by San Diego's population to obtain capital outlays per capita in constant 2000 dollars. After the computation it is learned that capital outlays per capita in constant 2000 increase about 168%, to about $10 per capita in 1997, from about $4 per capita in 1982.

In short, there have been "real" per capita increases in governmental capital outlays on sea and inland ports in San Diego.

How Do We Compare?
Above Average for 1997. For capital outlays per capita in constant 2000 dollars on Sea and Inland Ports San Diego is ranked 5th [see Figure 52]. In fact, San Diego's ranking has improved from 9th in 1982 to 5th in 1987 and 5th again in 1997. Seattle is ranked 1st in 1987, 1992 and 1997 and its per capita capital outlays on sea and inland ports is about $66 in 1997 – or about four times higher than the 2nd ranked region Miami. Nine of the 21 regions have no sea or inland port facilities. Of the regions ranked, only Baltimore and Pittsburgh *have* sea or inland ports facilities.

Figure 52

Rank Sea & Inland Port Capital Outlays Per Capita
in constant 2000 dollars
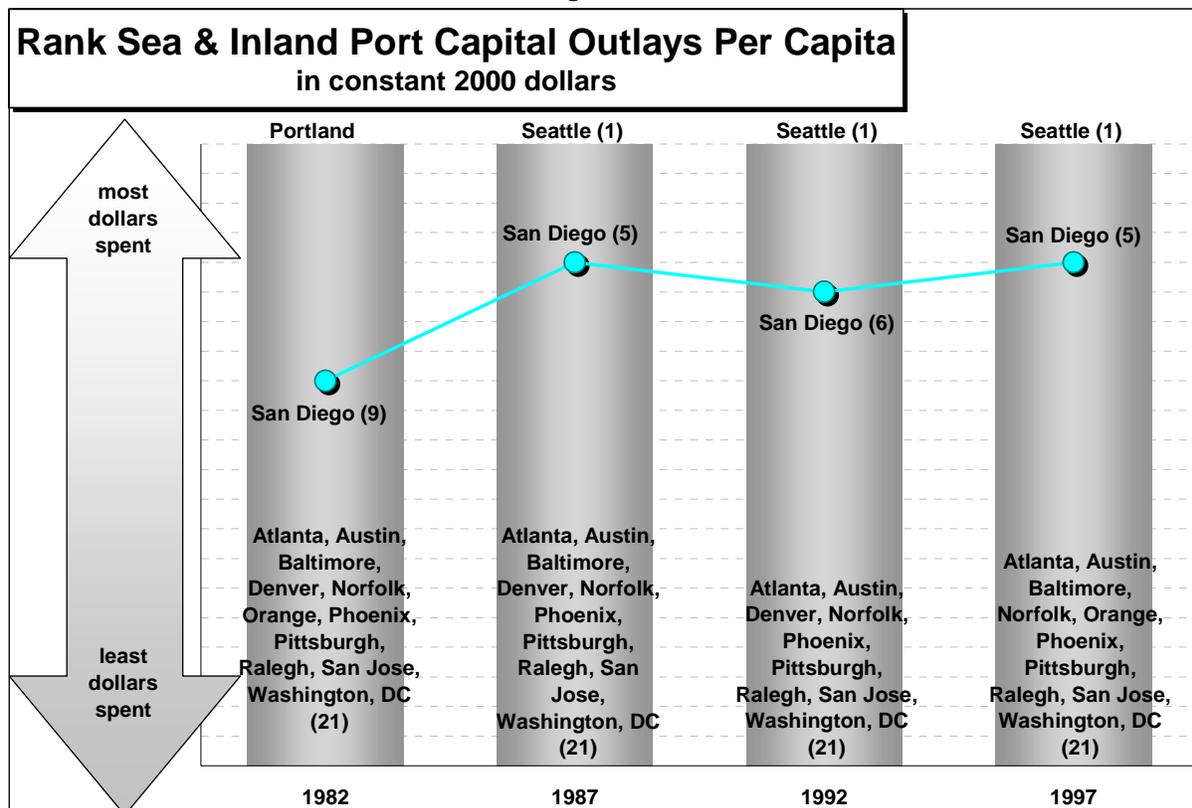
Compared to California and United States data, San Diego's capital outlays per capita on sea & inland ports in 2000 dollars tend to be above the national average, however, the San Diego data appear to be cyclical with large increases and decreases [see Figure 53].

Figure 53

Capital Outlays for Sea & Inland Ports
in constant 2000 dollars per capita

Legend:
- San Diego, CA
- California
- United States
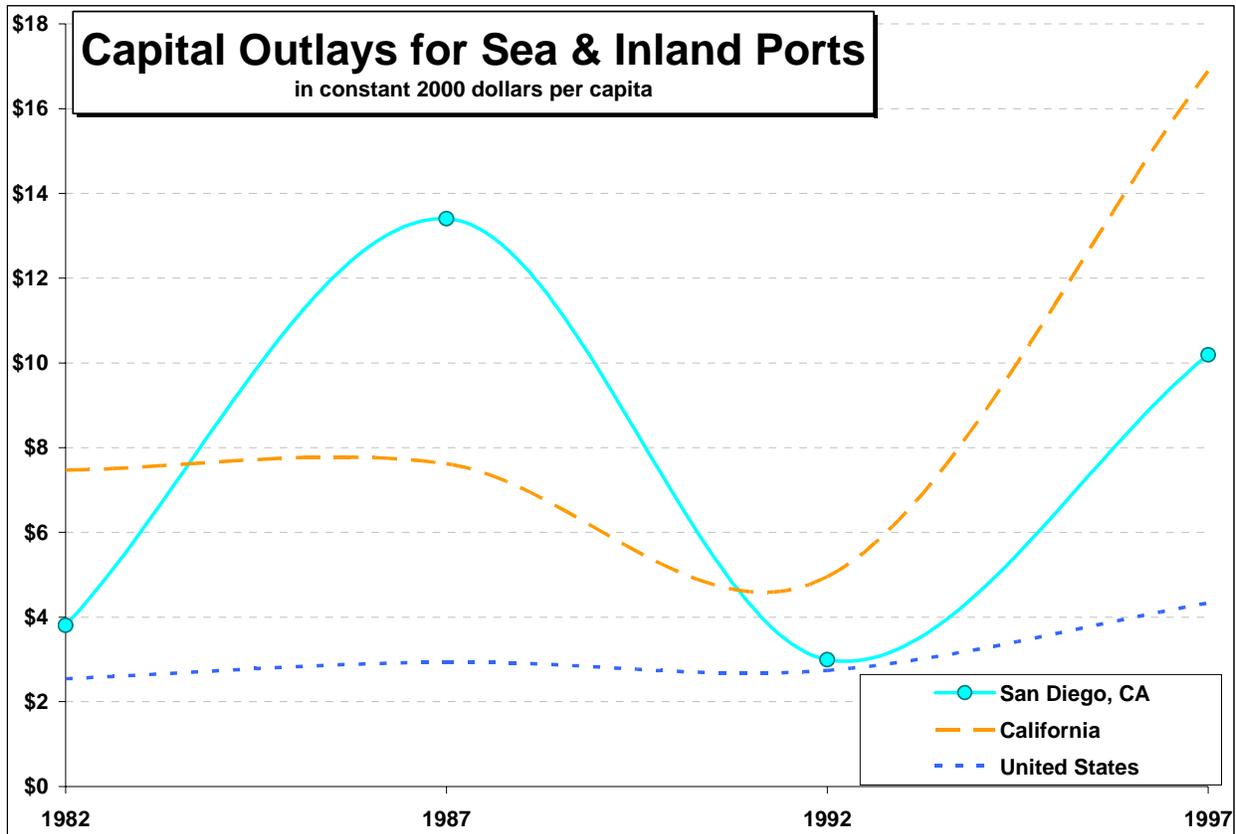
Have We Improved?
Mixed Results. Based on historical San Diego data, it is observed that capital outlays per capita in constant 2000 dollars have not always increased, although there have been increases in nominal dollars every year, and inflation adjusted dollars every year. Thus mixed results are provided as the answer to this question.

Over 92% of the funding for capital outlays on sea and inland ports come from the San Diego Unified Port District.

9. Capital Facilities Investment on Highways

How Is San Diego Doing?
In nominal dollars, governmental capital outlays for Highways increase about four fold to $141.2 million in 1997 from $30.6 million in 1982 – an increase of $11.6 million or about 361%.

To determine if there have been any "real" changes in capital outlays, the nominal dollars data presented above are converted to dollars that are adjusted for inflation using the Implicit Price Deflator [IPD]. After conversion it is learned that capital outlays in constant 2000 dollars increase about 178% to $148.3 million in 1997 from $53.3 million in 1982.
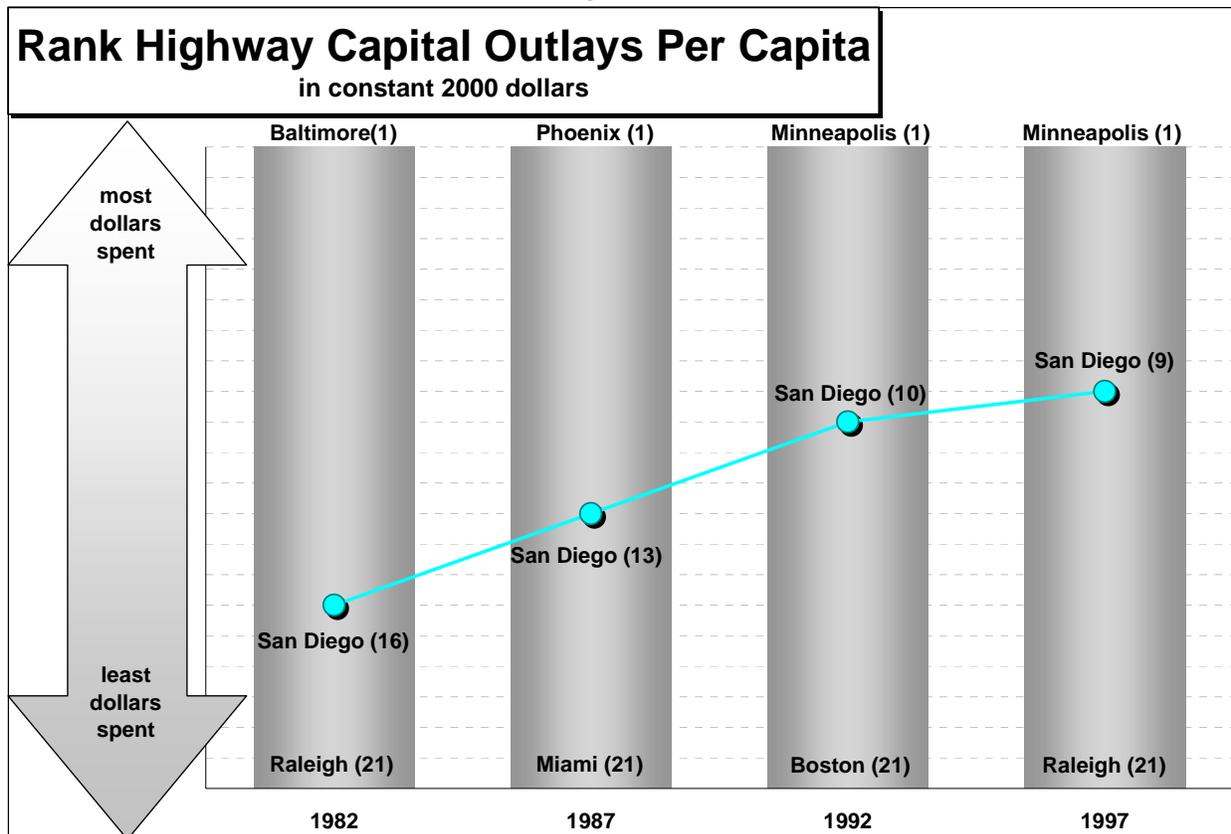
To determine the rate at which capital outlays are spent per resident, the inflation adjusted capital outlay data are divided by San Diego's population to obtain capital outlays per capita in constant 2000 dollars. After the computation it is learned that capital outlays per capita in constant 2000 increase about 102%, to about $54 per capita in 1997, from about $27 per capita in 1982.

In short, there have been "real" per capita increases in governmental capital outlays on highways in San Diego.
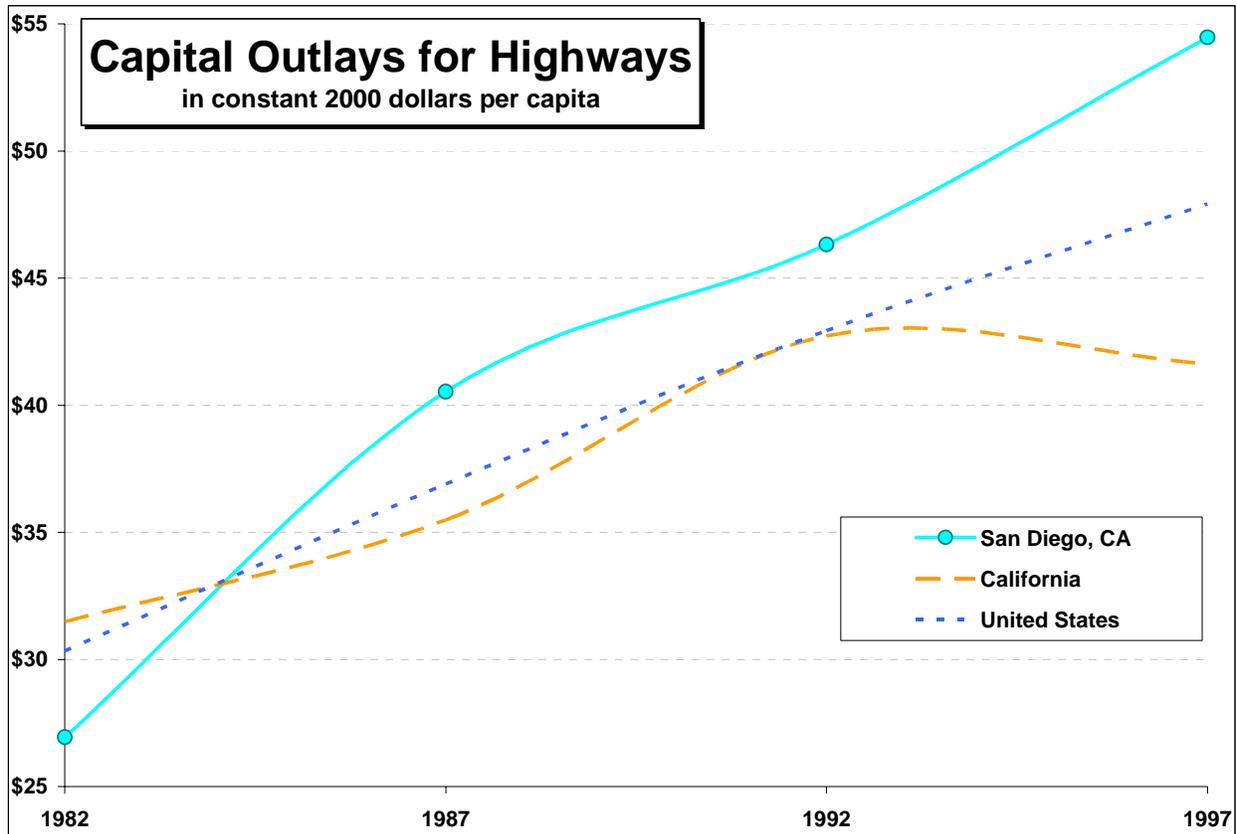
How Do We Compare?
Above Average for 1997. For capital outlays per capita in constant 2000 dollars on Highways San Diego is ranked 9th and its ranking has improved all four of the years for which we have data [see Figure 54]. Minneapolis is ranked 1st in 1992 and 1997 and its per capita capital outlays on highways in 1997 is about $125 in 1997 – or 10% higher than the 2nd ranked region Denver. Raleigh is ranked last for two of the years for which we have data [1982 and 1997].

Figure 54

Rank Highway Capital Outlays Per Capita
in constant 2000 dollars

most dollars spent / least dollars spent

	Baltimore(1)	Phoenix (1)	Minneapolis (1)	Minneapolis (1)
	San Diego (16)	San Diego (13)	San Diego (10)	San Diego (9)
	Raleigh (21)	Miami (21)	Boston (21)	Raleigh (21)
	1982	1987	1992	1997

Compared to California and the United States, San Diego's per capita capital outlays on highways in constant 2000 dollars has risen from below both the US and California data, to above California and the US data [see Figure 55].

Figure 55

Capital Outlays for Highways
in constant 2000 dollars per capita

Legend:
- San Diego, CA
- California
- United States

X-axis: 1982, 1987, 1992, 1997
Y-axis: $25, $30, $35, $40, $45, $50, $55

<u>Have We Improved?</u>
Yes. Based on historical data, San Diego's capital outlays in nominal terms, in inflation adjusted terms, and in per capita inflation adjusted terms all increased. While these real per capita increases were occurring, San Diego's ranking also increased.

10. Patenting Activity

Patents are a key component of turning research into profits. If an organization or individual invents a new item or process, ownership of the idea can be protected by patenting the idea with the United States Office of Patent and Trademark [PTO]. Once patented, the organization protects any revenues that result from the sales of goods or services based on the idea that was patented.

There are three types of patents that the US PTO awards – utility patents, design patents [ornamental manufacture], and plant patents [agriculture / horticulture]. Utility patents are referred to as patents of invention.

Between 1990 and 1999, there were a total of 12,299 patents awarded to individuals and organizations in San Diego. Of that total, 10,984 patents or 89% are utility patents, 1,190 or 10% are design patents, and 125 or 1% are plant patents. Since utility patents account for the vast majority of all patent documents issued by the US PTO, we examine utility patents for all regions, California and the United States. The Glossary of Terms contains the US PTO definitions for plant patents and design patents. According the US PTO:

> A **utility** patent is issued for the invention of a new and useful process, machine, manufacture, or composition of matter, or a new and useful improvement thereof. It generally permits its owner to exclude others from making, using, or selling the invention for a period of up to twenty years from the date of patent application filing[24], subject to the payment of maintenance fees.[25]

There is a lag between the time a patent is awarded and the time the patent generates revenue. The length of time between these activities can vary from a couple of years to over a decade depending on the type of patent. For example, patents awarded in the drug arena must be tested and approved by the Federal Drug Administration [FDA] before they can be sold to the public. At any point in the testing process the new drug may be dropped if it is found not to be successful. Even if shown to be successful, the approval process can take years before the drug is finally sold on the open market.

How Is San Diego Doing?
Between 1990 and 1999, the number of utility patents awarded to organizations and individuals in San Diego increased from 761 in 1990 to 1,749 in 1999. This increase represents a compound annual growth rate of about 9.7% per year.

---

[24] 17 years before 1995.
[25] See the US PTO's web site: http://www.uspto.gov/web/offices/ac/ido/oeip/taf/patdesc.htm
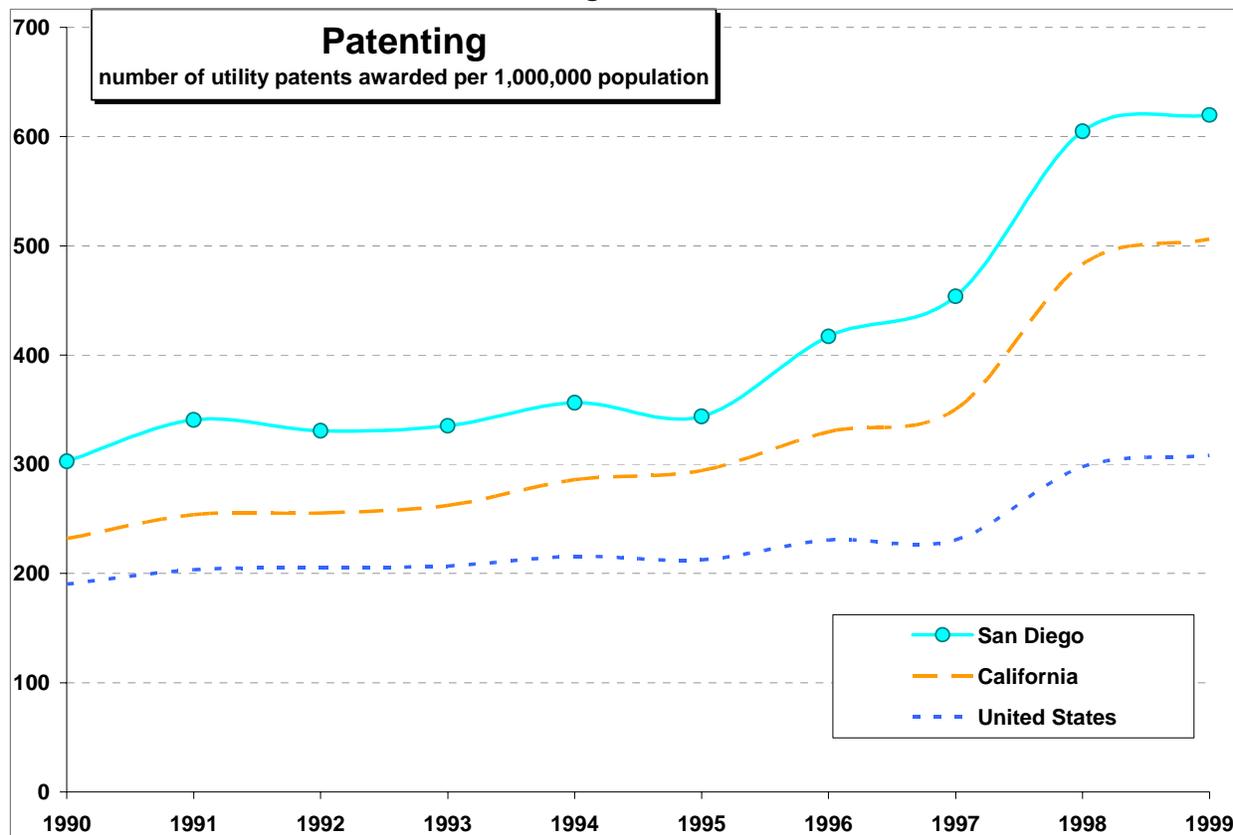
How Do We Compare?

Above Average for 2000. To make this comparison, the number of utility patents awarded to a region is divided by the region's population to obtain the number of patents per million population. When compared to 20 other metropolitan regions, San Diego's ranking fell from 8th in 1990 to 9th in 1995 and then rose to 7th in 1999 [see Figure 56]. San Jose is ranked first during all three periods and in 1999 its ratio of 3,438 patents per million population is roughly 11 times higher than the US average of 308 patents per million. Norfolk is ranked last in all three periods with a ratio of 84.5 patents per million population or about one fourth the national average. San Diego's ratio in 1999 is 620 patents per million population or about twice the US average.

Figure 56
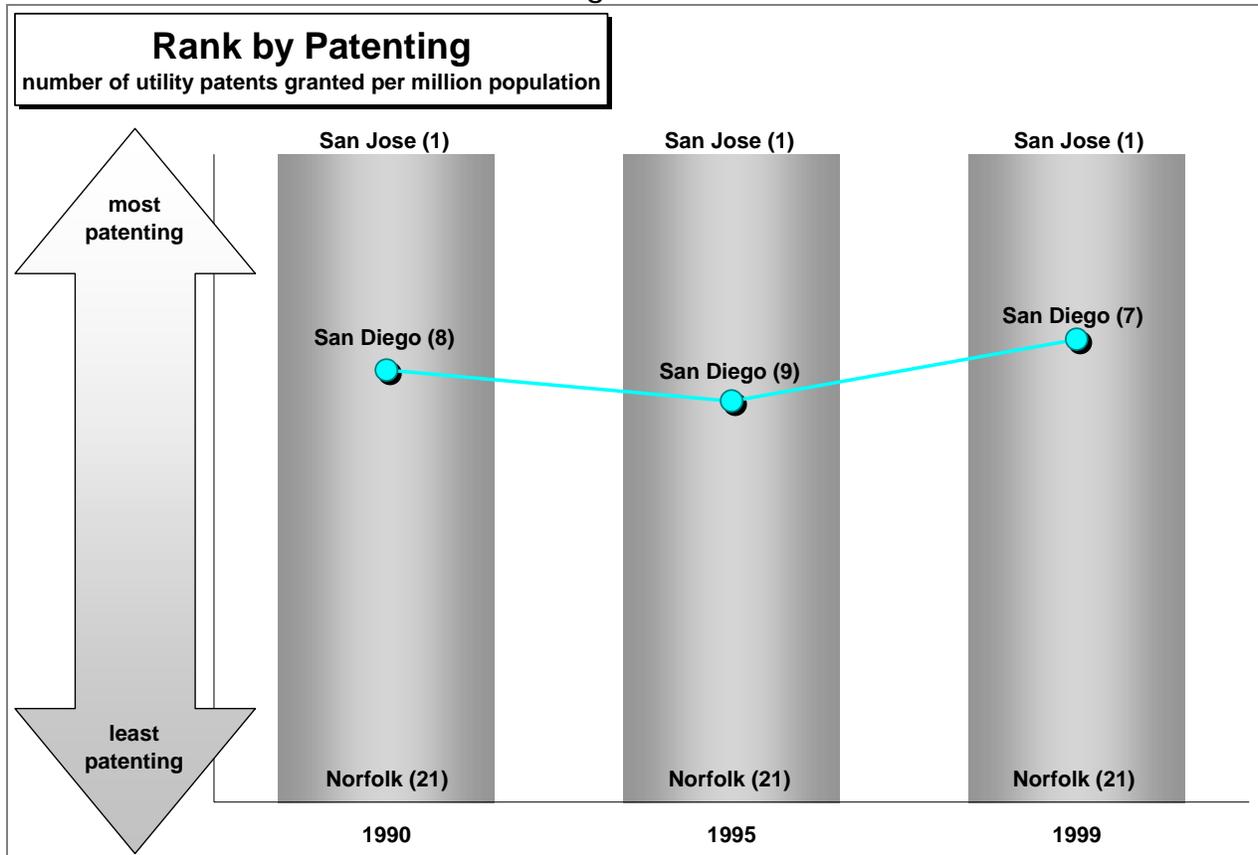
Compared to California and United States data, San Diego's ratio of patents per million population is higher in 1999 – about two times higher than the US ratio and about 22.5% higher than the California ratio. The growth in San Diego's ratio occurs at a compound annual rate of 8.3% between 1990 and 1999. The US growth rate for the same period is 5.5% while California's growth rate is 9.1% [see Figure 57].

Figure 57

Patenting
number of utility patents awarded per 1,000,000 population

Legend:
- San Diego
- California
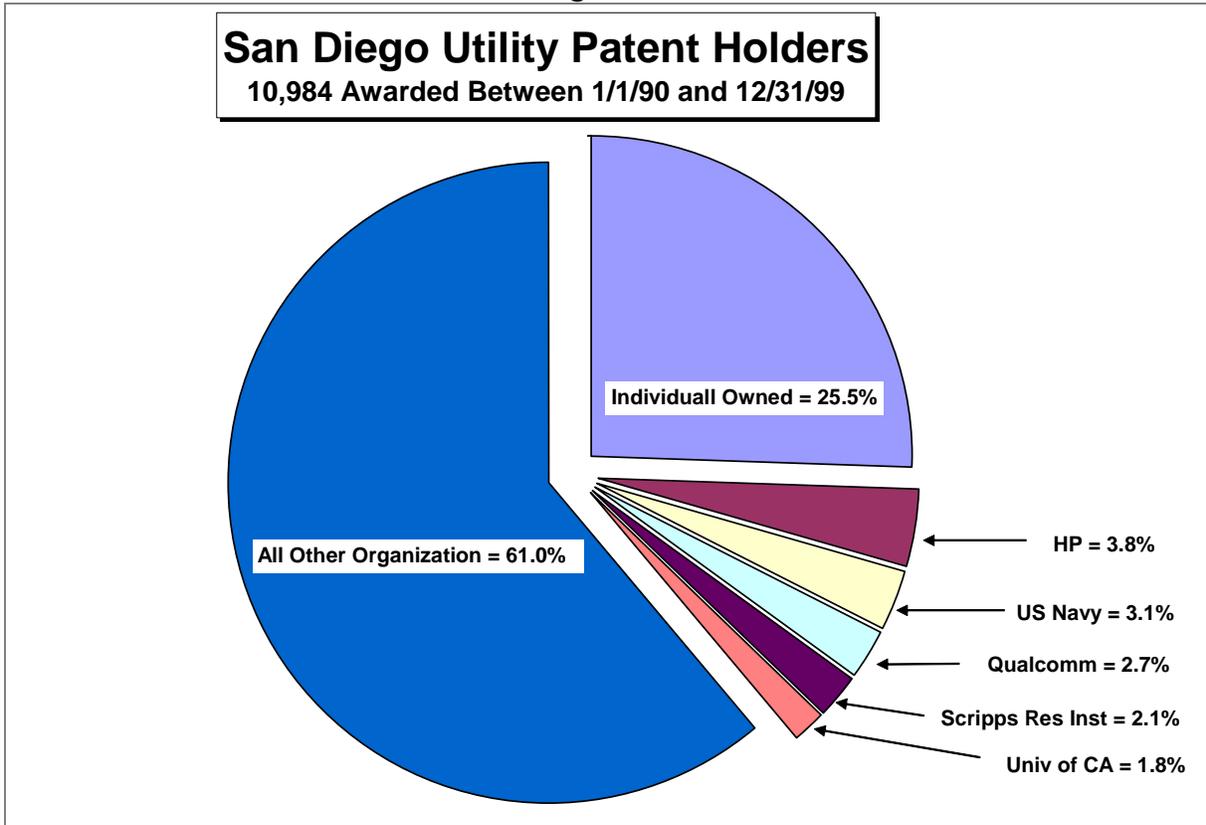- United States

Have We Improved?

Yes. Based on historical San Diego data, the absolute number of patents awarded to San Diego residents more than doubled during the 1990s and the ratio of patents per million population also more than doubled. With a ratio of patents per million population that is more than twice the US average, San Diego can be viewed as a "hotbed" of innovation. Since innovation is a key to being competitive in the marketplace, San Diego organizations are laying a solid foundation for future economic growth.

Between January 1, 1990 and December 31, 1999, the US PTO awarded 10,984 utility patents to organizations and individuals in San Diego[26]. Using the US PTO's data, it is learned that the organization receiving the most utility patents between 1990 and 1999 is Hewlett Packard[27] as it was awarded 421 utility patents or 3.8% of the total [see Figure 58, following page]. Ranked second is the US Navy with 345 patents or 3.1% of the total. Ranked 3rd is Qualcomm, Inc. with 292 patents or 2.7% of the total. Individually owned patents [patents not assigned to an organization] total 2,800 and represent 25.5% of the total. All other patents were awarded to the remaining 1,459 organizations and their share accounts for 61% of the total. A listing of all organizations that received 10 or more patents between 1990 and 1999 is contained in the Appendix.

---

[26] US Patent and Trademark Office.
[27] HP has a research office located in the northern part of San Diego County.

Figure 58

San Diego Utility Patent Holders
10,984 Awarded Between 1/1/90 and 12/31/99

- Individuall Owned = 25.5%
- All Other Organization = 61.0%
- HP = 3.8%
- US Navy = 3.1%
- Qualcomm = 2.7%
- Scripps Res Inst = 2.1%
- Univ of CA = 1.8%

When the US PTO awards patents, it classifies the patent according to a system it originally developed in the 1880s. The initial system has been expanded, and today there are over 460 categories in the US PTO's *Original Classification* scheme. A complete list of categories with associated class numbers can be found in the Appendix. For this study, this system is referred to as the US PTO's "*Original Classification*". Using the US PTO's *Original Classification* scheme, it is observed that San Diego patents are contained in 359 categories and the largest category of patents awarded to San Diego recipients is in Chemistry: Molecular Biology and Microbiology [OR class 435] which contains 809 patents or 7.4% of the total [see table in Appendix for details]. Ranked 2nd is Drug, Bio-Affecting and Body Treating Compositions [OR class 514] with 496 patents or 4.5% of the total. And ranked 3rd is Drug, Bio-Affecting and Body Treating Compositions [OR class 424] with 287 patents or 2.6% of the total. Thereafter, the remaining patents are *not* concentrated in a category. For example, the are 35 categories having one patent, 19 categories containing 2 patents, 29 categories having three patents, and so forth.

Next we determine the patent categories in which San Diego patent recipients specialize. To make this determination, a statistics called the "location quotient" is computed. The location quotient is calculated by dividing the San Diego share of each patent category by the US share of each patent category. The result is then multiplied by 100. If a San Diego category equals 100, it means that the share of patents in that category in San Diego is the same as the share in the United States[28].

---

[28] Location quotient is a statistical measure of the extent to which a particular economic activity is over- or under- represented in the economy of a region, compared to its representation in the economy as a whole.

Rather than use all 460 categories of the US PTO's *Original Classification* scheme, these categories are condensed to 56 Standard Industrial Classification [SIC] codes or groups of SIC codes using an operation the US PTO calls "concordance". A concordance, in the US PTO's usage of the word, is a table or list of US patent classifications and their corresponding SIC code(s)[29]. This process is inexact and is based on the *attributes of the item being patented – not on the SIC code of the organization receiving the patent.* As part of the concordance process, the patents are distributed among the 56 SIC-based product fields to which the *Original Classification* system subclass has been matched. This may result in a "Fractional Count"[30]. Using utility patent data for the years 1995 through 1999, San Diego patents are allocated to the US PTO's 56 categories and the location quotient is computed for each of the 56 SIC codes groupings. These data used are found in the Appendix.

San Diego's area of greatest patent specialization is Drugs and Medicine which is SIC code 283. The San Diego location quotient for this category is 774 implying the share of patents in San Diego is almost 8 times higher than the national average. Ranked 2nd is Agricultural Chemicals [SIC code 287] with a location quotient of 638 which imply the share of patents in San Diego is more than six times higher than the national averages. There are several areas where the location quotient is greater than 400 and the top ten areas are contained in Figure 58.

Figure 59

---
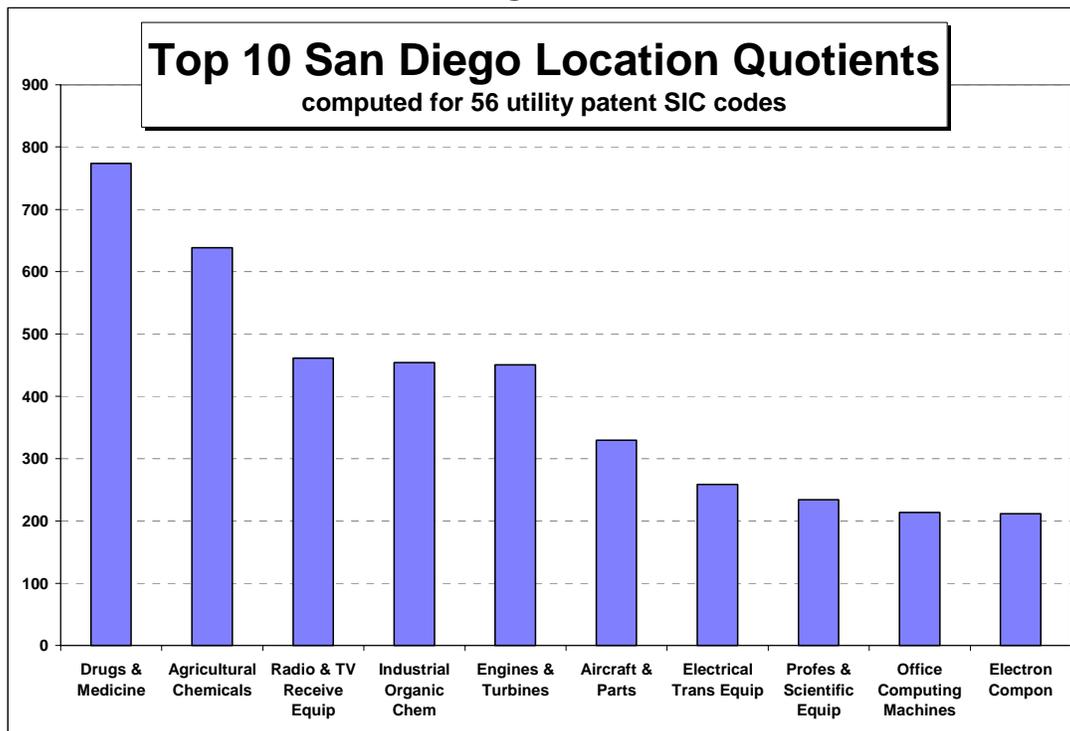
[29] The US PTO developed the list by selecting the most likely SIC code(s) for each US patent classification. There isn't, however, always a good relationship between the two systems, since they are based on different principles. If one were to look at the individual patents from a given U.S. patent classification, they may all correspond to the SIC code(s) or they may represent several different SIC codes. Therefore an individual patent from the U.S. patent classification scheme may not be correctly identified by the SIC code(s) from the concordance. When looking at aggregated data, however, there should be a strong relationship between US patent classification and its corresponding SIC code(s).

[30] For example, if a patent has an "original" classification in a US PTO subclass which is matched to 2 unique SIC-based product fields, that patent would be counted as 0.5 in each of the SIC's. "Fractional Counts" are rounded to the nearest whole number. The practical effect is that there are more patents after the concordance process. For San Diego, the original 10,984 patents awarded between 1990 and 1999 become 14,788 patents after the concordance process.

11. Education

The level of educational attainment is selected because of its impact on economic development. Studies have shown that the greater the level of education, the more productive individuals are and the greater their income.

The level of educational attainment data is obtained from the Bureau of the Census for two periods – 1990 and 2000. In its Census, the Bureau compiles individual data based on the following classifications[31]:

- Total number of individuals 25 years of age or older
    1. Those with less than a 9th grade education
    2. Those completing 9th through 12th grade, but without a diploma
    3. A high school graduate [including the equivalency]
    4. Some college, but no degree
    5. An Associates degree
    6. A Bachelor's degree
    7. A graduate or professional degree

For this study, the seven census categories are condensed into five categories and they are the following:

- **Below High School** – the first two census categories are combined [#1, less than 9th grade education and #2, those completing 9th to 12th without a diploma].
- **High School** – the same category the census uses [#3, high school graduate]
- **Some College** – two census categories are combined, #4, some college and #5, an Associates degree.
- **Bachelors Degree** – same category as census, #6, Bachelor's Degree.
- **Graduate or Professional** – same category as census #7, graduate or professional degree.

Each category is then given a weight and they are the following:

- **Below High School** = -1
- **High School** = 1
- **Some College** = 2
- **Bachelors Degree** = 3
- **Graduate or Professional** = 4

These weights are then multiplied by the share of the population in each category. The rationale for the weighting scheme [-1 to 4] stems from average wages for persons with the various levels of education. Those below high school had such low wages that they were viewed as a cost to society and subsidies would be involved to assist them. After the computations, we have numbers that range between 1.09 for Miami in 1990, to 2.05 for San Francisco in 2000.

---

[31] The Bureau of the Census obtains these data from the "long form" questionnaire distributed to the population. To obtain the actual number of persons, the census uses statistical inference from the sample of individuals receiving the long form. The actual data vary around a mean titled the "Estimate". The census also provides a "lower bound", and an "upper bound". For this study we use the mean or "Estimate" data.

How is San Diego Doing?

San Diego's overall score increased from 1.57 in 1990 to 1.67 in 2000. This increase is 0.10 or 6.4%. Findings regarding the distribution of data:

- **Below High School** – the share in this category *increases* from 18.1% in 1990 to 19.0% in 2000.
- **High School** – the share in this category *declines* from 22.8% in 1990 to 16.7% in 2000.
- **Some College** – the share in this category *increases* from 33.9 % in 1990 to 34.4% in 2000.
- **Bachelors Degree** – this share in this category *increases* from 16.5% in 1990 to 18.7% in 2000.
- **Graduate or Professional** – this share in this category *increases* from 8.8% in 1990 to 11.2% in 2000.

The only category that shows a decline is the category of individuals with just a high school degree and it declines by 6.1% [see Figure 60]. The largest increase occurs in the category graduate or professional, which increases by 2.4%. The 2nd largest increase occurs in the category of bachelor's degree, which increases 2.2%.
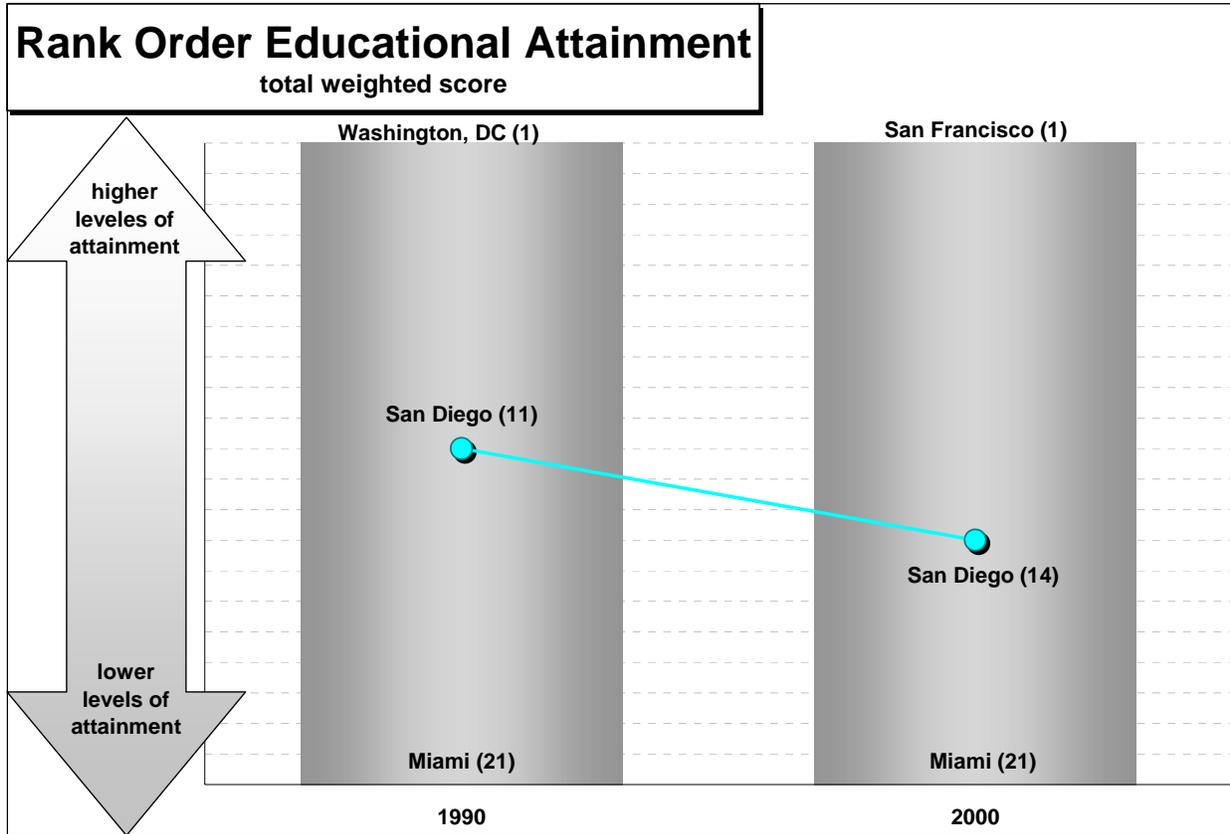
Figure 60

San Diego Level of Educational Attainment
for persons 25 years of age and older
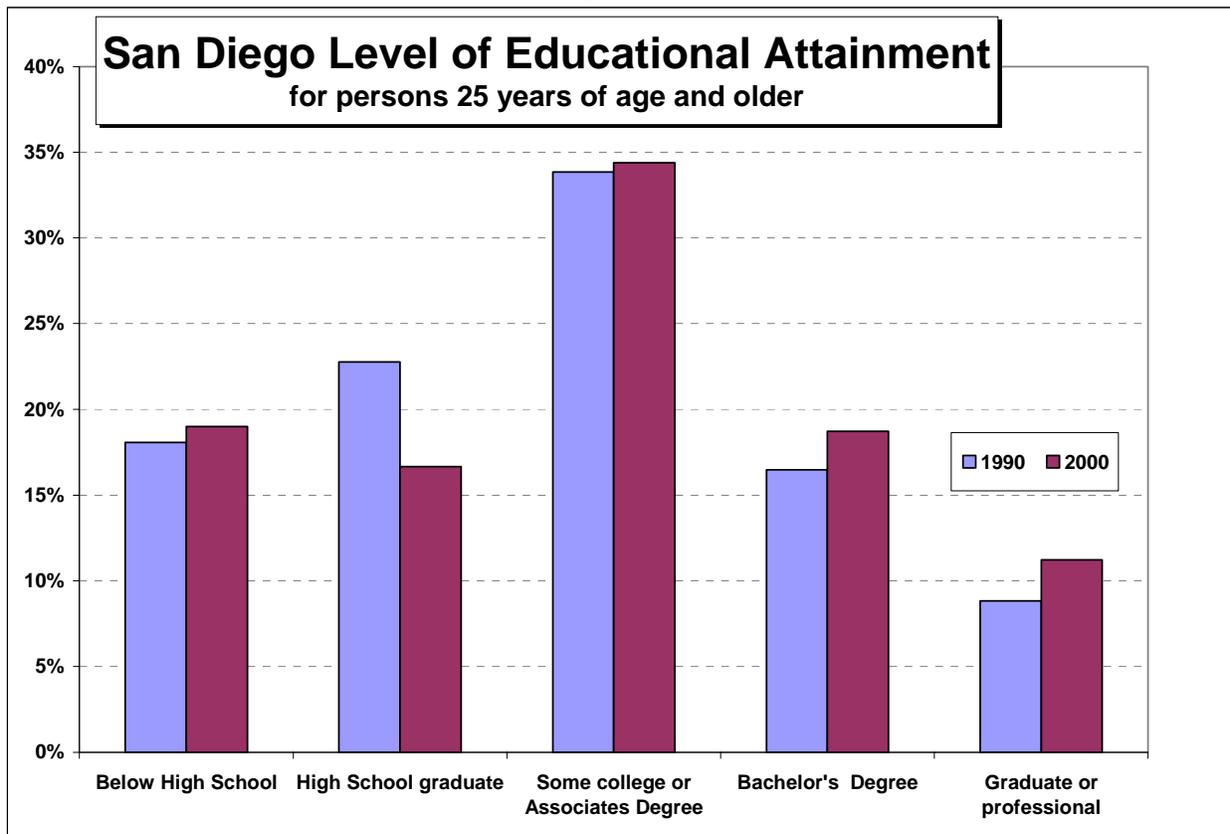
Below Average for 2000. San Francisco is ranked 1st in 2000 with a score of 2.05 and San Diego is ranked 14th with a score of 1.67. Miami is ranked last with a score of 1.37.

Figure 61

Rank Order Educational Attainment
total weighted score

San Diego has always had a total score for educational attainment that is higher than the total score for California or the United States [see Figure 62]. What is noteworthy is the fact that the rate of growth for the US is faster than either San Diego or California. The US score increased about 21% during the decade while San Diego increased about 6% and California increased about 9%.

Figure 62

Educational Attainment
total weighted score

San Diego, CA
California
United States

1990   2000
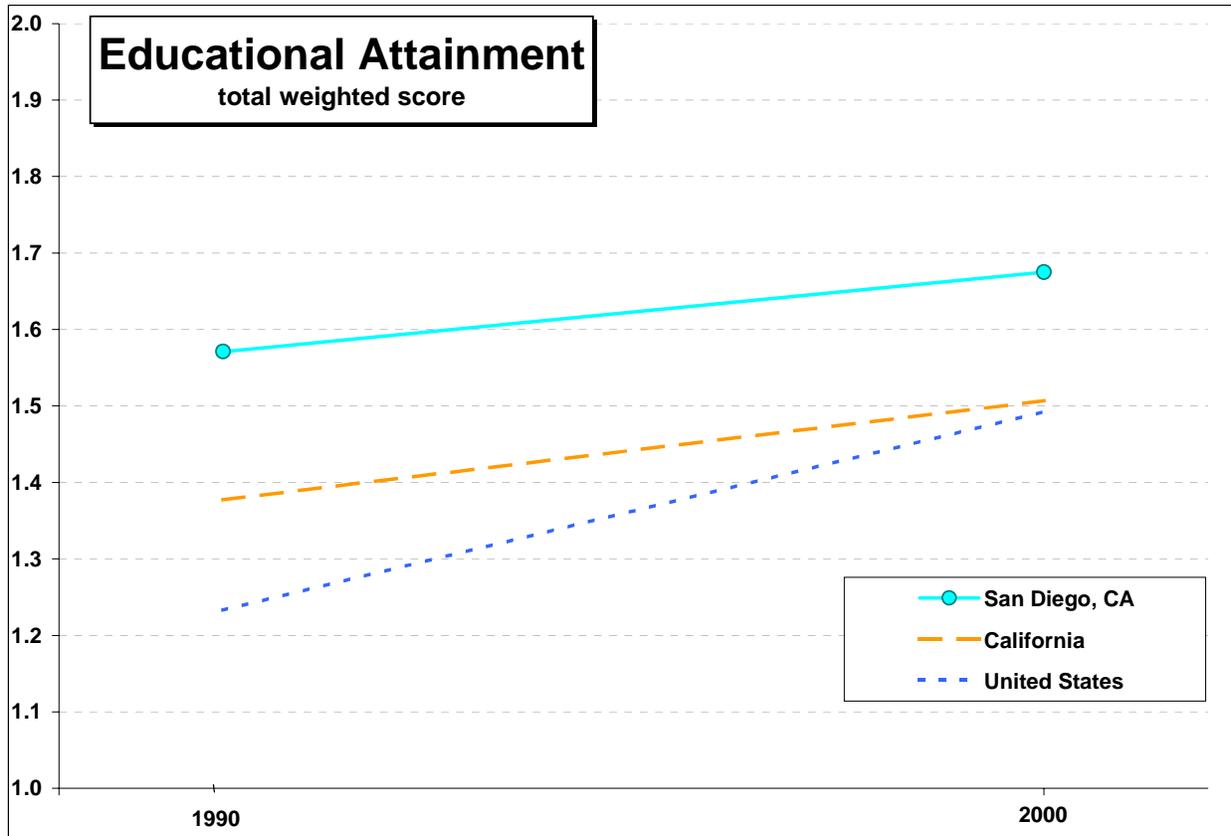
Have We Improved?
Yes. Based on San Diego historical data, the total score for educational attainment increased between 1990 and 2000.

➢ Environmental Indicators

Indicators in this category include those that measure air quality and water quality, crime rates, and capital outlays by governmental organizations on sewerage, solid waste management and water utilities. Air and water qualities are presented because these indicators are direct measures of environmental quality. Crime is included as it presents a perspective of the relative safety of our environment. Capital outlays represent governmental expenditures that impact our physical environment. All of these indicators are important to the health of the region. Furthermore, if these indicators deteriorate significantly, San Diego may not be able to maintain its human resources talent, which means it could lose its competitive edge.

Figure 63

How Does San Diego Compare? - Environment					
To 20 Other Metropolitan Regions					
Indicator	Excellent	Above Average	Average	Below Average	Poor
Air Quality				✔	
Water Quality	✔				
Crime		✔			
Capital Outlays on Sewerage	✔				
Capital Outlays on Solid Waste				✔	
Capital Outlays on Water Utilities	✔				
SUM OF ENVIRONMENT INDICATORS	3	1	0	2	0
Distribution	50.0%	16.7%	0.0%	33.3%	0.0%

Strengths
With regard to Capital Outlays, the areas of relative strength for San Diego are governmental capital outlays on sewerage where San Diego is ranked 1st and capital outlays on water utilities where San Diego is ranked 4th. San Diego's ranking for water quality is tied for the 2nd place ranking, however, the San Diego watershed is subject to "stressors" [as detailed by the Environmental Protection Agency] and could deteriorate quickly. San Diego's crime rate is ranked 6th [above average] and has shown considerable improvement over the last decade.

For two thirds of the Environmental indicators examined, San Diego is ranked Excellent or above average.

Weakness
Air Quality is a weakness of the region [although San Diego has improved dramatically over the last decade], where San Diego is ranked 17th for 2000 in the number of days not meeting air quality requirements established by the US Environmental Protection Agency. With regard to Capital Outlays, the area of relative weakness for San Diego is investment in solid waste management where San Diego is ranked 15th

Figure 64

Has San Diego Improved? - Environment			
Compared to historical San Diego data			
Indicator	Yes	No	Mixed Results
Air Quality	⇧		
Water Quality	⇧		
Crime	⇧		
Capital Outlays on Sewerage	⇧		
Capital Outlays on Solid Waste			⇔
Capital Outlays on Water Utilities			⇔
SUM OF ENVIRONMENT INDICATORS	4	0	2
Distribution	66.7%	0.0%	33.3%

Over the last decade San Diego has shown improvement for four of the six Environmental indicators reviewed.

12. Air Quality

The indicator used in this analysis is number of days each year that a metropolitan region does not meet the United States Environmental Protection Agency [EPA] ambient air quality standards. The fewer the number of days not meeting EPA air standards, the better the air quality.

The Air Quality Index [AQI] is a measure compiled by the EPA. This Index is composed of five major air pollutants regulated by the Clean Air Act – ground level ozone, particulate matter, carbon monoxide, sulfur dioxide and nitrogen dioxide. For each of these pollutants the EPA has established national air quality standards designed to protect humans against harmful health effects. The higher the value of the AQI, the greater the level of air pollution, and the greater the health danger.

How Is San Diego Doing?
San Diego met all EPA air quality standards in 2000 except the 8-hour standard for ozone. Specifically, San Diego exceeded the limits of this standard on 14 days in 2000.
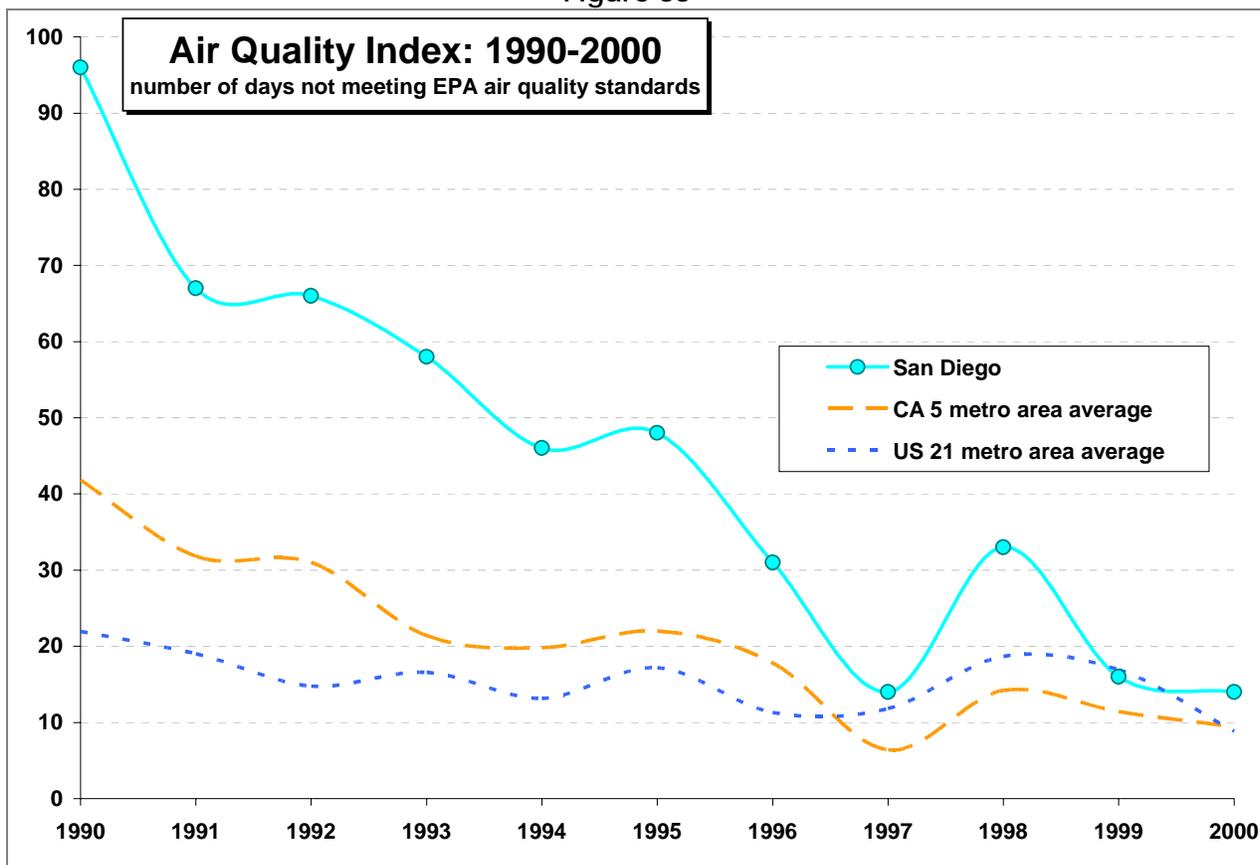
How Do We Compare?

Below Average for 2000 [but improving]. Compared to the 20 other metropolitan regions, San Diego ranked last in 1990, 20th in 1995 and 17th in 2000. San Francisco ranked 1st in 1990, Seattle ranked 1st in 1995, and five metropolitan regions are tied for 1st in 2000 implying these regions are best and had the fewest days not meeting EPA air quality standards. Houston is ranked last in 1995 and 2000 implying it had the worst air quality. Although San Diego is ranked in the lowest quintile, its rate of improvement has been substantial.

Figure 65
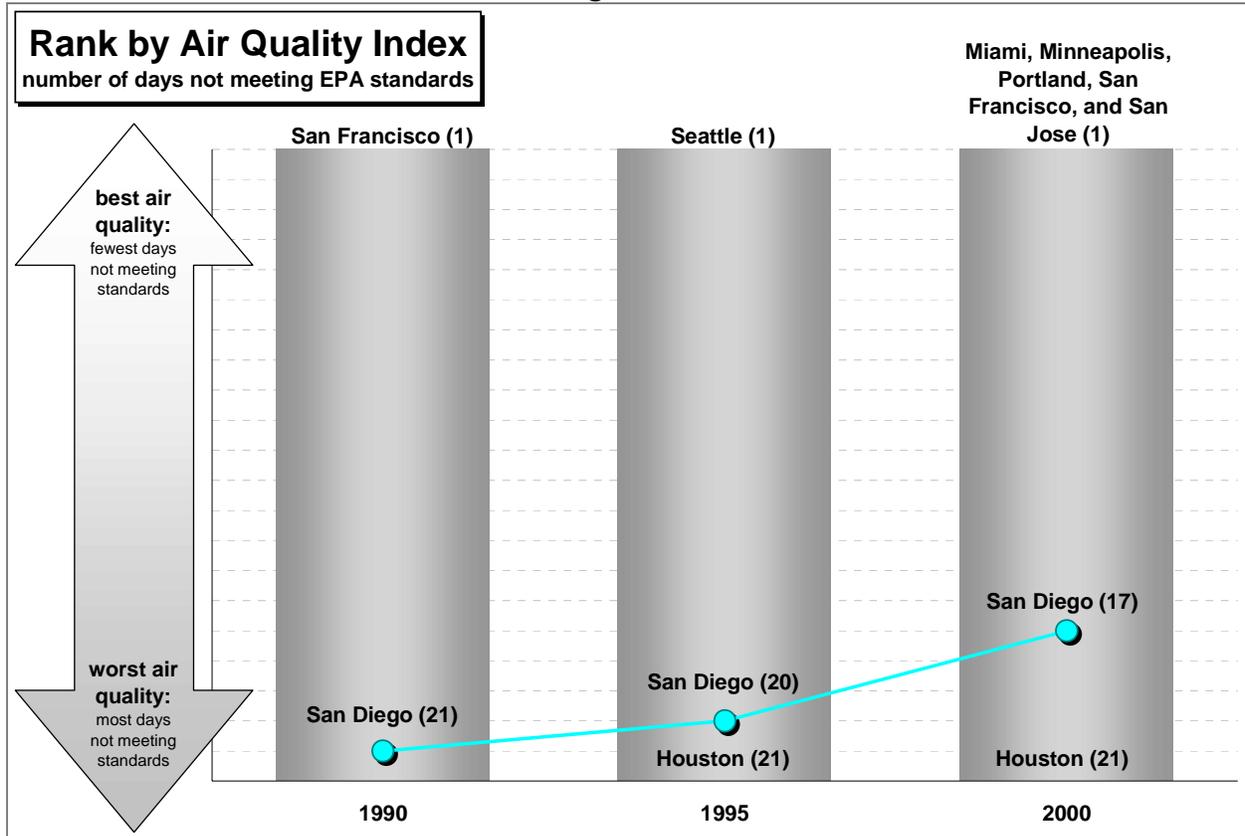
The EPA does not compile data on average air quality for the state of California and the United States. To obtain data to perform this time series analysis, the number of days exceeding EPA standards are averaged for the five California regions [to obtain the California average], and the number of days exceeding the EPA standards are averaged for the 21 metropolitan regions [to obtain the United States average]. San Diego's has improved substantially since 1990, bringing it in line with the state and national averages [see figure 66].

Figure 66

Air Quality Index: 1990-2000
number of days not meeting EPA air quality standards

Legend:
- San Diego
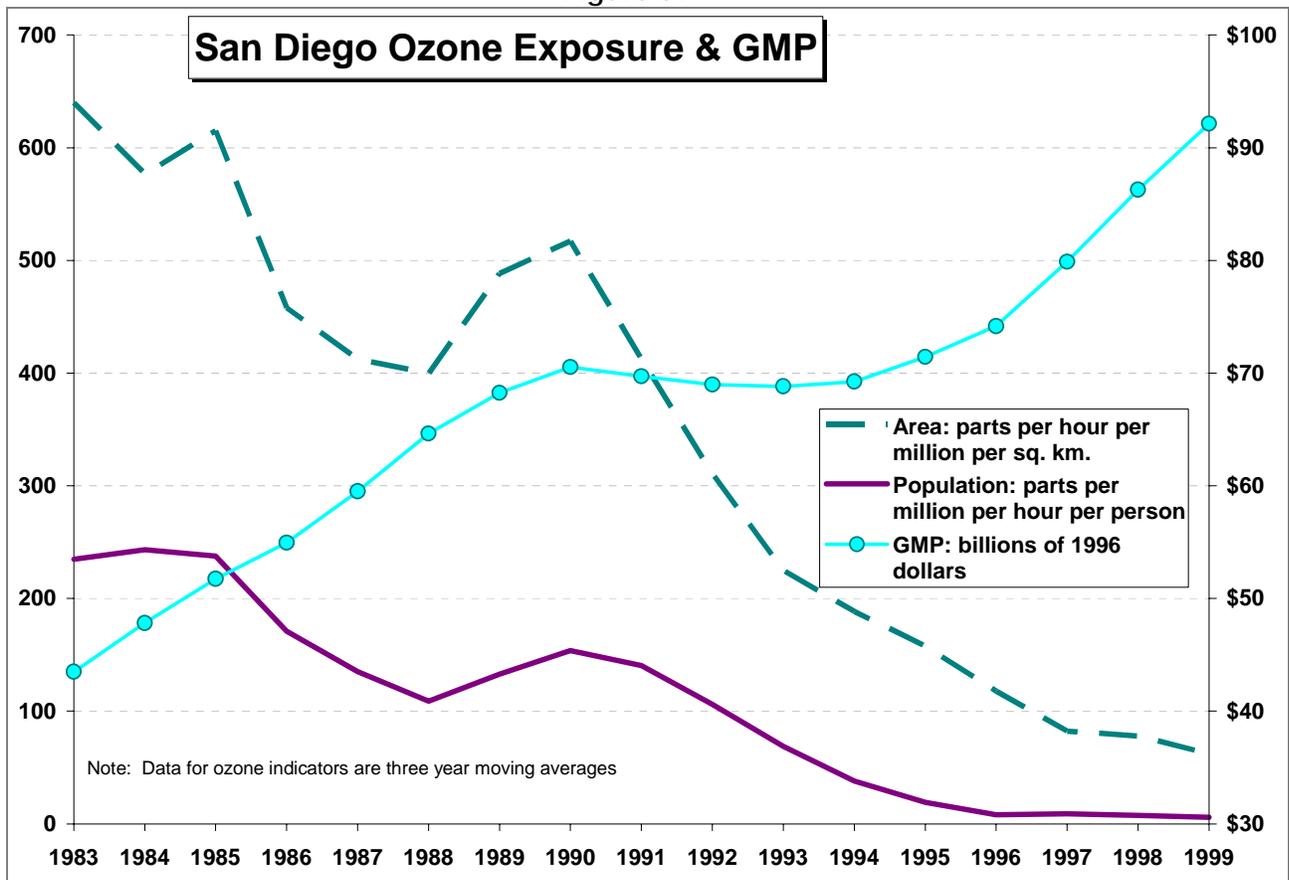- CA 5 metro area average
- US 21 metro area average

<u>Have We Improved?</u>
Yes, dramatically. Based on historical San Diego data, there were 96 days in 1990 when San Diego's air quality did not meet EPA air quality standards. The decline to 14 days in 2000 represents an 85% decrease in the number of days of poor air quality [see figure 66].

To see how San Diego's air quality has changed over time, the concentration of ozone per square kilometer [sq. km.] and by resident is compiled. Ozone is one of five air quality measures compiled in San Diego County[32]. Ozone is selected because of the difficulty San Diego has experienced in meeting US EPA requirements for this item. Between 1983 and 1999 there is a stunning 90% decline in ozone concentration per sq. km and a dramatic 97.5% decline in ozone exposure per capita. This air quality improvement occurred despite San Diego's location downwind of the large Los Angeles metropolitan region, which is among the cities with the worst air quality in the United States. Further, this improvement occurs while the San Diego economy grew from about $43 billion in 1983 to about $92 billion in 1999 [constant 1996 dollars, see Figure 67]. The implication of this data is that it is possible to have economic expansion while reducing pollution.

Figure 67

San Diego Ozone Exposure & GMP

Legend:
- Area: parts per hour per million per sq. km.
- Population: parts per million per hour per person
- GMP: billions of 1996 dollars

Note: Data for ozone indicators are three year moving averages

---

[32] The other air quality measures are particulate matter, carbon monoxide, sulfur dioxide and nitrogen dioxide.

13. Water Quality

Two sets of indicators are used for this analysis – one indicator is compiled by the United States EPA and is called the "Index of Watershed Indicators [IWI]". The second set of indicators measure tap water quality and are compiled by the City of San Diego Water Department.

The term watershed or drainage basin refers to a geographic area where water and sediment drain to a common outlet eventually leading to a body of water. A watershed is defined by natural hydrology [the science of the flow and distribution of water] and represents a logical unit for managing natural resources. Watersheds are those land areas bounded by topographic features on the landscape that catch falling rain and snow which drains to creeks, rivers, lakes, estuaries, lagoons, marshes, the ocean or groundwater basins. The quality of the natural environment is the cumulative result of activities within a drainage basin. Human disturbances in watersheds, such as residential, commercial and industrial development and the construction of roadways alter natural drainage patterns and accelerate the rate of erosion and drainage through the watershed. Watersheds provide useful geographic units for managing natural resources aimed primarily at protecting aquatic ecosystems. The different types of aquatic ecosystems in any watershed are determined by physical characteristics such as variation of slope in the terrain, amount, frequency, and intensity of precipitation; soil type; and vegetation within the watershed.

Activities in each watershed impact areas that are miles away, as runoff, sediment, and pollutants flow through the watershed toward its outlet. For example, the conversion of land in its natural state to developed land affects the amount and type of pollutants that are generated and then flow through watershed to water bodies and the oceans. In whichever direction the watersheds extend, land use decisions in those areas affect the natural resources and water quality in the region.

The IWI is a compilation of information on the "health" of aquatic resources in the United States. It combines a variety of indicators that point to whether rivers, lakes, streams, wetlands and coastal areas are "well" or "ailing" and whether activities on the surrounding lands that affect the waters are placing them at risk. Examples of indicators include the occurrence of contaminants in surface or groundwater and the percent of rivers and lakes supporting drinking water use. The IWI is composed of three components and each watershed is ranked on a scale of 1 to 6 where 1 is best and 6 is worst[33]. The data compiled by the EPA spans the years 1997 through 1999.

The EPA compiles the IWI for over 2,000 watersheds in all 50 states of the United States; however, many metropolitan areas encompass more than one watershed. Since watersheds follow geographic rather than political boundaries, we examine the geographical setting for each metropolitan area and take steps to select the watersheds that most closely represent it. A complete list of all watersheds for the 21 metropolitan areas is contained in Appendix B[34].

The US EPA recognizes six watersheds falling within (or partially within) the borders of San Diego County and they are the following:
- 18070301 Aliso-San Onofre
- 18070302 Santa Margarita
- 18070303 San Luis Rey-Escondido
- 18070304 San Diego
- 18070305 Cottonwood-Tijuana
- 18100200 Salton Sea

---

[33] For detail on the process of computing the IWI visit the EPA web site at http://www.epa.gov/iwi/help/.
[34] For details on the metropolitan areas and their associated watersheds, see the water quality documentation form in Appendix B.

Watershed number 18070304 is chosen to represent regional water quality for San Diego because its area covers the range most closely associated with the San Diego region. The boundaries of the San Diego watershed fall entirely within the county, while the remaining EPA watersheds cover large portions of Orange, Riverside and/or Imperial counties.

Watershed number 18070304 from the US EPA map corresponds to the six watersheds titled Otay, San Diego, Pueblo-San Diego, Sweetwater and Penasquito and San Dieguito in the SANDAG map[35] [see Figure 68].

Figure 68
Watersheds In and Around San Diego County
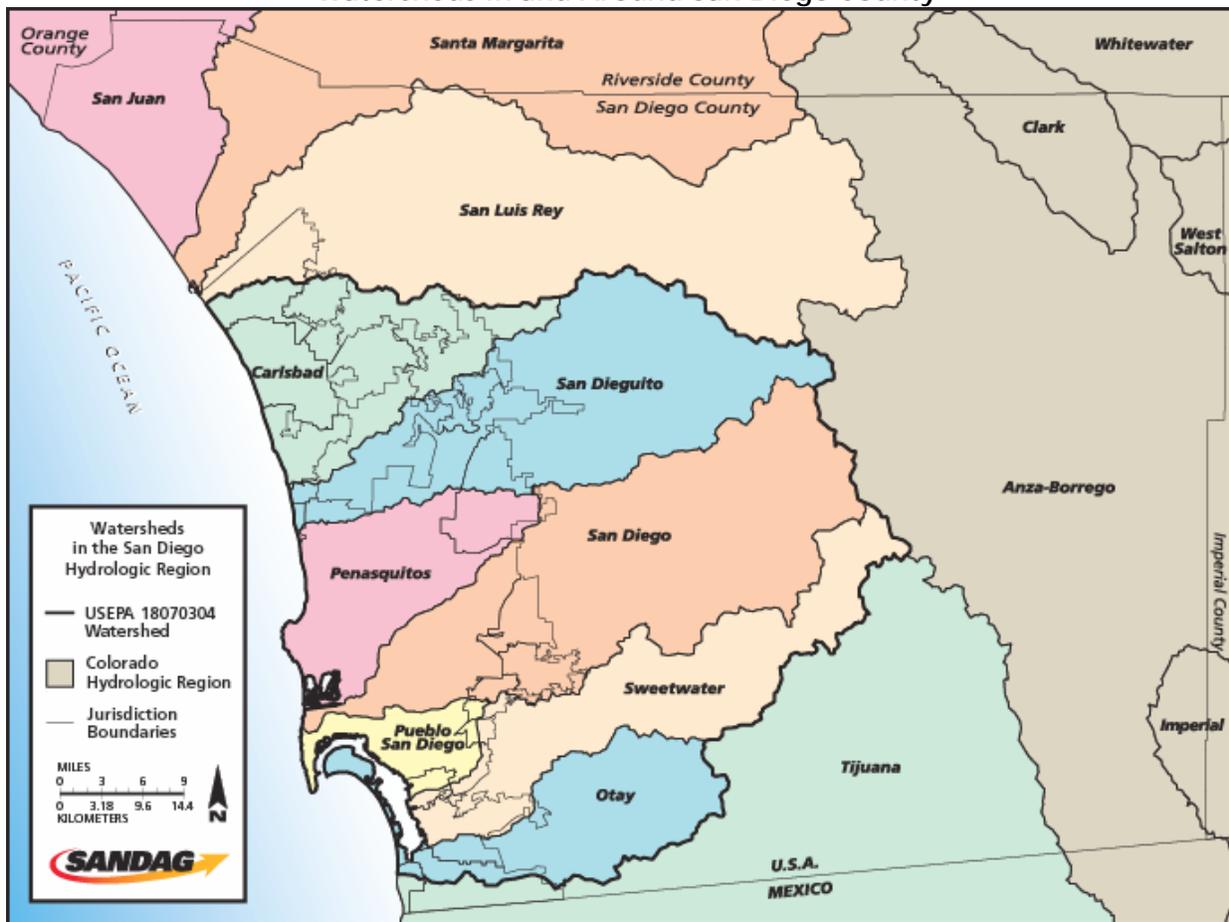
This SANDAG map is used because it is easier to read than the US EPA map, however, we use the EPA boundaries so we can use the EPA Index of Watershed Indicators

---

[35] SANDAG recognizes 11 watersheds in San Diego County five of which extend beyond the County borders.

How Is San Diego Doing?

In 1999, San Diego's IWI was 2 indicating **better water quality, high vulnerability**. The EPA's description[36] of this evaluation is the following:

> **Watersheds with Better Water Quality** – Watersheds where data are sufficient to assert that the designated uses are largely met and other indicators of watershed condition show few problems.
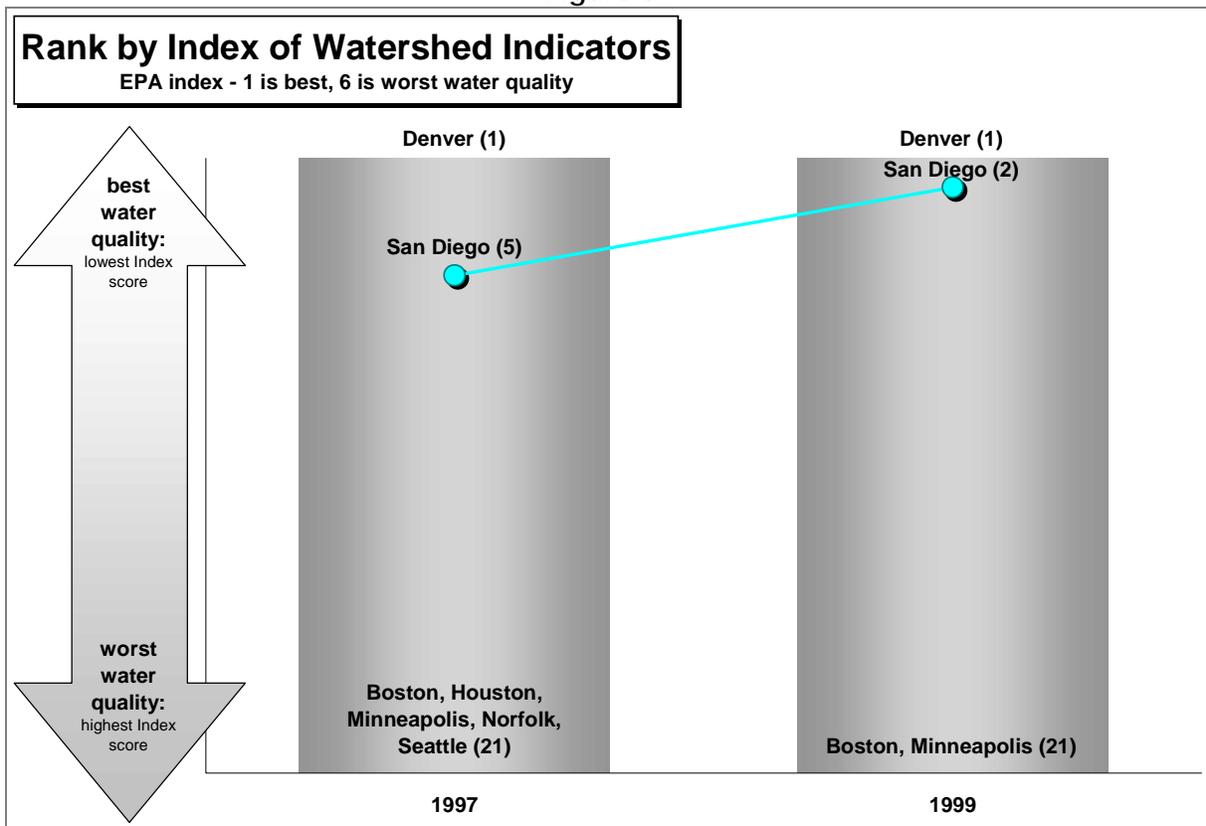> **Watersheds with Higher Vulnerability to Stressors** – Watersheds where data suggest significant pollution and other stressors and, therefore, a higher vulnerability to declines in aquatic health. *These watersheds have the greatest need for actions to protect quality and prevent decline* [emphasis added].

In short, data are sufficient to state that the region's water quality is currently good; however, there are significant polluters that stress the ecosystem. On its web site, the EPA lists 133 sites that release toxic substances into the San Diego watershed[37] and thousands of sites that release hazardous wastes into the same watershed[38]. Caution should be used when saying the San Diego watershed is doing well as the evaluation suggests there is potential for decline in watershed quality.

How Do We Compare?

Excellent for 1999. San Diego ranked 5th in 1997 and 2nd in 1999 – a significant improvement during the two year period. Denver is ranked 1st in both periods, implying its watershed is the cleanest, while five metro areas are ranked last in 1997 and two are ranked last in 1999. Boston and Minneapolis ranked last in 1997 and 1999.

Figure 69

Rank by Index of Watershed Indicators
EPA index - 1 is best, 6 is worst water quality

best water quality: lowest Index score

worst water quality: highest Index score

Denver (1)
San Diego (5)
Boston, Houston, Minneapolis, Norfolk, Seattle (21)
1997

Denver (1)
San Diego (2)
Boston, Minneapolis (21)
1999

---

[36] See web site http://www.epa.gov/iwi/hucs/18070304/score.html#

[37] See web site http://oaspub.epa.gov/surf/surffac?huc=18070304&ldip=17&name=San%20Diego

[38] See web site http://oaspub.epa.gov/surf/surffac?huc=18070304&ldip=01&name=San%20Diego

The range of IWI scores reveals only Denver metro area has a score of 1.0. San Diego is grouped with several other regions with a score of 2.0. The scores for the US and California were estimated by SANDAG by averaging the IWI scores for all reported watersheds in the US and California.

Figure 70

Index of Watershed Indicators: 1999
EPA index - 1 is best, 6 is worst water quality
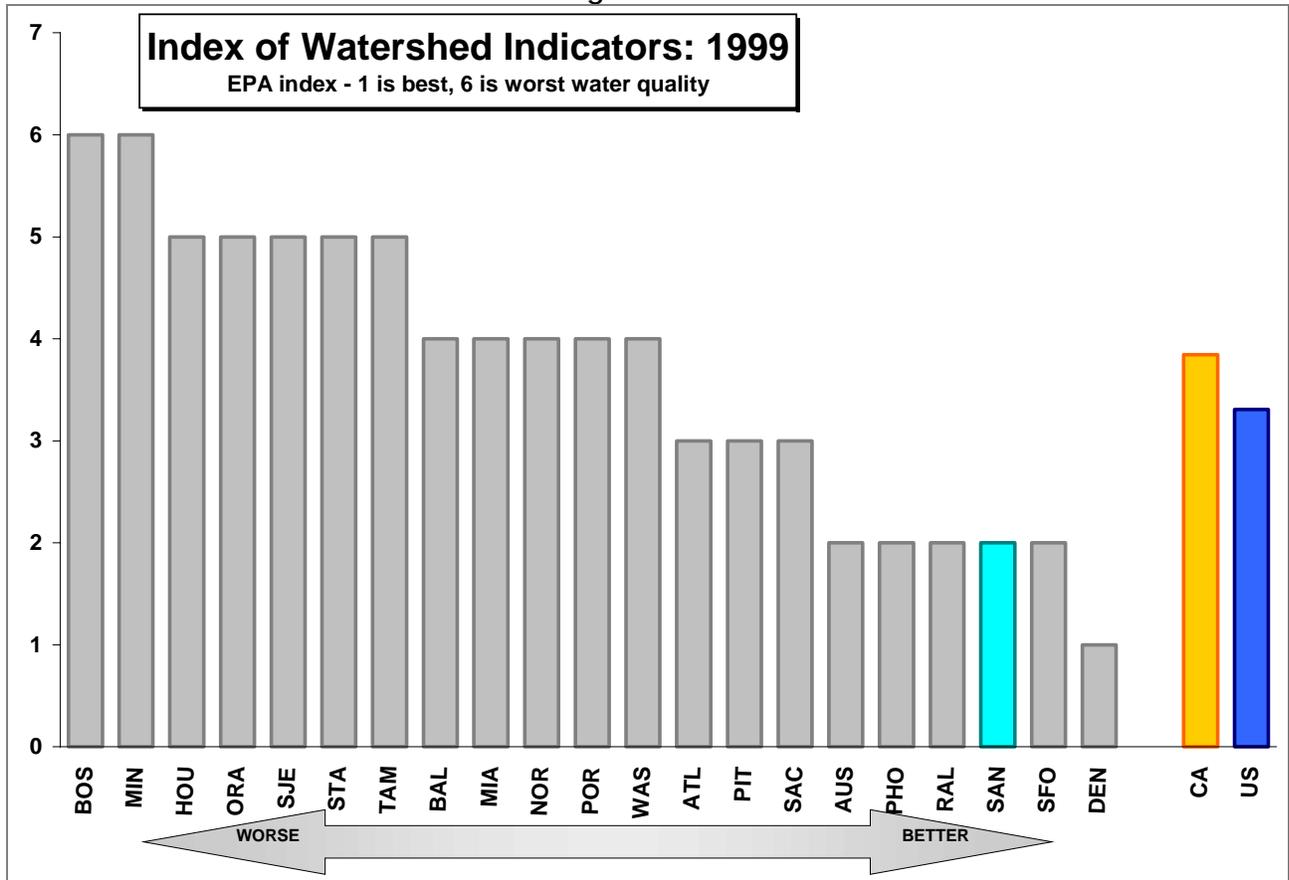
<u>Have We Improved?</u>

Yes. Based on historical San Diego data, San Diego's IWI score declined [improved] from 4.0 in 1997 and 1998 to 2.0 in 1999. The result is an increase in our ranking [from 5th to 2nd].

Figure 71
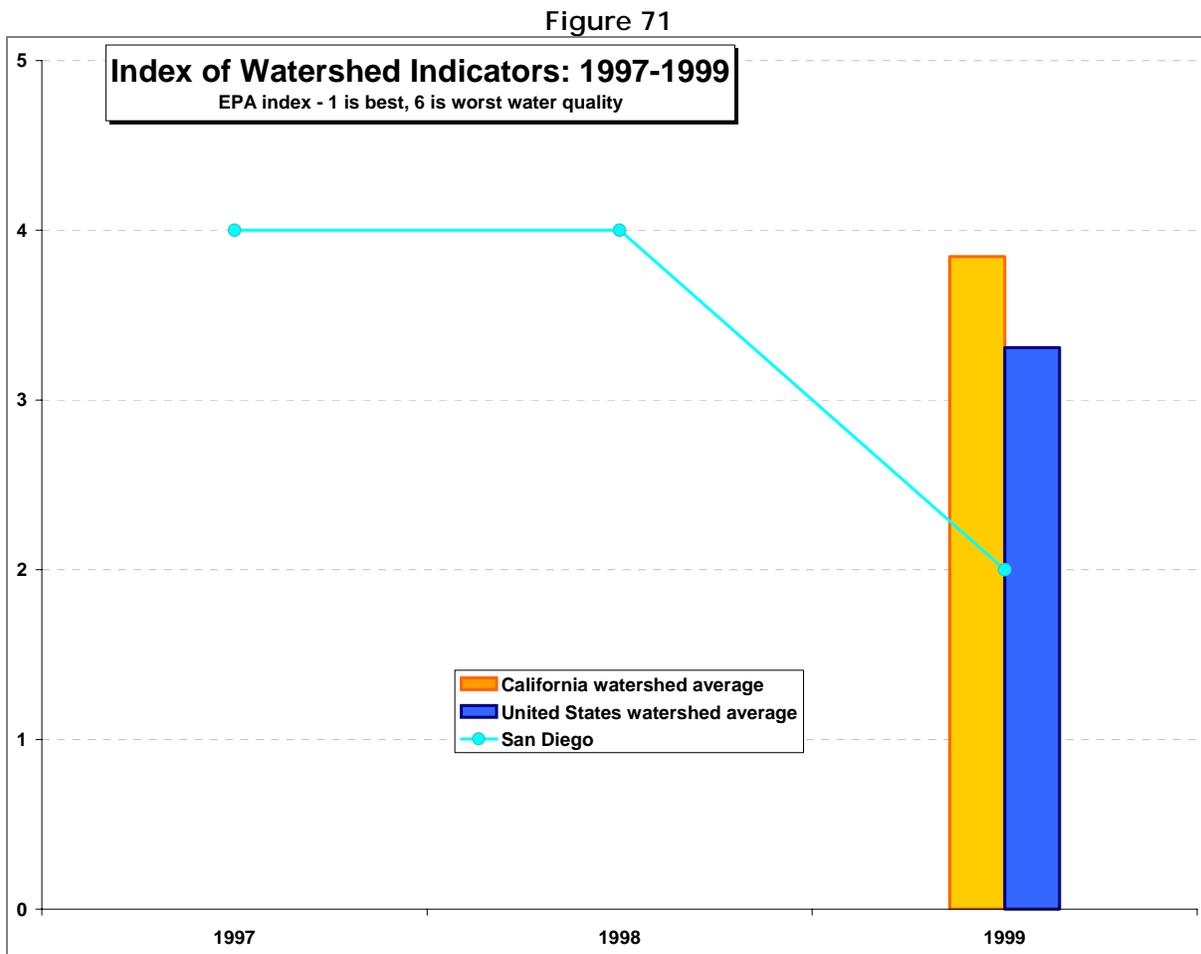
It is important to recall that the EPA noted that the watershed in which San Diego resides is subject to "stressors" which could harm the ecosystem. With thousands of sites that pollute, it is easy to understand how the IWI ranking could deteriorate fairly rapidly in the future. In fact, the EPA's definition specifically states: *These watersheds have the greatest need for actions to protect quality and prevent decline.*

The second set of indicators deal with tap water quality and data are compiled to get a sense of San Diego's tap water quality during the last decade. Each jurisdiction monitors it's own water quality, according to state and local (as well as federal) standards. Thus, no data are compiled for the other 20 metropolitan areas.

Drinking water, in any region, can reasonably be expected to contain traces of dissolved minerals, organic matter, or other "contaminants." These contaminants, when found in tiny quantities, pose no health risk. However, long term exposure to elevated quantities of harmful contaminants can pose a severe health risk. Therefore, the government (at both the federal and state levels) imposes quality regulations to protect drinking water quality.

Within the region, regular monitoring reveals that San Diego tap water meets both US EPA and California State Department of Health Services standards. Over the past decade, the majority of regulated contaminants are found to be completely absent[39] from the water supply. Of those that are detected on a regular basis, total trihalomethanes (a class of organic chemical pollutants), turbidity (muddiness), and coliform bacteria (a biological contaminant) levels are consistently below both federal and state health related standards, implying high overall tap water quality in the region [see Figure 73].

Total trihalomethanes (TTHMs) are an important indicator of tap water quality, since
> *persons who use water containing trihalomethanes in excess of the MCL* [maximum contaminant level] *over many years may experience liver, kidney, or central nervous system problems, and may have an increased risk of contracting cancer.*[40]

The state and federal standards for this contaminant require that the detectable levels remain below 100 parts per million (ppm). Over the past decade, San Diego's tap water has consistently met this standard.

Figure 72

San Diego Tap Water Quality - Trihalomethanes
total trihalomethanes in mg/l

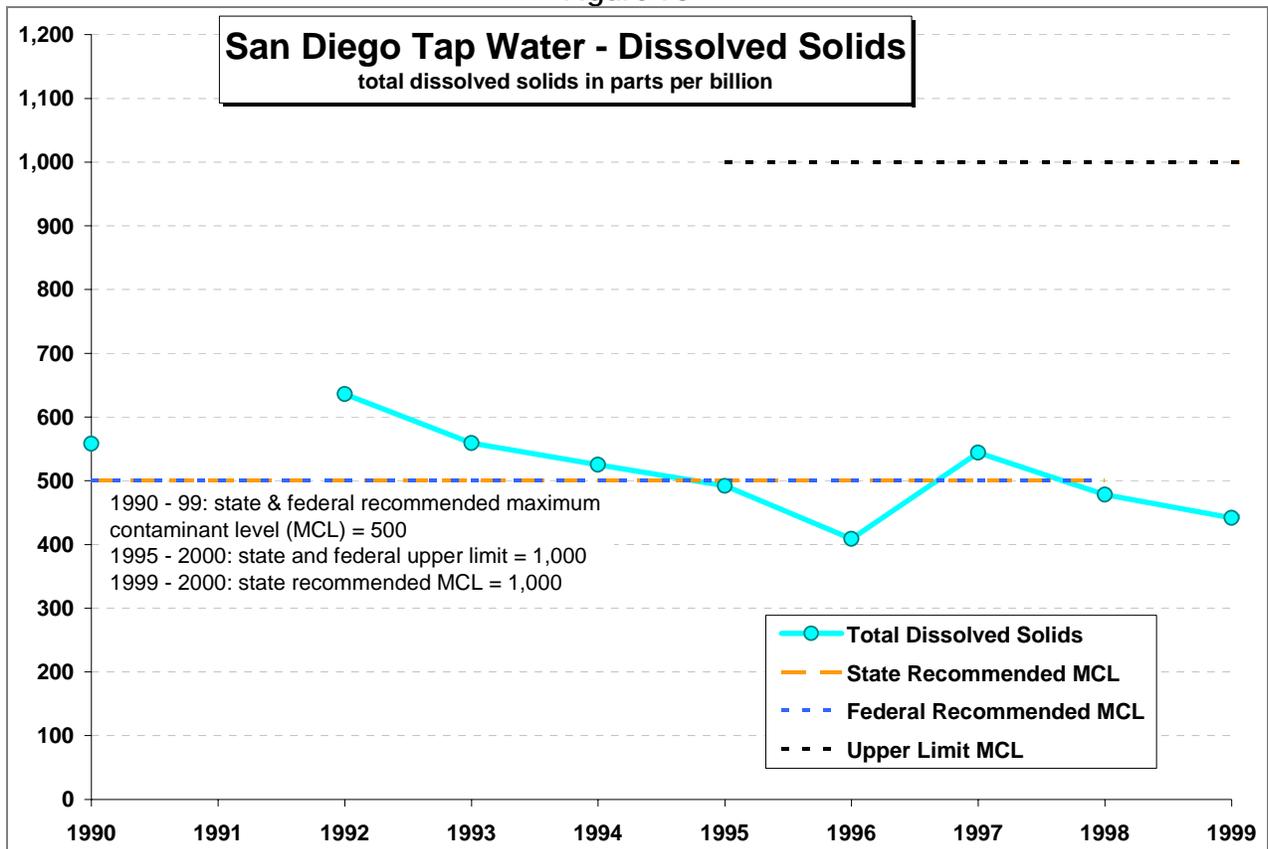state maximum contaminant level (MCL) = 100
federal MCL = 100

---
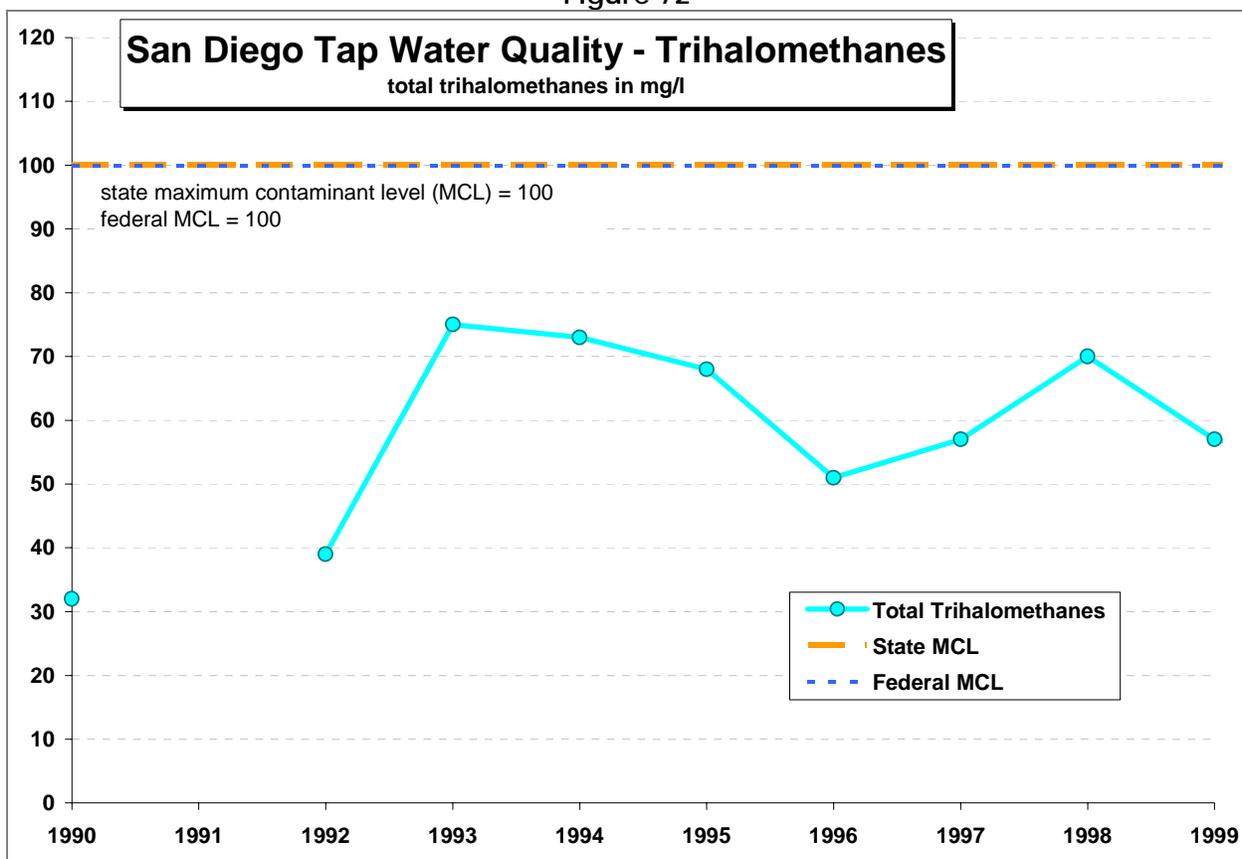
[39] Reported as "ND" or "not detectable at testing limit".
[40] City of San Diego Water Department, *Consumer Confidence Report: 2000.*

The State of California Recommended Maximum Contaminant Level for "Dissolved Solids" (an aesthetic standard[41]) was set at 500 ppm until 1998.[42] The upper limit was set at 1,000ppm. While San Diego's tap water quality was well within the 1,000 ppm limit, it did not consistently meet the more rigorous (500 ppm) standard [see Figure 73]. However, in the late 1990s, both the state and federal government adopted the 1,000ppm level as the new standard for Recommended Maximum Contaminant Level. Thus, these data suggest that San Diego's tap water has been acceptable (though not superior) in terms of its aesthetic characteristics.

Figure 73

San Diego Tap Water - Dissolved Solids
total dissolved solids in parts per billion

1990 - 99: state & federal recommended maximum contaminant level (MCL) = 500
1995 - 2000: state and federal upper limit = 1,000
1999 - 2000: state recommended MCL = 1,000

Total Dissolved Solids
State Recommended MCL
Federal Recommended MCL
Upper Limit MCL

---

[41] Tap water is measured according to Primary and Secondary standards. Primary standards are mandatory health related standards, and include clarity, as well as microbiological, radiological and chemical contaminants. Secondary standards are aesthetic standards, and have little or no known health effects.
[42] In 1999 the standard Maximum Contaminant Level (MCL) for total dissolved solids was raised from 500ppm to 1,000ppm for both the state and federal standards. 1,000ppm was formerly considered the "upper limit."

14. Crime

The total crime rate is composed of two items: violent crimes rate and property crimes rate. Violent crimes are composed of four offenses: murder and non-negligent manslaughter, forcible rape, robbery and aggravated assault. Property crimes include burglary, larceny-theft, and motor vehicle theft[43].

The crime rate is calculated by dividing the number of crimes per 1,000 population. There are three crime rates: The violent crime rate, the property crime rate and the total crime rate [violent crime rate plus property crime rate]. These rates are computed for all 21 metropolitan regions, California and the United States.
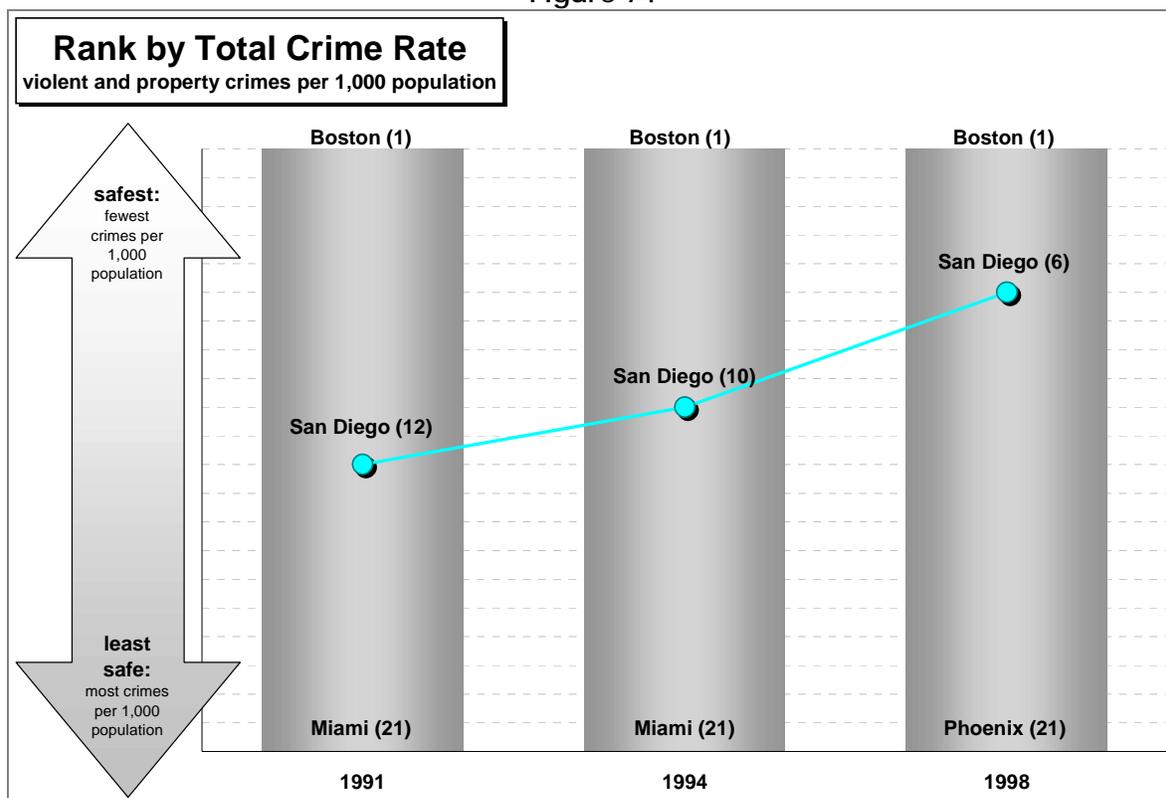
How Is San Diego Doing?
Between 1990 and 2000, the number of violent crimes in San Diego declined 35% to 13,746 [from 21,213] while the number of property crimes declined 49% to 80,662. Total crimes declined 47%. Of the total number of crimes in 2000, about 85% are property crimes and this share is similar throughout the ten-year period.

How Do We Compare?
Above Average for 1998. When compared to 20 other metropolitan regions, San Diego is ranked 12th in 1991, 10th in 1994 and 6th in 1998. Boston is ranked first in all three periods implying it is safest and has the lowest crime rate. Miami is ranked last in 1991 and 1994 and Phoenix is ranked last in 1998. While San Diego is ranked in the middle of these 21 metropolitan regions, its rate of improvement has been faster than other metropolitan regions, thus, its ranking has improved over the last decade [see Figure 74].
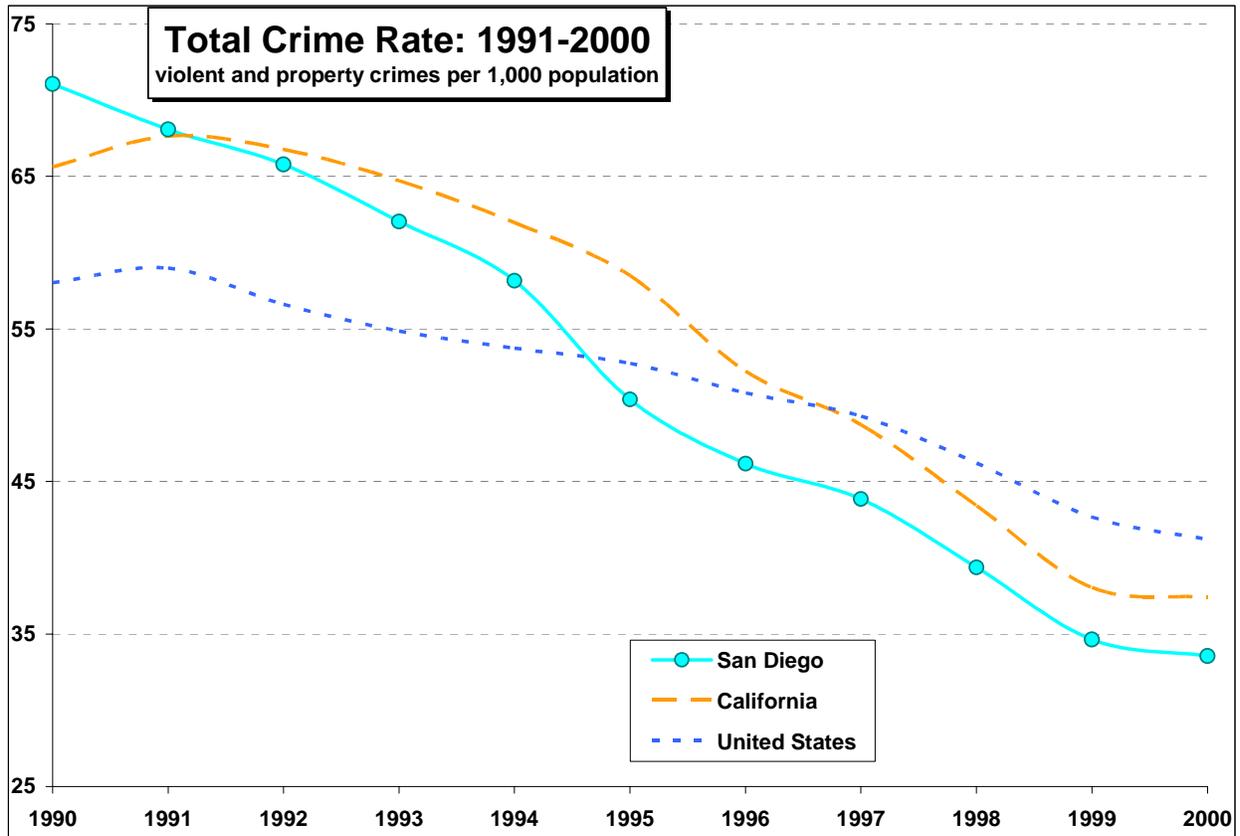
Figure 74

Rank by Total Crime Rate
violent and property crimes per 1,000 population

safest: fewest crimes per 1,000 population

least safe: most crimes per 1,000 population

Boston (1)   Boston (1)   Boston (1)

San Diego (6)

San Diego (10)

San Diego (12)

Miami (21)   Miami (21)   Phoenix (21)

1991   1994   1998

---

[43] All definitions are from the Federal Bureau of Investigation. 1998 is the most recent year we have complete crime rate data for all 21 metropolitan regions.

Compared to California and United States data, San Diego's total crime rate has declined faster over the last decade [see Figure 75]. In 1990 San Diego's total crime rate was higher than the US and California rate. By 2000, San Diego's total crime rate was lower than that of California and the United States. The United States total crime rate fell 29% between 1990 and 2000 while the California total crime rate declined 43% and the San Diego rate declined 53% during the same period.
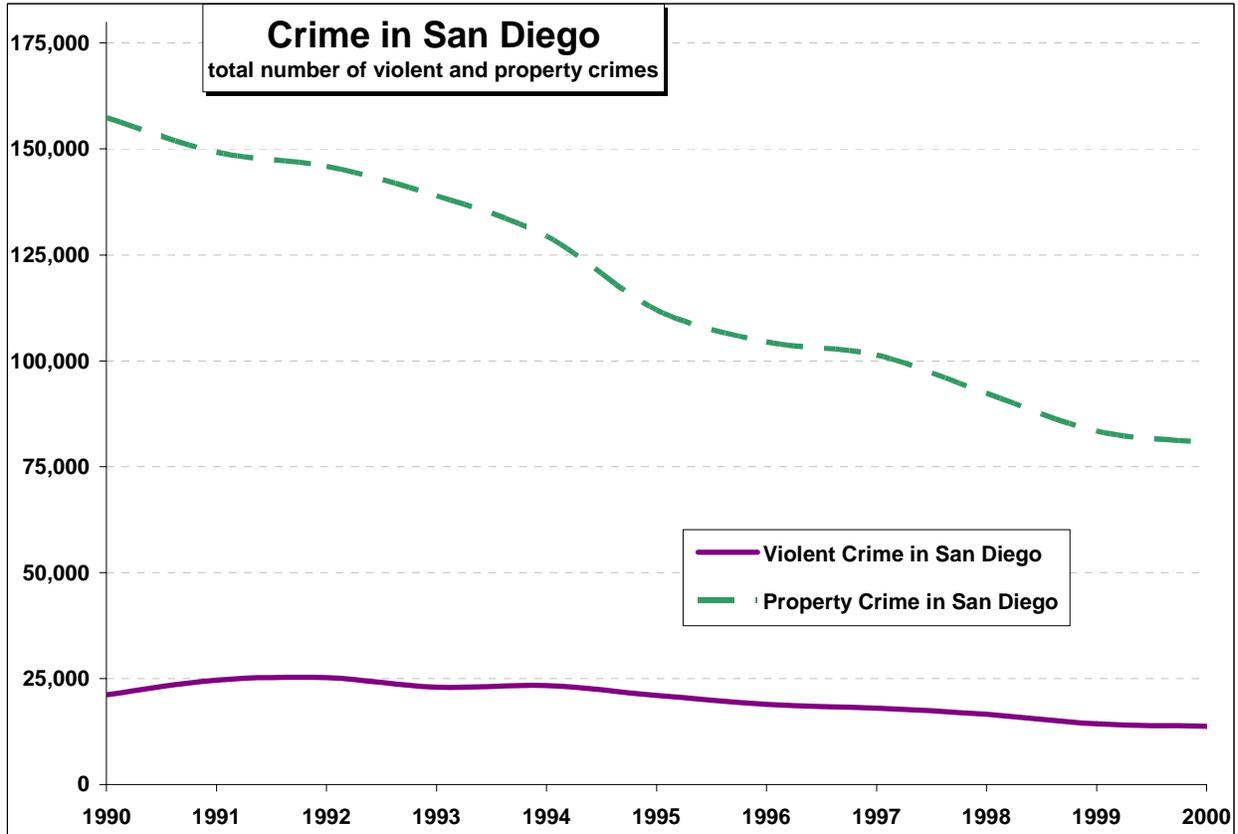
Figure 75

Total Crime Rate: 1991-2000
violent and property crimes per 1,000 population

<u>Have We Improved?</u>

Yes. Based on historical San Diego crime rate data, it is observed that the violent crime rate declines 39% between 1990 and 1999 and the property crime rate declines 53% during the same period [see Figure 76]. At the same time, San Diego's ranking amongst the 21 regions increased from 12th in 1991 to 6th in 1998.

Figure 76

Crime in San Diego
total number of violent and property crimes

Legend: Violent Crime in San Diego; Property Crime in San Diego

15. Capital Facilities Investment on Sewerage

Compiling data on capital outlays for the metropolitan regions is a formidable task. Within a region different jurisdictions have responsibility for different categories of expenditures and this pattern varies between metropolitan regions. In addition, different jurisdictions use different fiscal years, use different schemes to classify their expenditures, and use different accounting systems. Thus, comparing data between metropolitan regions is a major undertaking. To facilitate the process we utilize data from the Bureau of the Census, Governments Division. These data hold merit because of their uniformity and consistency across both geographical and topical areas. The Census Bureau obtains these data from each state's controller's office, after which they classify and compile the database. This "census" of government finance is conducted every five years and this study contains data from the 1982, 1987, 1992 and 1997 census[44]. Capital outlays are expenditures to purchase assets or create value that add to the government's net worth and can include real estate, construction, and other assets that have a useful life longer than one year [automobiles, computers, etc.]. For greater detail on the definitions for capital outlays in this section see the glossary.

Variations in capital outlays, over time, are to be expected if one considers the process of executing a capital project. The project has to be conceptualized, planned, funded and then implemented. Implementation can occur in stages or can be a one-time effort. Because our data are only "snapshots" at two different periods of time, we do not know from which part of this process we are obtaining data, and the results may reflect lump-sum expenditures, or long-term projects.

How Is San Diego Doing?
In nominal dollars, governmental capital outlays for Sewerage increase about 260% to $327.9 million in 1997 from about $91 million in 1982.

To determine if there have been any "real" changes in capital outlays, the nominal dollars data presented above are converted to dollars that are adjusted for inflation using the Implicit Price Deflator [IPD]. After conversion it is learned that capital outlays on Sewerage in constant 2000 dollars increase about 118% to $344.4 million in 1997 from $158.2 million in 1982.

To determine the rate at which capital outlays are spent per resident, the inflation adjusted capital outlay data are divided by San Diego's population to obtain capital outlays per capita in constant 2000 dollars. After the computation it is learned that capital outlays per capita in constant 2000 increase about 57% to $126 per capita in 1997 from $80 in 1982.

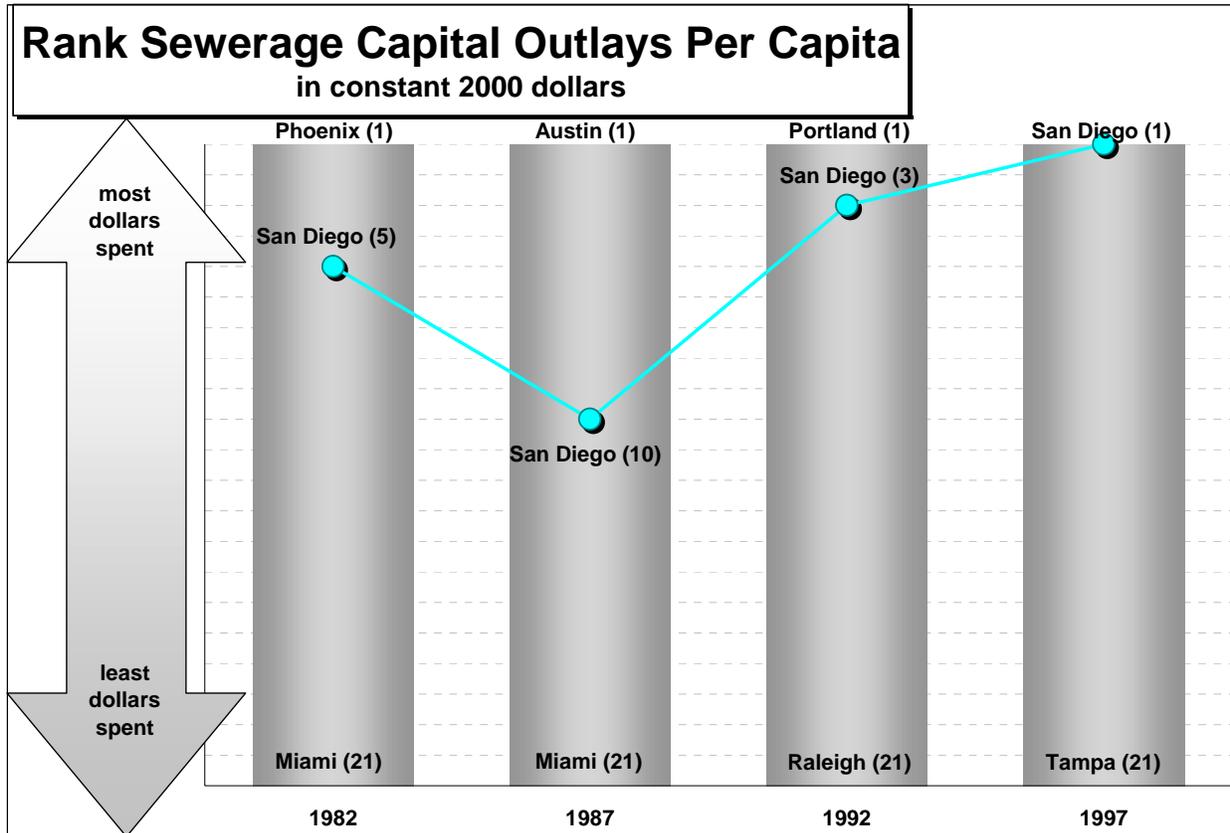In short, there have been "real" per capita increases in governmental capital outlays on Sewerage in San Diego.

---

[44] The Census Department undertakes a sample of jurisdictions every year to compile revenue and expenditure data, however, these sample data are not utilized because they omit jurisdictions that are responsible for certain categories of expenditures. Thus, the sample data are misleading for certain categories of expenditures.
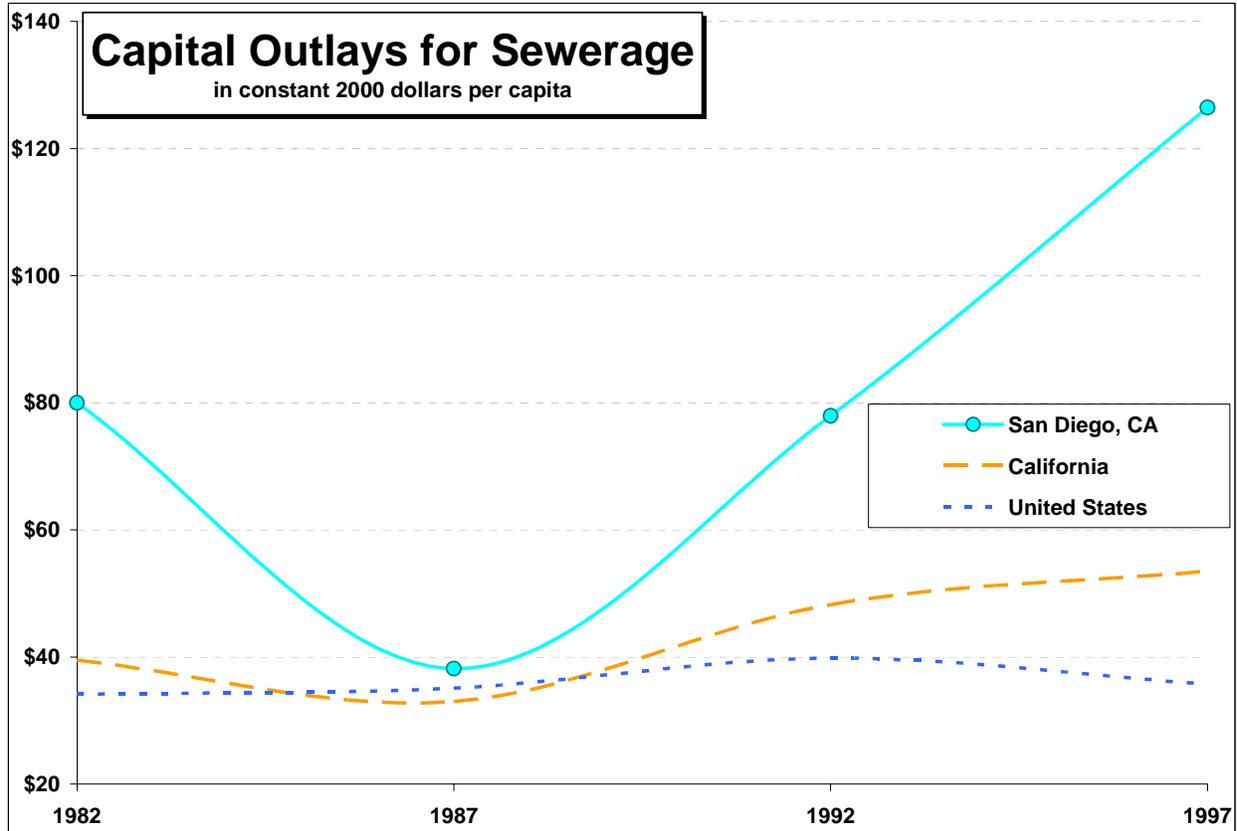
<u>How Do We Compare?</u>
Excellent for 1997. In 1997 San Diego is ranked 1st with about $126 per capita, and Tampa is ranked last with $0.08. Four different regions are ranked 1st for this indicator for the four periods indicating a change in emphasis over time. In 1992 Portland is ranked 1st with about $88 while Raleigh is ranked last with about $1 and San Diego is ranked 3rd with about $78. Within the San Diego region in 1997, San Diego City accounts for about 94% of all capital outlays on sewerage. This is quite different from 1992 when San Diego City accounted for about 65% and San Diego County accounted for about 9%.

Figure 77

Rank Sewerage Capital Outlays Per Capita
in constant 2000 dollars

most dollars spent

least dollars spent

Phoenix (1)	Austin (1)	Portland (1)	San Diego (1)
San Diego (5)		San Diego (3)	
	San Diego (10)		
Miami (21)	Miami (21)	Raleigh (21)	Tampa (21)
1982	1987	1992	1997

Compared to California and the United States, the per capita expenditures on sewerage have always been higher in San Diego. Since 1987, there has been a significant difference between San Diego, California and the US with San Diego spending increasingly more [see Figure 78].

Figure 78

Capital Outlays for Sewerage
in constant 2000 dollars per capita

Legend:
- San Diego, CA
- California
- United States

X-axis: 1982, 1987, 1992, 1997
Y-axis: $20, $40, $60, $80, $100, $120, $140

Have We Improved?
Yes. Although capital outlays on sewerage declined between 1982 and 1987 [on a per capita basis in constant 2000 dollars], they have increased dramatically and now stand about 50% higher than in 1982.

16. Capital Facilities Investment on Solid Waste Management

How Is San Diego Doing?
In nominal dollars, governmental capital outlays for Solid Waste Management increase about 1,082% to $7.2 million in 1997 from about $0.6 million in 1982.

To determine if there have been any "real" changes in capital outlays, the nominal dollars data presented above are converted to dollars that are adjusted for inflation using the Implicit Price Deflator [IPD]. After conversion it is learned that capital outlays on Solid Waste Management in constant 2000 dollars increase about 614% to $7.5 million in 1997 from $1.1 million in 1982.
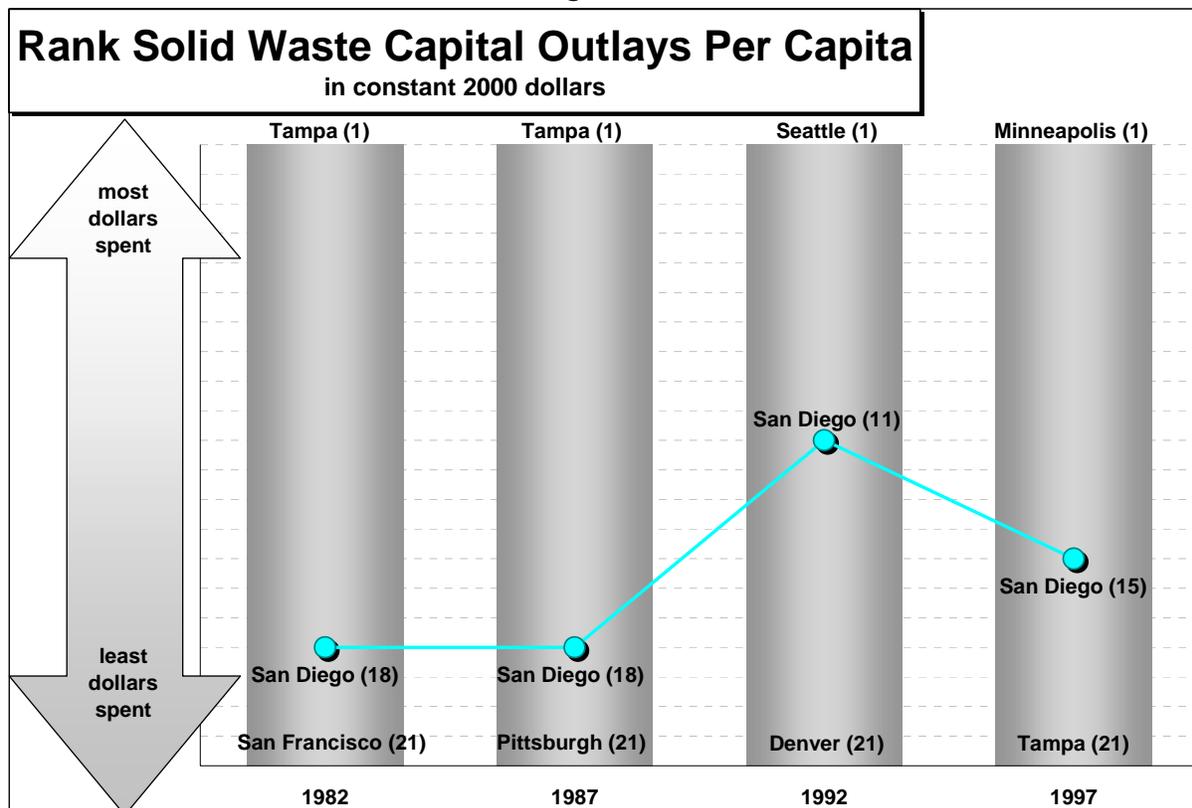
To determine the rate at which capital outlays are spent per resident, the inflation adjusted capital outlay data are divided by San Diego's population to obtain capital outlays per capita in constant 2000 dollars. After the computation it is learned that capital outlays per capita in constant 2000 dollars increase about 419% to $2.77 per capita in 1997 from $0.53 in 1982.

In short, there have been "real" per capita increases in governmental capital outlays on Solid Waste Management in San Diego.

How Do We Compare?
Below Average for 1997. For this indicator in 1997, Minneapolis is ranked 1st with about $30 per capita and Tampa is ranked last with $0.09. Of note is the fact that Tampa is ranked 1st in 1982 and 1987, thus, its earlier capital outlays may be the reason it is investing less today in solid waste management. San Diego is ranked 18th in 1982 and 1987, 11th in 1992 and 15th in 1997. Within the San Diego region in 1997, San Diego City accounts for more than 98% of the capital outlays with an even higher share in 1992.

Figure 79

Rank Solid Waste Capital Outlays Per Capita
in constant 2000 dollars

| | Tampa (1) | Tampa (1) | Seattle (1) | Minneapolis (1) |

most dollars spent

least dollars spent

San Diego (11)

San Diego (15)

San Diego (18)   San Diego (18)

San Francisco (21)   Pittsburgh (21)   Denver (21)   Tampa (21)

| 1982 | 1987 | 1992 | 1997 |

Compared to California and the United States, San Diego per capita capital outlays on Solid Waste Management have always been lower [see Figure 80].

Figure 80

Capital Outlays on Solid Waste Management
in constant 2000 dollars per capita

Legend:
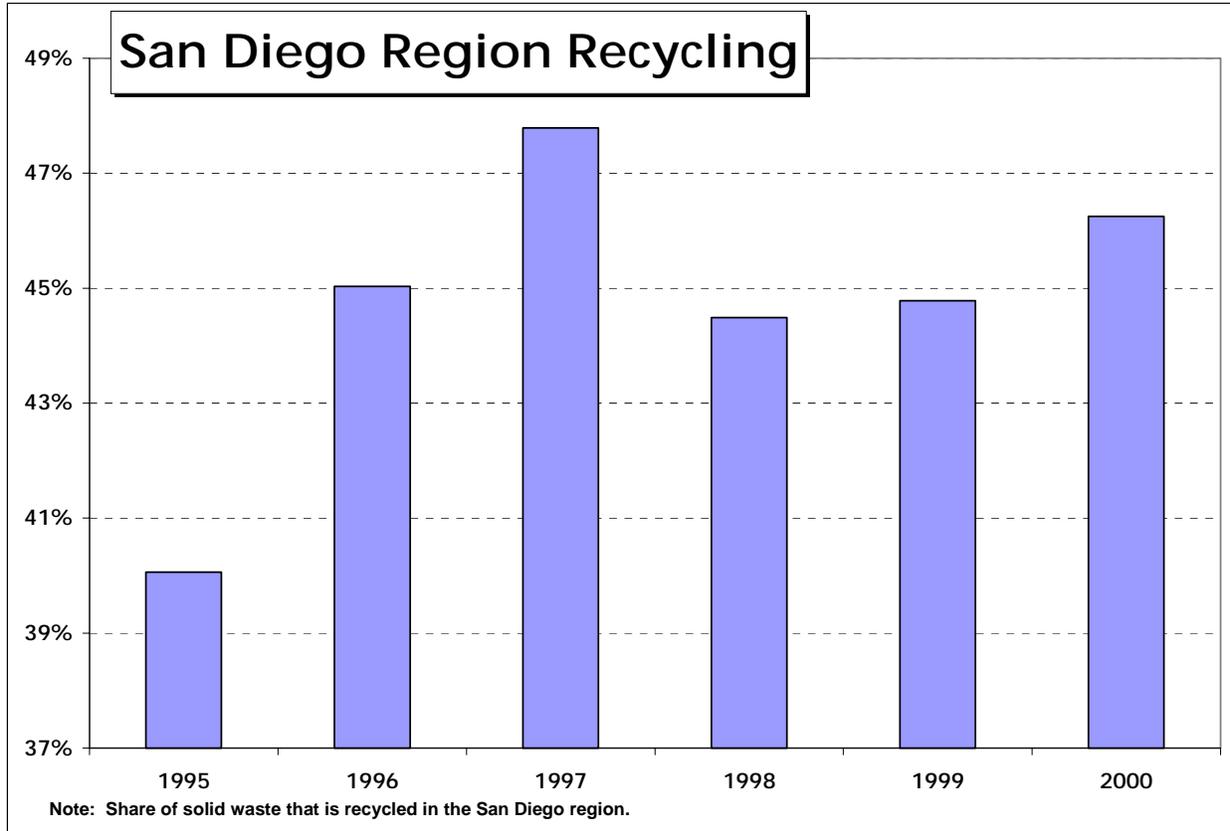- San Diego, CA
- California
- United States
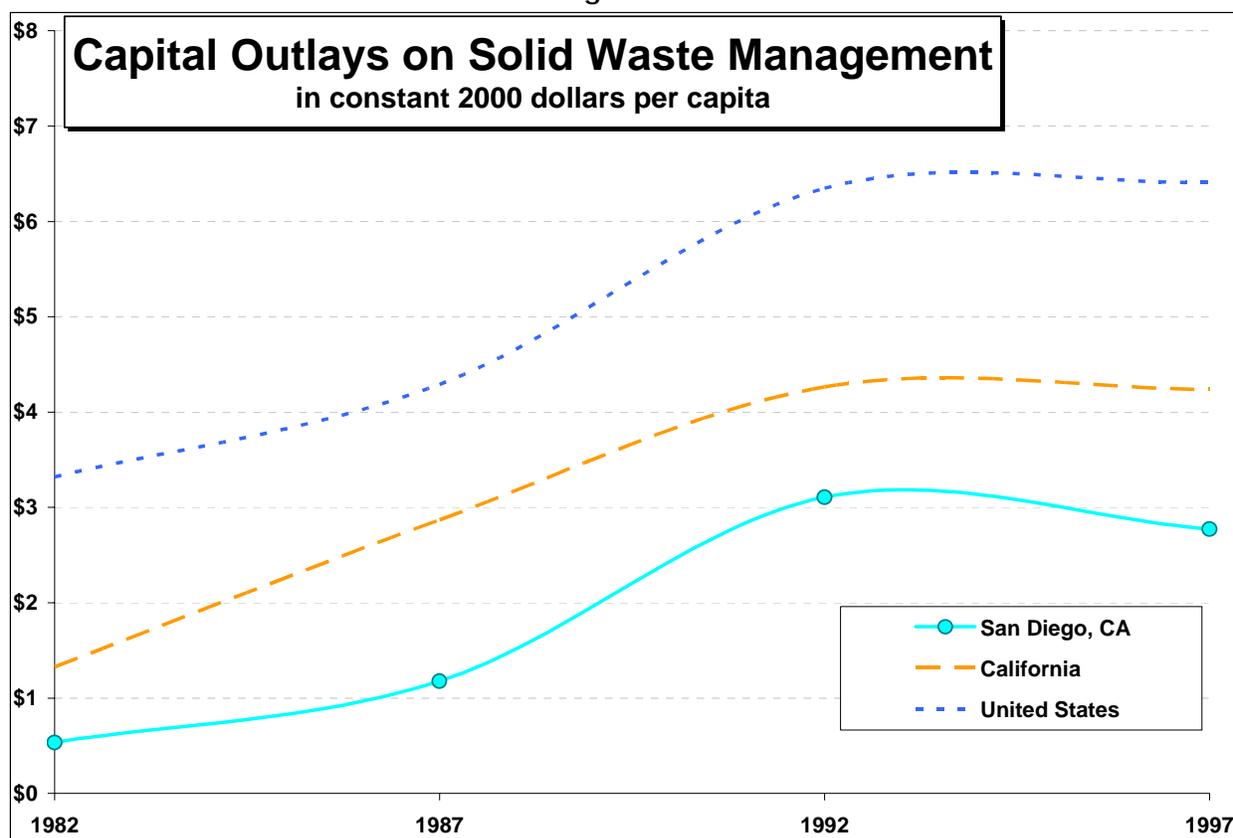
Have We Improved?
Mixed Results. Based on historical San Diego data, it is not clear if there has been improvement. There have been increases in capital outlays in nominal terms in every period. Using inflation adjusted dollars, capital outlays on Solid Waste Management decline between 1992 and 1997. On a per capita basis, capital outlays on Solid Waste Management also decline between 1992 and 1997.

A topic intimately related to solid waste management is recycling. In 1990, the Governor of California signed into law California law AB 939 or the "California Integrated Waste Management Act". This law uses a proactive approach to solid waste management by requiring each California City and County to develop and implement plans to reduce the amount of waste sent to landfills by 25% by 1995 and by 50% in 2000 using 1990 as the base year. The law thus seeks to have recycling reduce the amount sent to landfills by the amount specified above.

Results reveal that only Lemon Grove failed to meet the 1995 requirement. By 2000, Coronado, El Cajon, Encinitas and National City met the state requirement. As a region, San Diego met the 1995 requirement and came close to the 2000 requirement with a regional recycling average of 46% in 2000 [see Figure 81]. The complete set of data are contained in the appendix.

Figure 81

San Diego Region Recycling

Note: Share of solid waste that is recycled in the San Diego region.

17. Capital Facilities Investment on Water Utilities

How Is San Diego Doing?

In nominal governmental dollars, capital outlays for Water Utilities increase about 245% to $223.1 million in 1997 from about $64.7 million in 1982.

To determine if there have been any "real" changes in capital outlays, the nominal dollars data presented above are converted to dollars that are adjusted for inflation using the Implicit Price Deflator [IPD]. After conversion it is learned that capital outlays on Waste Utilities in constant 2000 dollars increase about 108% to $234.2 million in 1997 from $112.4 million in 1982.

To determine the rate at which capital outlays are spent per resident, the inflation adjusted capital outlay data are divided by San Diego's population to obtain capital outlays per capita in constant 2000 dollars. After the computation it is learned that capital outlays per capita in constant 2000 dollars increase about 51% to $86 per capita in 1997 from $57 in 1982.

In short, there have been "real" per capita increases in governmental capital outlays on Water Utilities in San Diego.

How Do We Compare?

Excellent for 1997. Houston is ranked 1st in 1997 with capital outlays per capita of $95. San Diego is ranked 4th in 1997 and 1st in 1992. Tampa is ranked last in 1997 after being ranked 1st in 1982 [see Figure 82]. Within the San Diego region in 1997, San Diego City accounts for about 32% of the capital outlays with the San Diego Water Authority accounting for an additional 30%. In 1992 the San Diego Water Authority accounted for about 56% of the total with all the cities in the region accounting for an additional 16%.

Figure 82

Rank Water Utilities Capital Outlays Per Capita in constant 2000 dollars
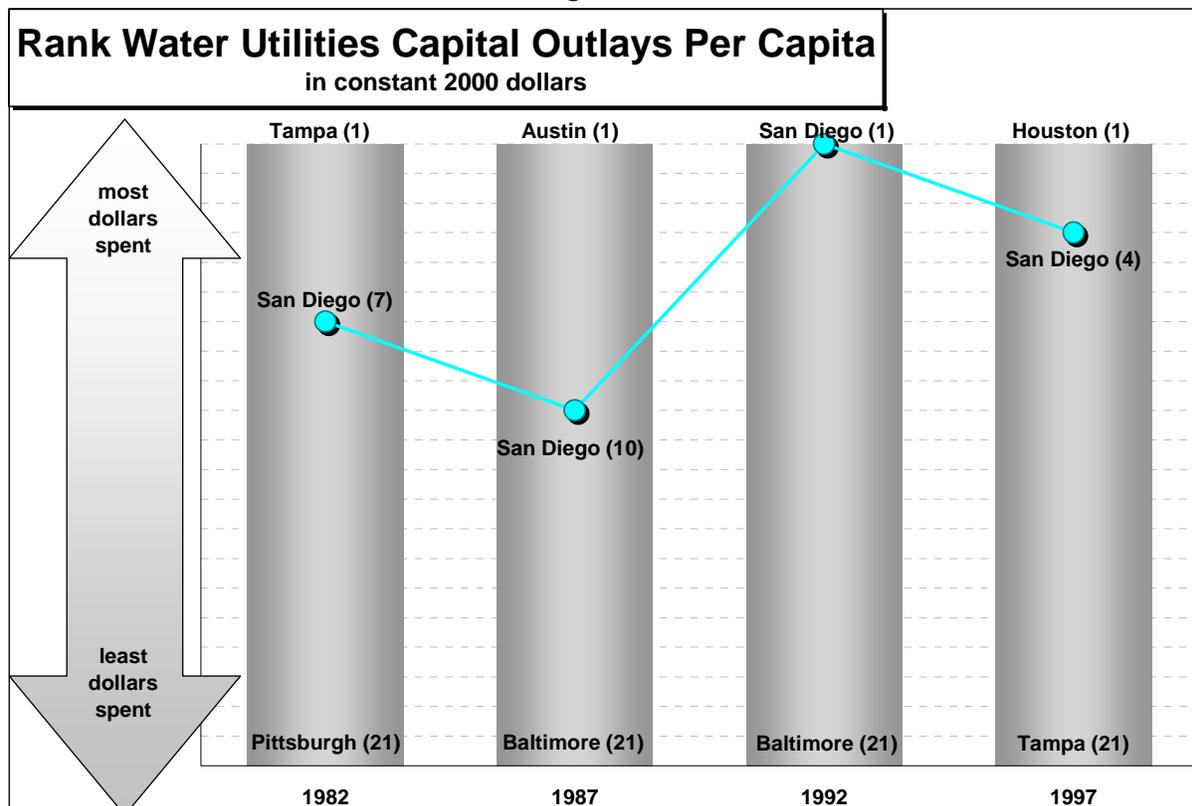
Compared to the United States data, San Diego's capital outlays per capita on Water Utilities have always been higher and in 1997 they were more than twice as large. Compared to California, San Diego's capital outlays per capita have varied above and below the state average [see Figure 83].

Figure 83

Capital Outlays on Water Utilities
in constant 2000 dollars per capita

Legend:
- San Diego, CA
- California
- United States
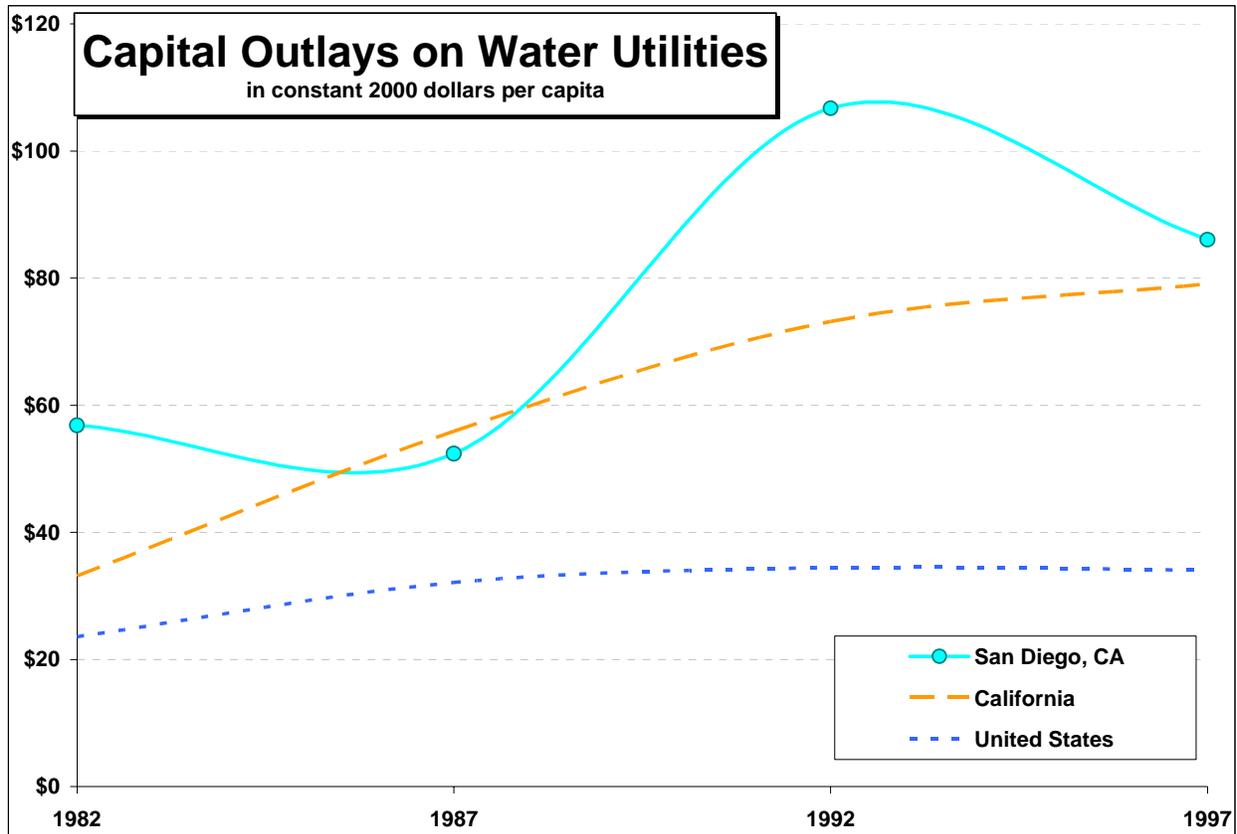
Have we Improved?
Mixed Results. San Diego's capital outlays are larger in 1997 than in 1982 using nominal dollars, inflation adjusted dollars or per capita dollars. However, the dollar values actually declined between 1982 and 1987, and again between 1992 and 1997.

➢ Equity Indicators

The focus of this category is on the distribution of tangible and intangible assets among the region's population and includes income distribution, housing and housing affordability, health care, education, transportation and capital outlays on mass transit. Compared to earlier results, the equity area is where San Diego lags.

Figure 84

How Does San Diego Compare? - Equity					
To 20 Other Metropolitan Regions					
Indicator	Excellent	Above Average	Average	Below Average	Poor
Income Distribution			✓		
Housing [3 indicators]				✓	✓✓
Health Care				✓	
Education [3 indicators]		✓	✓		✓
Transportation [3 indicators]	✓		✓	✓	
Capital Outlays on Mass Transit				✓	
SUM OF EQUITY INDICATORS	1	1	3	4	3
Distribution	8.3%	8.3%	25.0%	33.3%	25.0%

Strengths
San Diego's strength in Equity issues is found in transportation where the average commute time is 49 minutes and is ranked 4th [excellent]. Also, San Diego is rated above average in education [ranked 5th] for the percent of students in the general population attending institutions of higher education.

For only 16% of the Equity indicators examined is San Diego ranked excellent or above average.

Weaknesses
Housing fares badly as three indicators are ranked poor or below average. Health care is another area of weakness where San Diego is ranked 14th [below average] on the number of beds per thousand population. San Diego is ranked poor in one of the education indicators – the percent of children aged 3-4 in early childhood education programs. This poor rating is ominous since longitudinal studies have shown that children who are in these early education programs are more likely to be successful adults[45]. The other area of weakness is governmental capital outlays on mass transit where San Diego is ranked 16th [below average].

Equity issues are San Diego's weakness. For the indicators examined in the Equity arena, San Diego is ranked poor or below average on 58% of the comparisons made.

---

[45] See the education part of this section for details of the studies.

Figure 85

Has San Diego Improved? - Equity			
Compared to historical San Diego data			
Indicator	**Yes**	**No**	**Mixed Results**
Income Distribution			⇔
Housing		⇩	
Health Care			⇔
Education			⇔
Transportation			⇔
Capital Outlays on Mass Transit		⇩	
SUM OF EQUITY INDICATORS	0	2	4
Distribution	0.0%	33.3%	66.7%

Another disturbing trend – there has not been any solid improvement in Equity indicators over the last decade. While four of the indicators reveal mixed results, none has shown improvement and two have deteriorated.

18. Income distribution

Two indicators are used to examine income distribution:

- The ratio of the mean [average] household income to the median [middle or central point of the data] household income[46]. Both of these statistics measure central tendency. If the mean and median values are the same, the ratio = 1.0 and there is a "normal distribution" of incomes. If the households at the upper end of the distribution have disproportionately more income than households at the lower end, the values at the top will outweigh those at the bottom, and the mean will be larger than the median. Thus, the higher the ratio above 1.0, the more unequal the distribution. These data are collected for all 21 metropolitan regions for the year 1999.
- The percent of individuals in middle income. For this analysis we assume "middle income" has a range of $10,000 around the midpoint of per capita Adjusted Gross Income [AGI][47]. The lower boundary is roughly $5,000 less than the median while the upper boundary is about $5,000 more than the median. For this $10,000 range, we compute the number of individuals and the share of individuals in the middle income bracket. If income inequality is increasing, this indicator will assist in determining the manner in which the distribution is changing.

It should be noted that these income data are all in nominal dollars [not adjusted for inflation]. However, these two measures are based on ratios or the changing median value and using these methods mitigates the effects of changes due to inflation. Additionally, AGI does **not** include monies contributed to sheltered retirement accounts such as traditional individual retirement accounts and company sponsored retirement accounts such as 401(k) accounts. Thus, individuals who contribute to these accounts have higher income, but it is not reflected in AGI.

---

[46] US Department of Commerce, Bureau of Census.
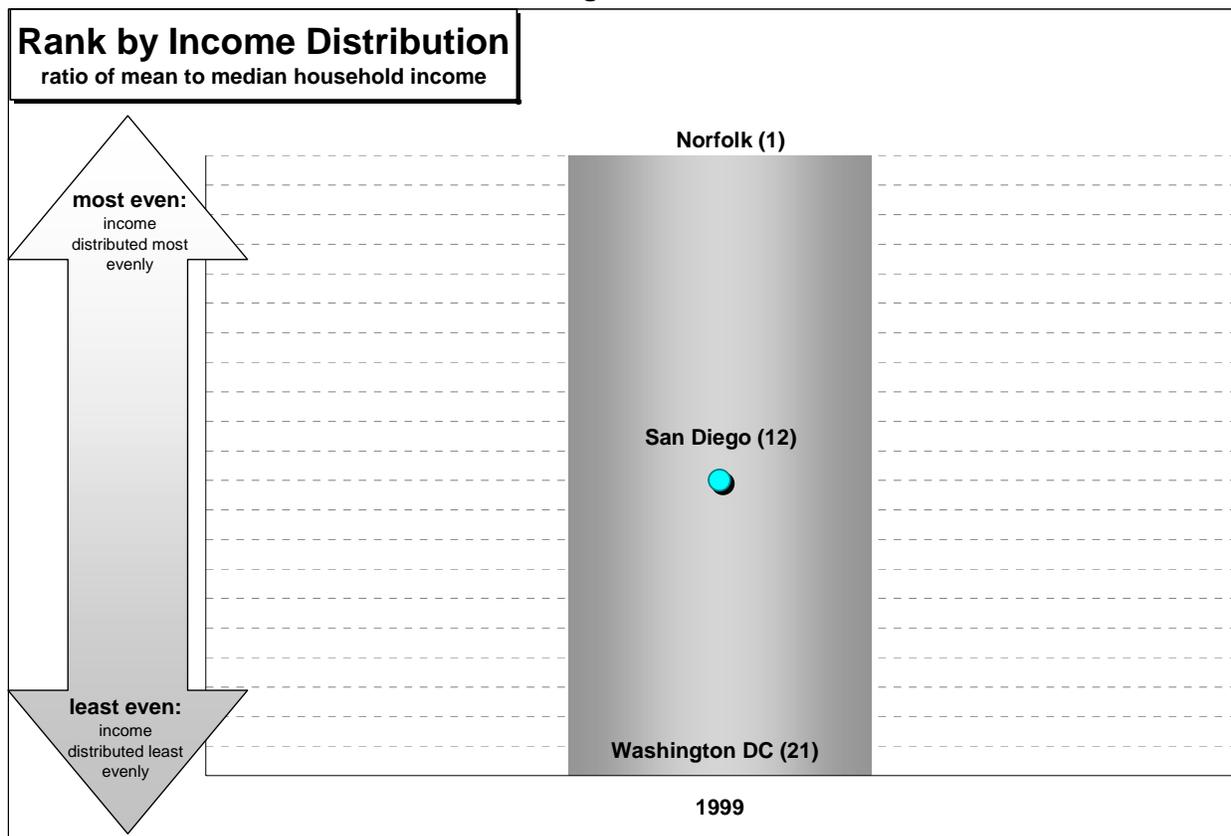[47] Data from tax returns published by the California Franchise Tax Board.

<u>How Is San Diego Doing?</u>
It appears income distribution is deteriorating. The percent of individuals in middle income shrank between 1990 and 1999 while the share of people above middle income increased and the share of people below middle income increased. The news is not all bad as the number of individuals in the category where tax filer AGI is less than $10,000 declined 38.6% between 1990 and 1999 [from 438,055 people in 1990 to 268,825 people in 1999].

<u>How Do We Compare?</u>
Average for 1999. Data for the ratio of mean household income to median household income comes from the Census Bureau [48]. A ratio of 1.0 implies that the mean and median are equal and the distribution is "normal". Numbers greater than 1.0 imply greater income inequality. In 1999 San Diego is ranked 12th with a ratio of 1.32. Norfolk is ranked 1st with a ratio of 1.19 while Washington DC is ranked last with a ratio of 1.53 [see Figure 86].

Figure 86

Rank by Income Distribution
ratio of mean to median household income

most even:
income distributed most evenly

Norfolk (1)

San Diego (12)

least even:
income distributed least evenly

Washington DC (21)

1999

The second indicator tracks the share of the population in the middle income range. For this analysis we assume "middle income" has a $10,000 range – the lower boundary is about $5,000 below the midpoint of per capita AGI while the upper boundary is about $5,000 above the midpoint of per capita AGI[49]. In 1999 the middle per capita AGI is $16,987 and the middle income

---

[48] The data are only available for 1999.
[49]Median per capita AGI is calculated for each year by determining the point at which the population is divided into halves, with roughly one half of the persons falling into income brackets below the median, and one half falling into brackets above the median. In all cases, the midpoint is set such that it falls between two brackets (in other words, no brackets are "split" to balance the halves of the population). In some cases, this results in slight imperfections in "halving" the populations; however, doing so preserved the integrity of the income brackets as reported by the FTB. In all cases, care is taken to obtain the most accurate "halves" possible. Upon

range is $11,785 to $21,646 per capita[50]. In 1990 the middle per capita AGI is $12,600 and the middle income range is $7,897 to $17,749 per capita.

What is clear when examining our definition of middle income is that the share of the population in this $10,000 range declines between 1990 and 1999 from about 46% in 1990 to about 35% in 1999 [see Figure 87]. The number of people in the middle income range declines by about 17% or about 170,000 people from just over one million individuals in 1990 to approximately 830,000 in 1999. Furthermore, since the total number of individuals in San Diego also increases during this period[51] the share of the people in "middle income" decreases considerably. The data are even more pronounced at the state level where the share declines from about 41% in 1990 to about 31% in 1999. This finding points to greater income inequality statewide.

Figure 87

Share of Population in Middle Income
middle income range is $5,000 above and $5,000 below median AGI
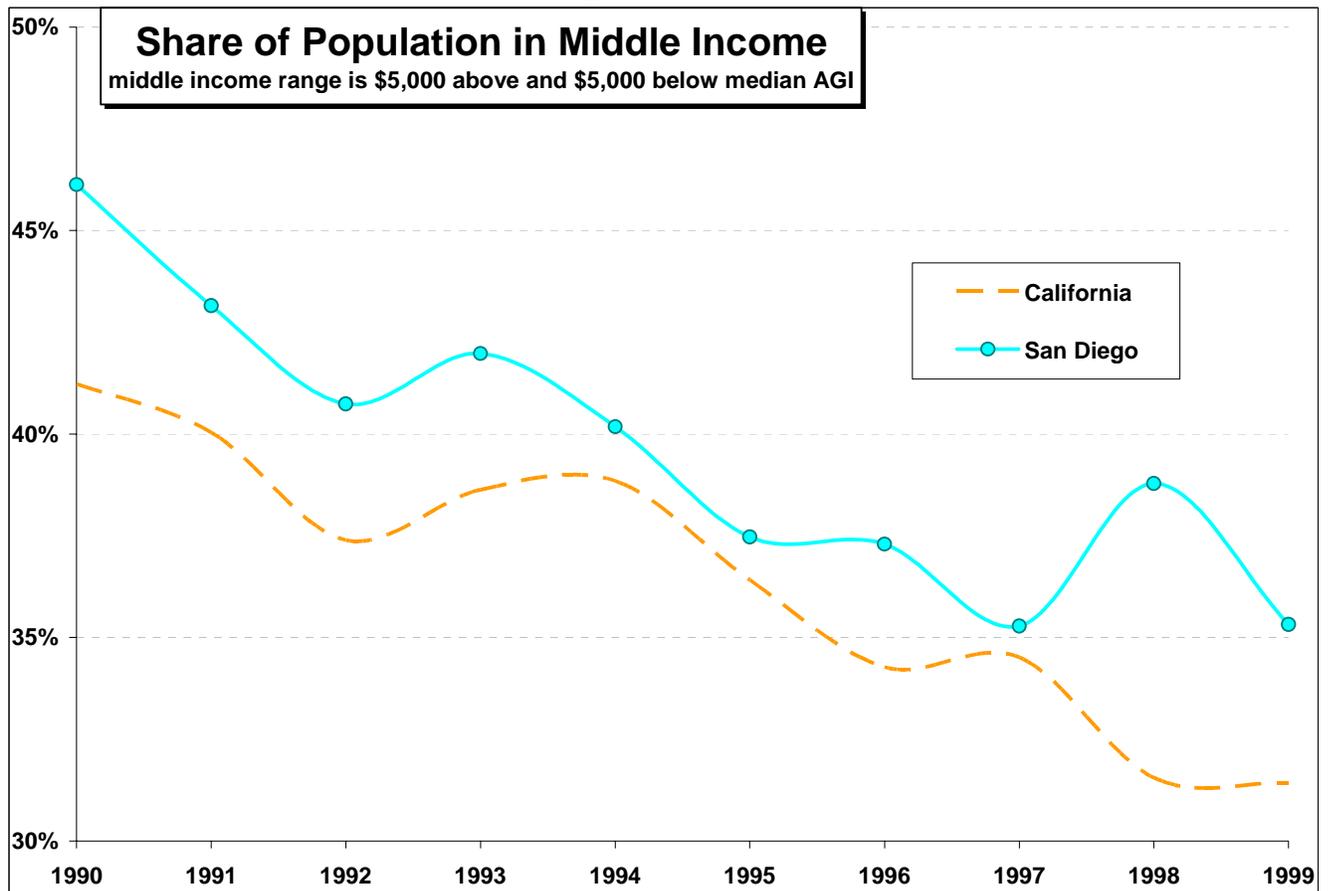
determining the population midpoint, the median AGI is calculated by averaging the mean AGIs of the categories immediately above and below the midpoint designation. In 1999 the median per capita AGI is $16,987. This is a 35% increase or $4,387 over similar data for 1990 when the median per capita AGI is $12,600.
[50]The upper and lower boundaries for the middle income range do not fall at precisely $5,000 above and below the midpoint of per capita AGI. The reason is that Franchise Tax Board income distribution data are reported in income brackets. In almost all cases, the upper and lower boundaries are drawn so that those brackets are not split.
[51] The number of individuals whose family or household filed tax returns increases from 2,172,217 in 1990 to 2,351,706 in 1999 – an increase of 179,489 or 8.3%.

In broad terms, the share of the individuals whose per capita AGI is greater than the middle income range [described above] increases from about 25% of all individuals in 1990 to about 33% in 1999[52] [see Figure 88].

Figure 88
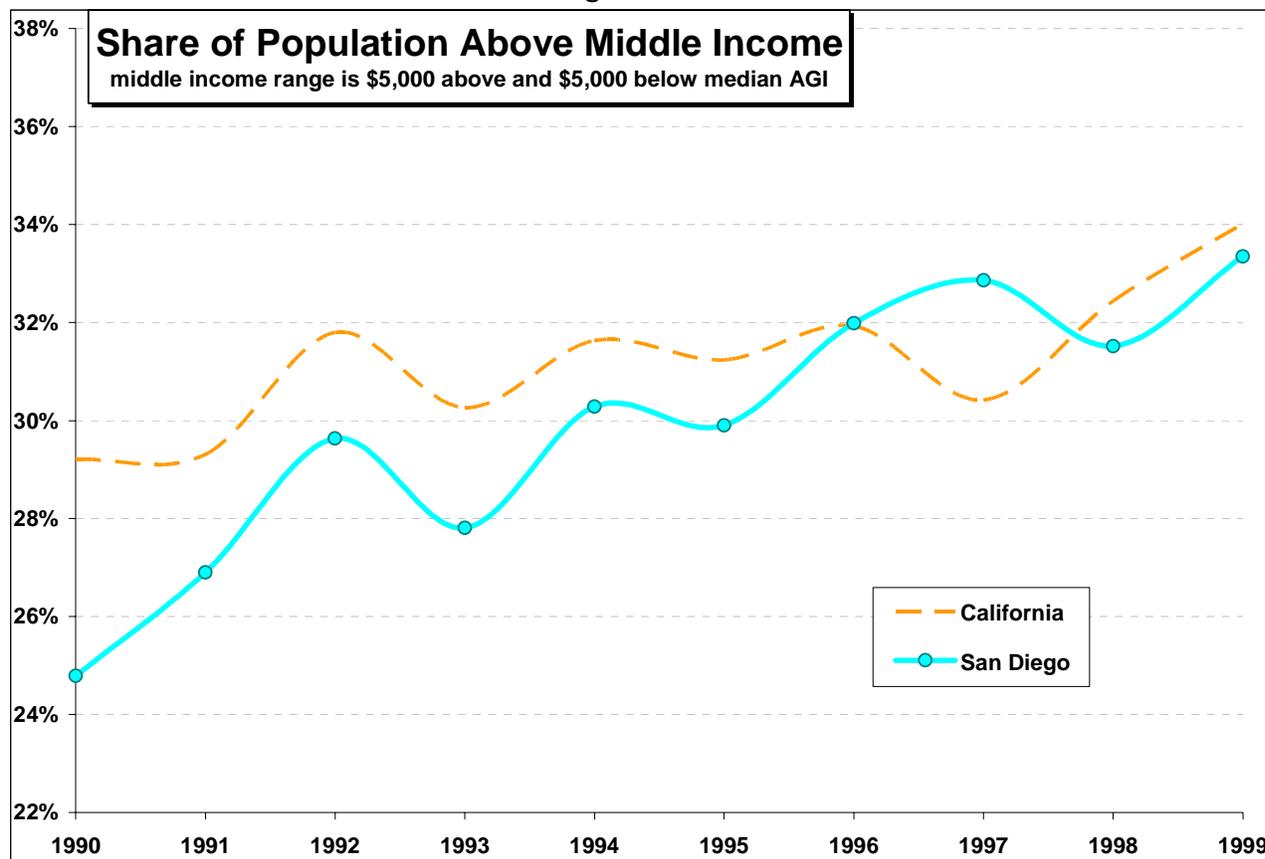

The number of individuals in the highest tax bracket [where tax filer AGI is $100,000 or more] increases 190% between 1990 and 1999 from 99,107 in 1990 to 287,018 in 1999[53]. In 1999 the number of individuals where the tax filer AGI is $100,000 or more represents 12.2% of all individuals. This is a significant increase from 1990 when the number of individuals where the filer AGI is $100,000 or more represents 4.6%. While the share of people in the highest AGI tax bracket is increasing, the share of people in middle income is shrinking.

---

[52] The total number of people with incomes greater than the middle income category increases from 538,428 in 1990 to 784,276 people in 1999 - an increase of 245,848 individuals or 46%.
[53] In San Diego in 1990 there are 34,354 tax filers that have an AGI of $100,000 or more. By contrast, in San Diego in 1999 there are 102,243 tax filers with an AGI of $100,000 or more.

In broad terms, the share of the individuals whose per capita AGI is less than the middle income range [described earlier] increases about 2% between 1990 and 1999 [see Figure 89]. As already noted, there is a movement out of the lowest brackets [below $10,000]. However, the number of individuals below the middle income category increases from approximately 632,000 individuals in 1990 to just under 737,000 individuals in 1999 – an increase of 155,000 individuals or 16.6%. Since this is a faster increase than the increase in population, it means that the share of individuals below middle income increases from 29.1% in 1990 to about 31.3% in 1999. At the state level, there is a rapid increase in the share of the population below the middle income category as the share increases from about 30% in 1990 to 35% in 1998.

Figure 89

Share of Population Below Middle Income
middle income range is $5,000 above and $5,000 below median AGI
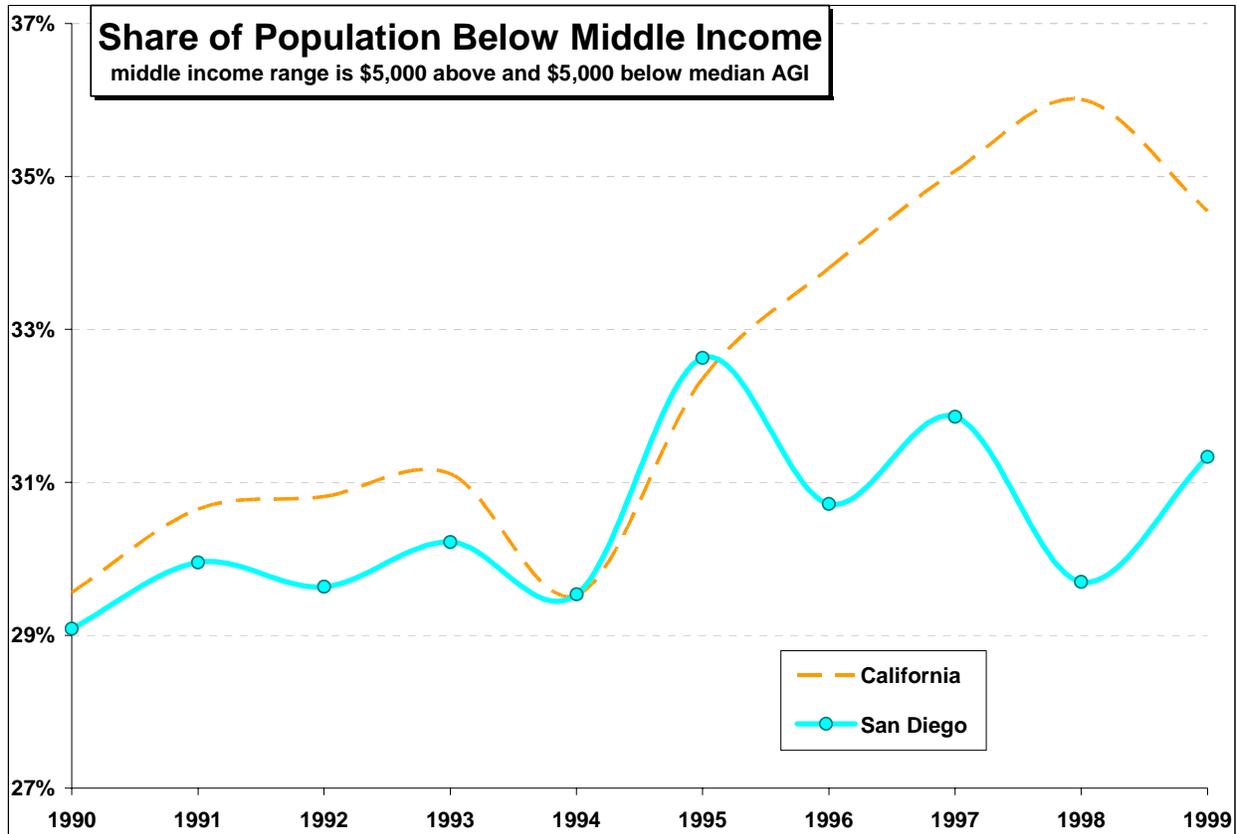
Have We Improved?

Mixed results. Without the ratio of mean household income to median household income for two time periods it is not clear how San Diego's income distribution is changing. For the one period for which we have data, San Diego's ratio of mean household income to median household income is rated Average. However, based on historical income tax data for San Diego, there are significantly fewer people in the lowest income bracket and this is an improvement. At the other end of the spectrum there are more people in the highest tax bracket and this can be also be viewed as beneficial. The fact that the share of people in "middle income" decreases is viewed as negative since a large middle class is viewed as the backbone of the economy.

These data are in nominal dollars and are not adjusted for inflation. Thus, an individual working the same job will see his income increase gradually over time due to inflation and part of the movement out of the lower AGI bracket is caused through general increases in pay.

19. Housing

Three indicators are used to examine housing. The median sales price provides an indicator of the cost of housing. The Housing Opportunity Index provides a measure of housing affordability by comparing housing costs with income levels. Finally, the homeownership rate provides a broad-based perspective on quality of life, as it provides clues as to housing affordability, as well as providing information about a region's stability[54]. Thus the rate provides general information about local quality of life.

How Is San Diego Doing?
The median sales price for all homes sold in San Diego in January 2000 is $220,000. The compound annual growth rate for the period January 1998 to January 2000 is 10.3% - well ahead of the 4.7% annual increase in the CPI for the same period. By February 2002 the median price increased to $300,000 – another 36% increase.

How Do We Compare?
Poor for 2000. Rank ordering median home prices from lowest price [best] to highest price [worst] for 20 other metropolitan regions, San Diego is ranked 18th in 1995 and 2000, thus, San Diego is consistently ranked in the lowest quintile with relatively high median home prices. Ranked 1st in 1991 is Tampa while Pittsburgh is ranked 1st in 1995 and 2000. Ranked last in all three years is San Francisco with the highest housing prices [see Figure 90].

Figure 90

---
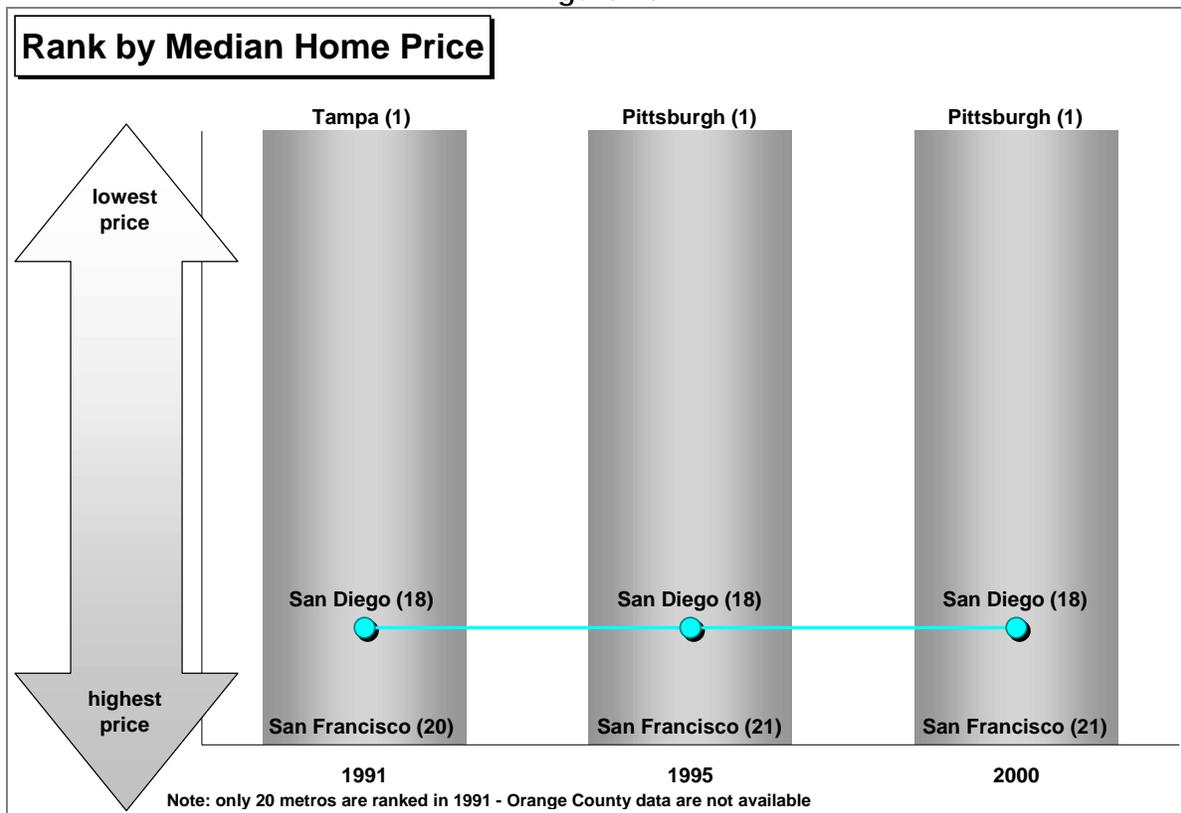
[54] Home equity is the largest single source of household wealth for most Americans and homeowners tend to be more active in their communities, and make investments toward the improvement of their communities.

Compared to similar data for the US and California, the median sales price of a home in San Diego is above the median sales price for the US, but just under the California price [see Figure 91]. San Diego and California both experienced a comparable rate of increase in home prices, and both are increasing much more quickly than the US.
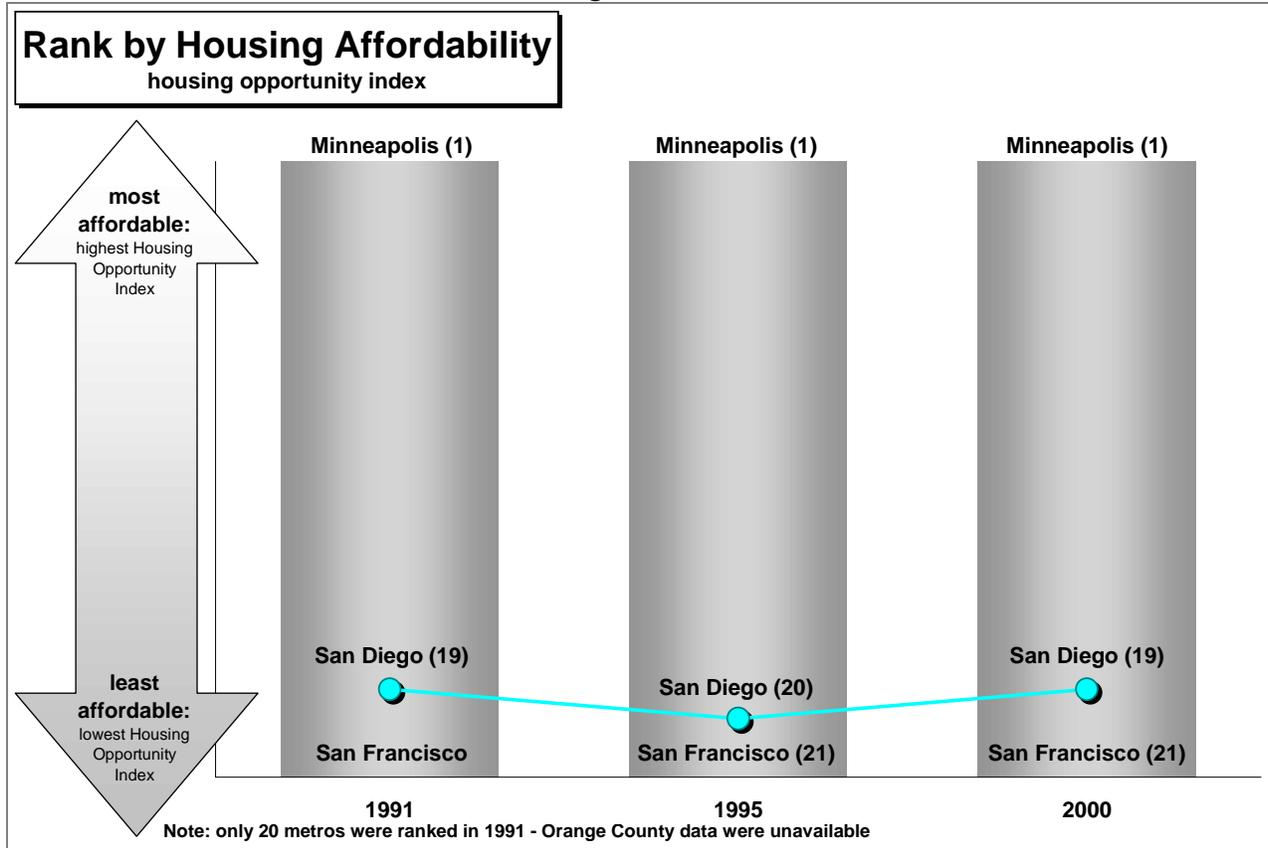
Figure 91

Median Home Prices: 1991-2000

Legend:
- San Diego
- California
- United States
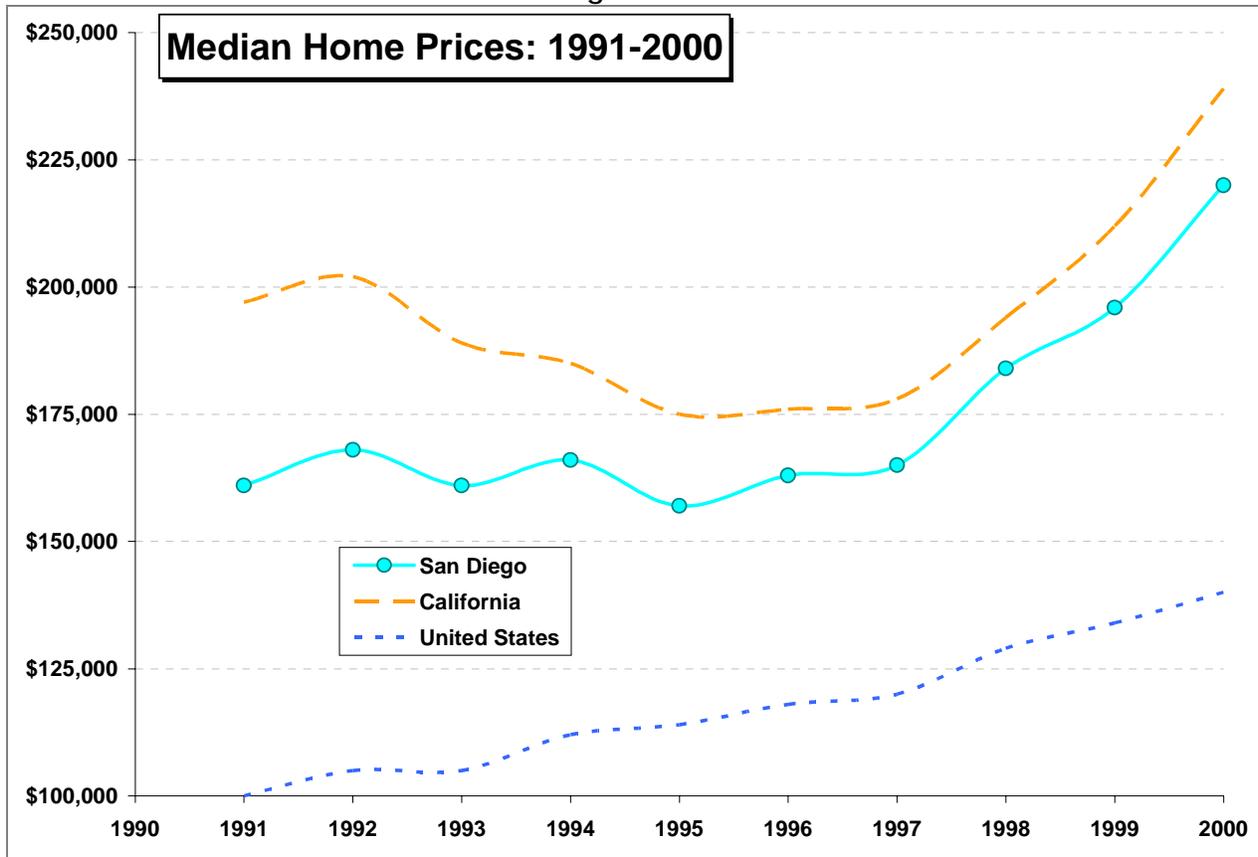
San Diego is rated Poor for Housing Affordability in 2000.

Relating median home prices to median household income provides a sense of affordability and this is captured in the Housing Opportunity Index or HOI[55]. When compared to 20 other metropolitan regions using the HOI, San Diego is ranked 19th in 1991, 20th in 1995 and 19th in 2000. Thus, San Diego's performance is graded Poor for affordability in all three periods. Ranked first in all three periods is Minneapolis implying it is the most affordable region of the 21 metropolitan regions. San Francisco is ranked last in all three periods implying it is the least affordable of all 21 metropolitan regions [see Figure 92].

Figure 92

Rank by Housing Affordability
housing opportunity index

most affordable: highest Housing Opportunity Index

least affordable: lowest Housing Opportunity Index

Minneapolis (1)   Minneapolis (1)   Minneapolis (1)

San Diego (19)   San Diego (19)
                    San Diego (20)
San Francisco   San Francisco (21) San Francisco (21)

1991   1995   2000

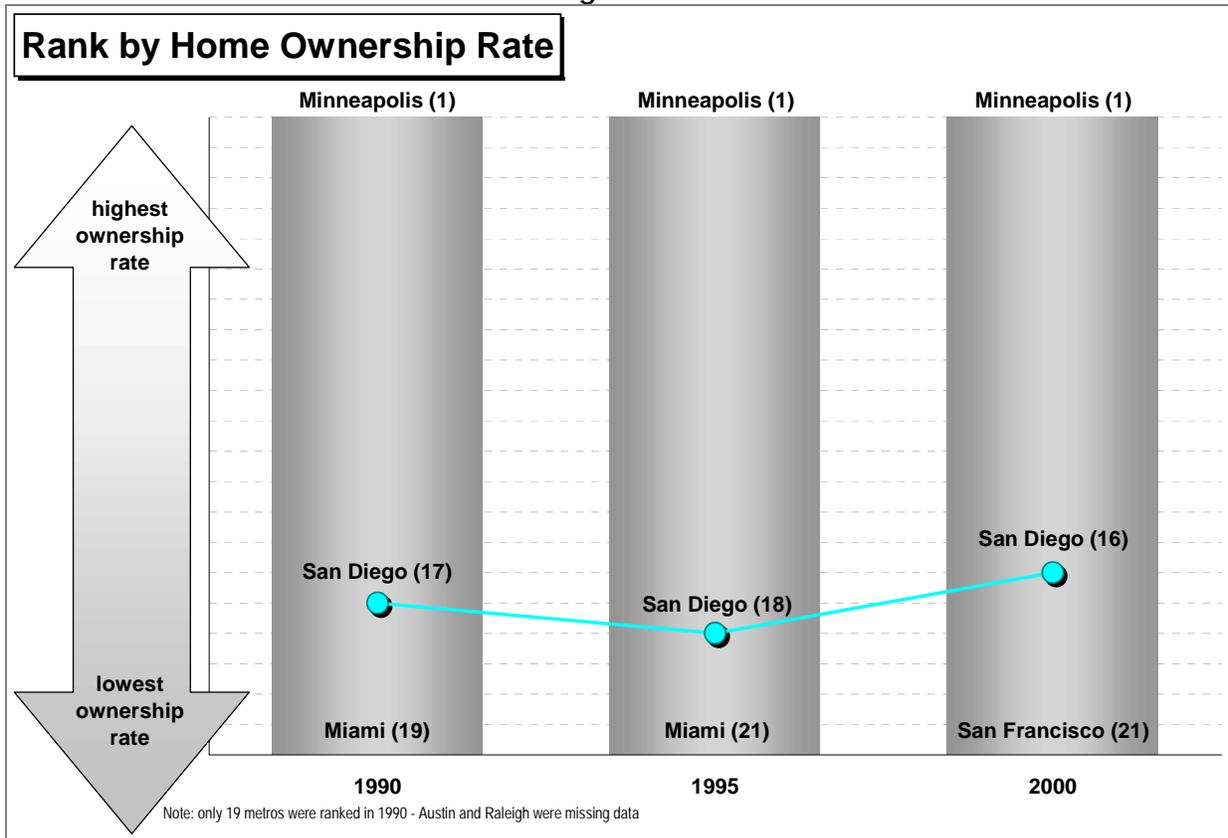**Note: only 20 metros were ranked in 1991 - Orange County data were unavailable**

---

[55] Computed by the National Association of Home Builders [NAHB], the HOI is defined as the share of homes sold in an area that would have been affordable to a family earning the median income.

San Diego is rated Below Average for Home Ownership in 2000.

Home ownership provides another measure of affordability, and indicates, in broad terms, the quality of life of a region. San Diego ranks low compared to the 20 other metropolitan regions, ranking 17th in 1990, 18th in 1995 and 16th in 2000 [see Figure 93]. Ranked first in all three periods is Minneapolis implying that home ownership is highest among its population when compared to the 21 metropolitan regions. Miami is ranked last in 1990 and 1995 and San Francisco is ranked last in 2000 implying these regions have the lowest rate of home ownership amongst their populations.

Figure 93

Rank by Home Ownership Rate

Minneapolis (1)   Minneapolis (1)   Minneapolis (1)

highest ownership rate

San Diego (17)   San Diego (18)   San Diego (16)

lowest ownership rate

Miami (19)   Miami (21)   San Francisco (21)

1990   1995   2000

Note: only 19 metros were ranked in 1990 - Austin and Raleigh were missing data

Comparing home ownership rates in San Diego to similar data for the United States and California reveals that San Diego ownership rates are consistently lower than that of the United States, but vary around the California average [see Figure 94]. In San Diego the percent of households owning their homes stood at 51% in 1990 and increased to 59% in 2000. In general, homeownership rates are fairly stable.

Figure 94

Home Ownership Rate: 1990-2000
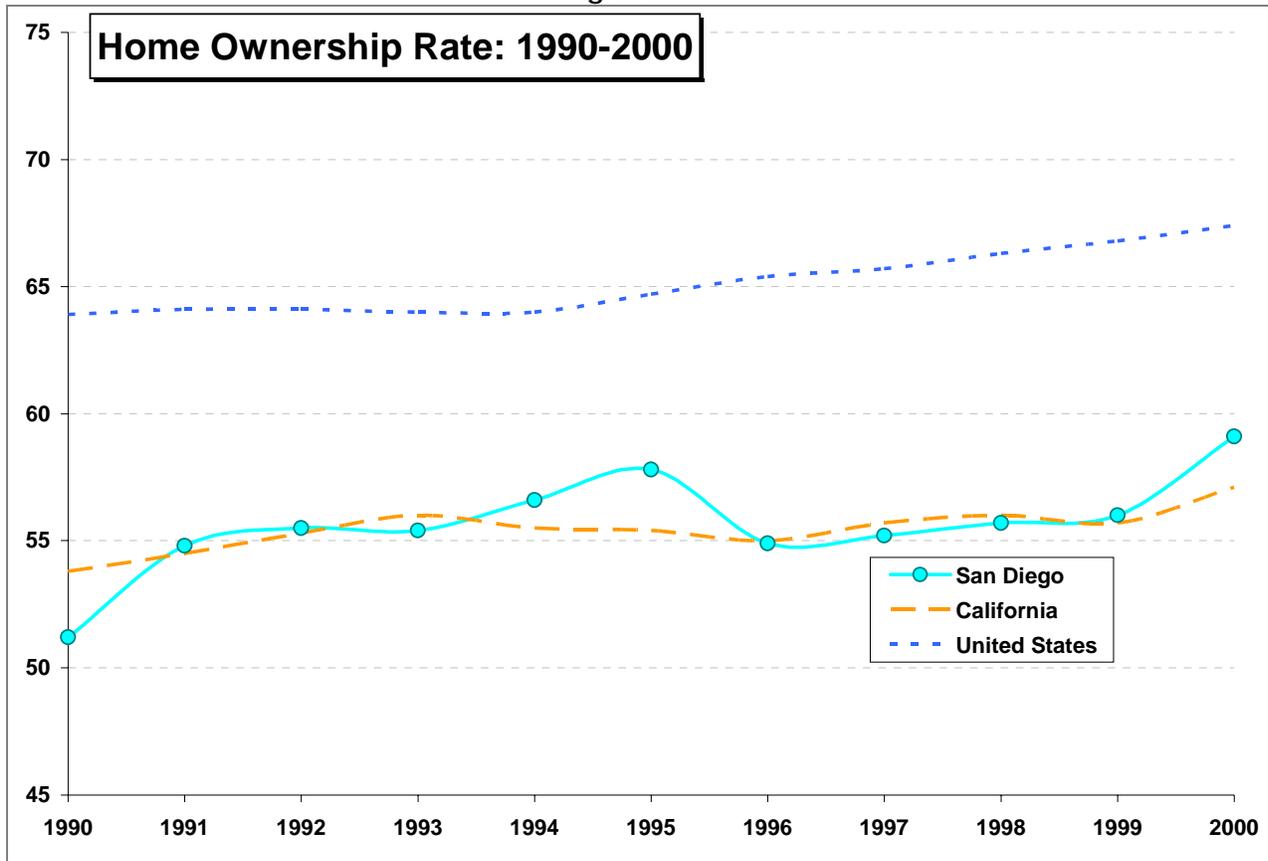
Have We Improved?

No. Based on historical San Diego data, median home prices rose sharply between 1997 and 2000 even though these prices were stable between 1991 and 1997. This trend continues, and in February 2002, the median sales price of all homes sold in San Diego stood at $300,000 – a 36% increase over January 2000. San Diego's median housing prices are amongst the highest when compared to 20 other metropolitan regions. Not only have home prices increased, they have increased faster than incomes resulting in a decline in affordability.

20. Health Care

Two indicators are used to evaluate San Diego's health care status. One indicator is the number of hospital beds[56] per 1,000 residents and the other indicator is the percent of the population without some type of medical coverage[57]. These two indicators are selected due to their inter-relationship. Generally, stays in hospitals are covered under most standard health insurance plans. From this perspective we attempt to evaluate the supply of services [hospital beds] and the portion of the population not able utilize those services [percent of population without health coverage].

How Is San Diego Doing?
The number of hospital beds in San Diego in 1999 was 6,897 or 2.45 beds per thousand residents. In 1997, about 22% of San Diego's population was not covered by any form of health insurance.

How Do We Compare?
Below Average for 1999. With regard to the number of beds per thousand population, Tampa ranked 1st in 1992 while Pittsburgh ranked 1st in 1995 and 1999 implying these metro regions had the highest number of beds per thousand population. Ranked last in 1992 is Atlanta with Baltimore ranked last in 1995 and Austin in 1999. San Diego ranked 5th in 1992, and dropped to 13th in 1995 and 14th in 1999

Figure 95

---
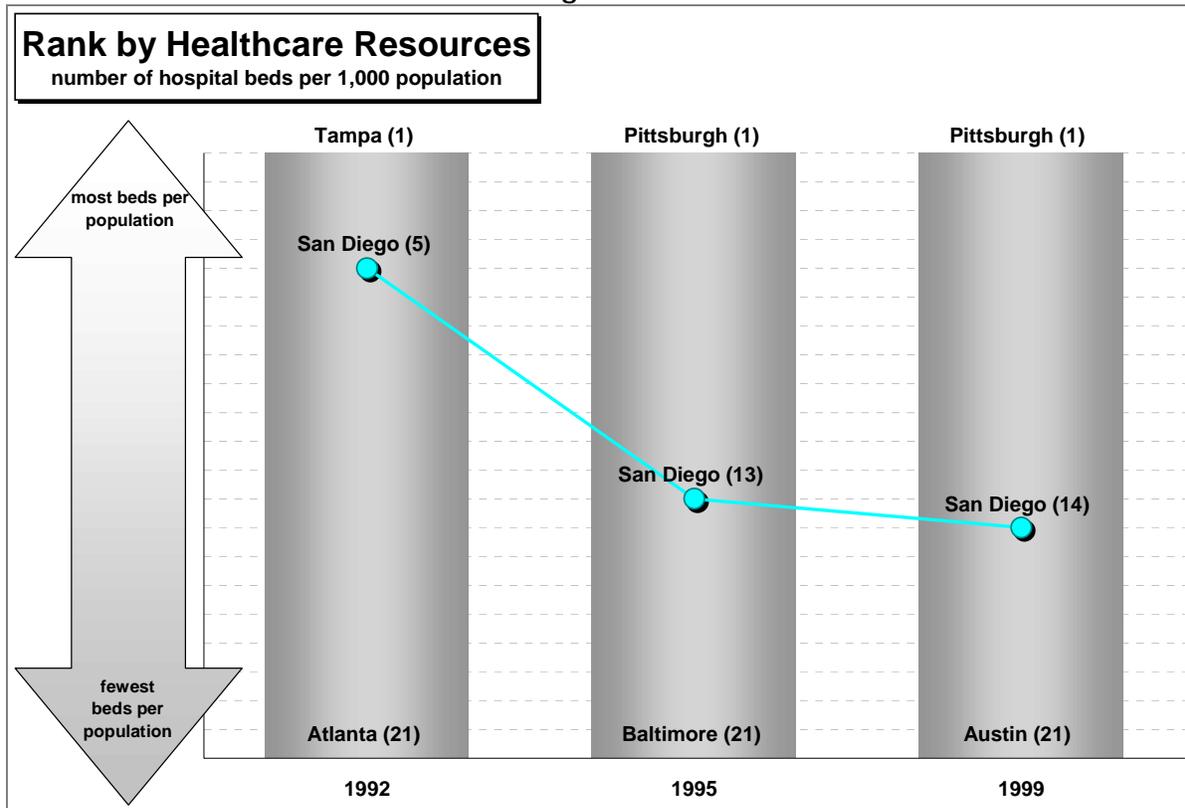
[56] Data from the American Hospital Association. For this study, hospitals exclude institutions where the average length of stay is greater than 30 days [typically called long term care]. What are included are all institutions where the average length of stay is less than 30 days [includes general medical and surgical hospitals; hospitals for the mentally retarded and psychiatric hospitals; hospitals for tuberculosis and other respiratory diseases; hospitals for obstetrics and gynecology; hospitals for eye, ear, nose and throat; rehabilitation hospitals, orthopedic hospitals, and alcoholism and other chemical dependency institutions].
[57] From the Bureau of the Census, these data are only available on a statewide basis. The appropriate statewide data are used for each metropolitan region.
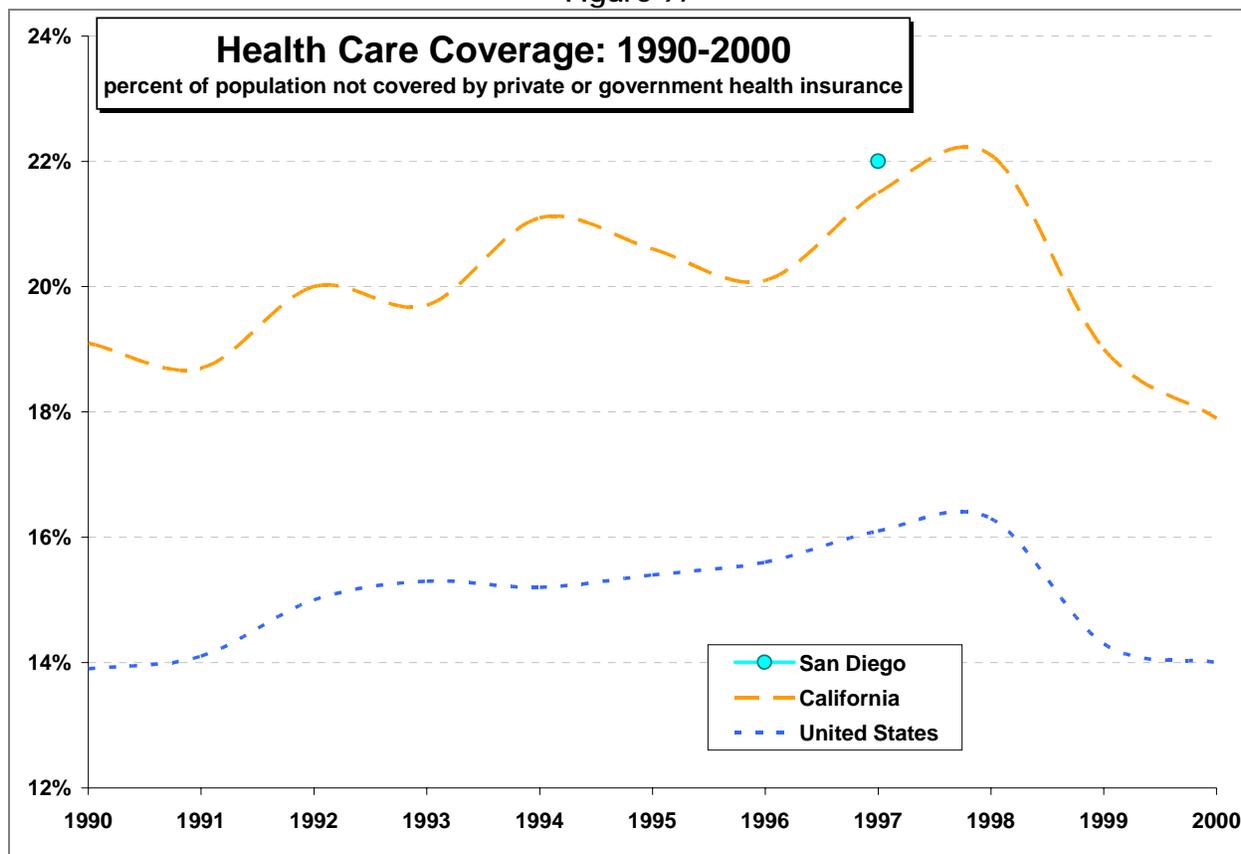
What is occurring in San Diego is part of a larger trend of consolidation in the hospital industry. When San Diego data are compared to United States and California data, it becomes clear that the trends are the same [see Figure 96]. The San Diego ratio of hospital beds per 1,000 population is always lower than the US data but very similar to the California data.

Figure 96

Hospital Beds per Thousand Population
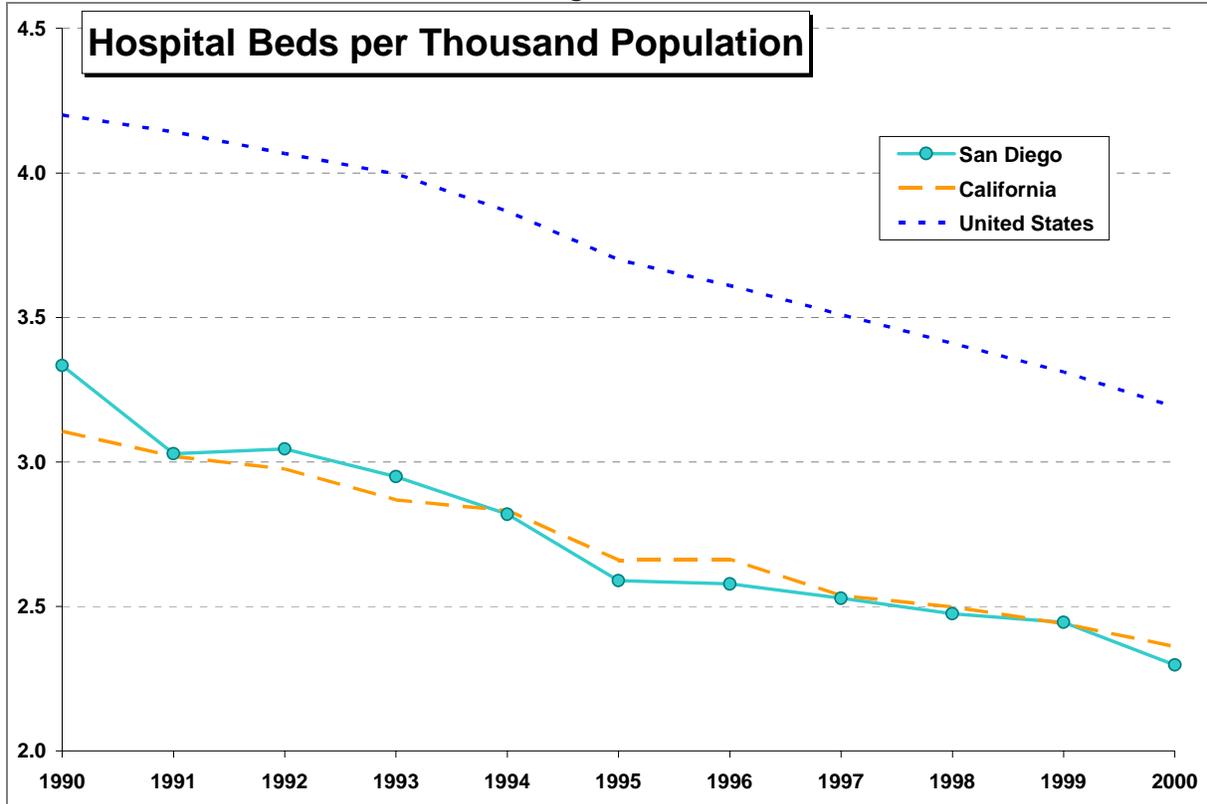
Regarding the percent of the population without health insurance, historical time series data are compiled at the state level[58]. In California, the percent of the population *without* some form of health coverage declined from about 19% in 1990 to about 18% in 2000, however, the rate increased to about 22% in 1998 before declining to the 2000 level [see Figure 97]. There does not appear to be a trend over the last decade because increases are offset by decreases.

Figure 97

Health Care Coverage: 1990-2000
percent of population not covered by private or government health insurance

Legend:
- San Diego
- California
- United States

The single point plotted on the graph represents San Diego and comes from a one-time study that uncovered the fact that more than 600,000 San Diego residents or 22% of the population do not have some form of health insurance[59]. Implication: the rate of individuals without insurance in San Diego is higher than in 45 of the 50 states of the United States. The "typical" uninsured resident is most likely to be one of the following[60]:

- A child currently eligible for, but not enrolled in a government-supported health care coverage program [Medi-Cal or Healthy Families]
- A low-income adult working for a small or medium-sized employer that does not offer health care coverage

---

[58] Compiled by the Bureau of Census in its annual survey, the original data is The Percent of Population Covered by Private or government Health Insurance.
[59] County of San Diego, The Project Management Committee for Improving Access to Healthcare, "Options for Expanding Healthcare to Uninsured San Diegans", December 1999.
[60] Ibid., page 1.

<u>Have We Improved?</u>
Not Clear. Based on historical San Diego data, we are unable to ascertain with certainty if there has been improvement, however, in 1990, the number of hospital beds in San Diego stood at 8,378, thus, the 2000 data [6,465 hospital beds] represent a 22.8% decline from 1990. The number of hospital beds per 1,000 population in San Diego was 3.33 beds in 1990, thus, the 2000 level [2.30] is a 30.9% decline from 1990. The large decline in the ratio is the combination of the decline in the number of hospital beds coupled with an increase in population.

Finally, the number of people without health insurance in San Diego appears to be greater than the national average, however, incomplete data make this statement difficult to substantiate. What is clear is that the portion of the population without health insurance in California is always much higher than the portion of the population in the US without health insurance.

21. Education

Four indicators are used for education. The first indicator is the percent of pre-school children in kindergarten or nursery school. The second indicator is the number of educational institutions, including two-year institutions and four-year institutions [which include graduate programs]. The third indicator is the percent of the regional population that are students enrolled in the institutions. The fourth indicator is the total number of college degrees conferred per thousand population.

Equity is concerned with the distribution of benefits and opportunities for the population and education is a key area for improving an individual's ability to succeed and be a productive member of society. Two longitudinal studies supported by the US Department of Education document the positive impact of preschool on children's school success[61], and thus is the first indicator examined [the percent of young children in preschool or nursery school]. Incomes and education are also related, thus the emphasis on the number of programs, the number of persons enrolled in programs and the number of degrees conferred.

<u>How Is San Diego Doing?</u>
In 2000 there were 81,547 children aged 3 and 4 in the San Diego region. Of that total, 36,652 were enrolled in Nursery or Preschool. Thus about 45% of all 3 and 4 year olds in San Diego were enrolled in early childhood educational programs.

In 2000, San Diego had the following higher educational programs:
- **Associate of Arts programs**
  - Community, junior or two year colleges – 11 campuses with 178,000+ students.

- **Baccalaureate programs** – those where the highest degree awarded is Bachelor's Degree:
  - California State University – 3,600+ students full-time & 750 part-time student
  - Christian Heritage College – 586 full-time students

- **Comprehensive programs** –the Masters Degree as the highest degree granted:
  - Coleman College – 1,500 undergraduate students & 17 graduate student
  - National University – 5,300 undergraduate students & 6,252 graduate students
  - Point Loma Nazarene College – 2,205 undergraduate students & 632 graduate students

---

[61] Hofferth, S., Shauman, K., Henke, R., and West, J. *Characteristics of Children's Early Care and Education Programs,* U.S. Department of Education, 1998 and West, J., Denton, K., and Germino-Hausken, E. *America's Kindergartners: Findings from the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99, Fall 1998.* U.S. Department of Education, 2000.
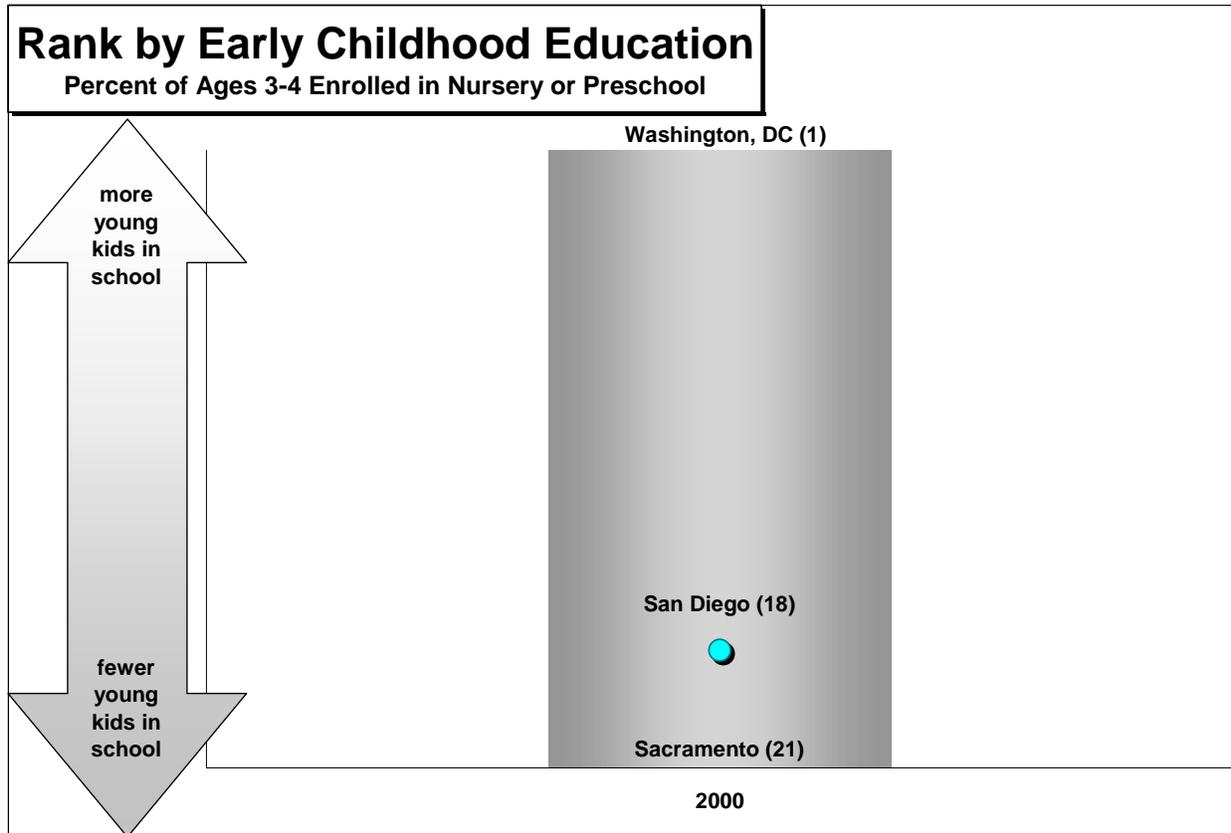
- **Doctoral Degree programs**:
  - California School of Professional Psychology – 637 graduate students
  - San Diego State University –26,200 undergraduate students & 6,786 graduate students
  - US International University –505 undergraduate students, 1,313 graduate students
  - University of California –15,212 undergraduate students & 3,481 graduate students
  - University of San Diego – 4,307 undergraduate students & 2,375 graduate students

In San Diego in 2000, about 260,000 students or 9% of the population were enrolled at institutions of higher education. For the same year, about 26,700 degrees were conferred on residents of the region.

How Do We Compare?
San Diego is rated Poor for the percent of population aged 3 & 4 in early childhood programs. Washington DC is ranked 1st with about 69% of all children aged 3 & 4 in early childhood programs. Sacramento is ranked last with about 35% and San Diego is ranked 18th with about 45% [see Figure 98].

Figure 98

Rank by Early Childhood Education
Percent of Ages 3-4 Enrolled in Nursery or Preschool

Washington, DC (1)

more young kids in school

fewer young kids in school

San Diego (18)

Sacramento (21)

2000

San Diego is rated Average for the number of institutions of higher education in 2000.

San Diego is ranked 11th in 2000, for the number of institutions of Higher Education [includes 2-year and 4-year institutions], with a total of 21 institutions. Ranked 1st is Boston with 91 institutions while Austin is ranked last with 8 institutions [see Figure 99]. In 1995 San Diego is ranked 8th while Boston is ranked 1st and Austin last.
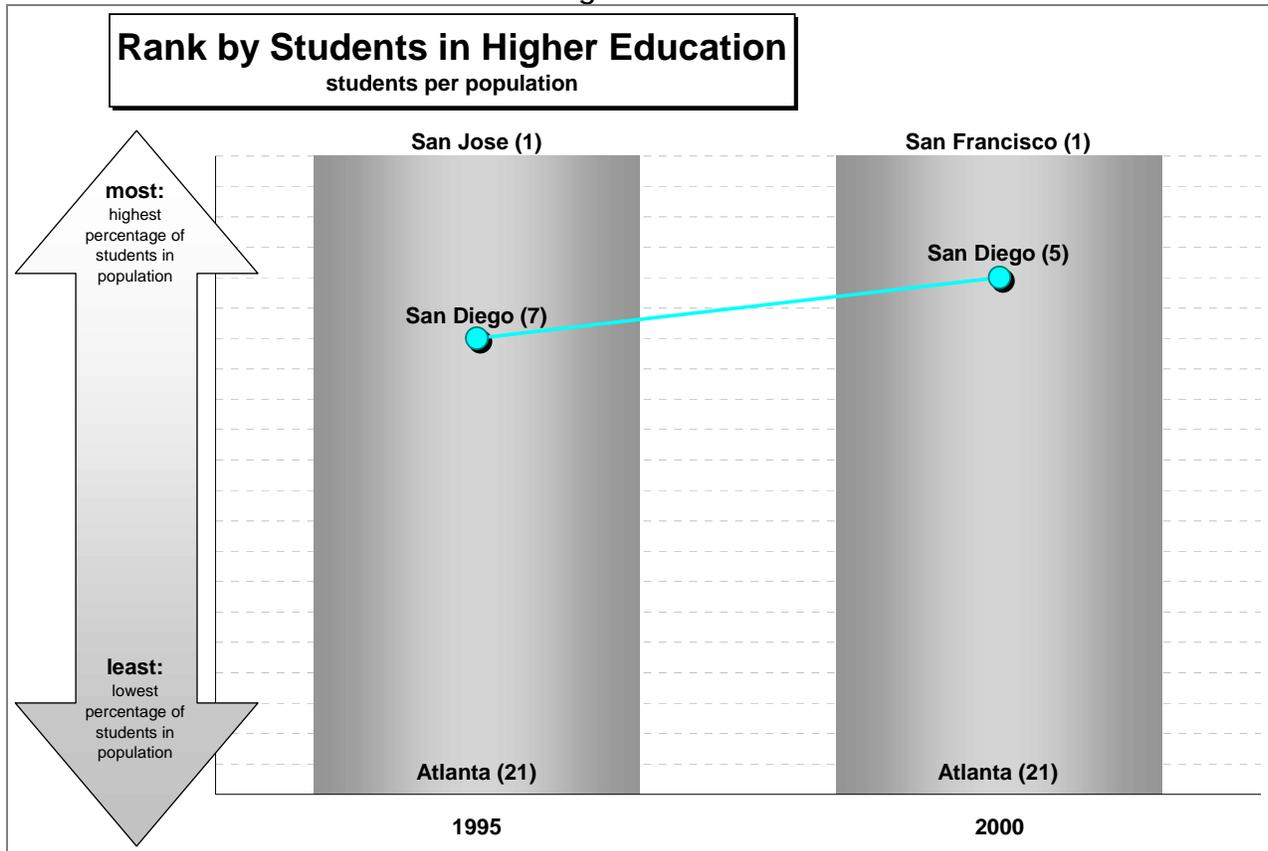
Figure 99
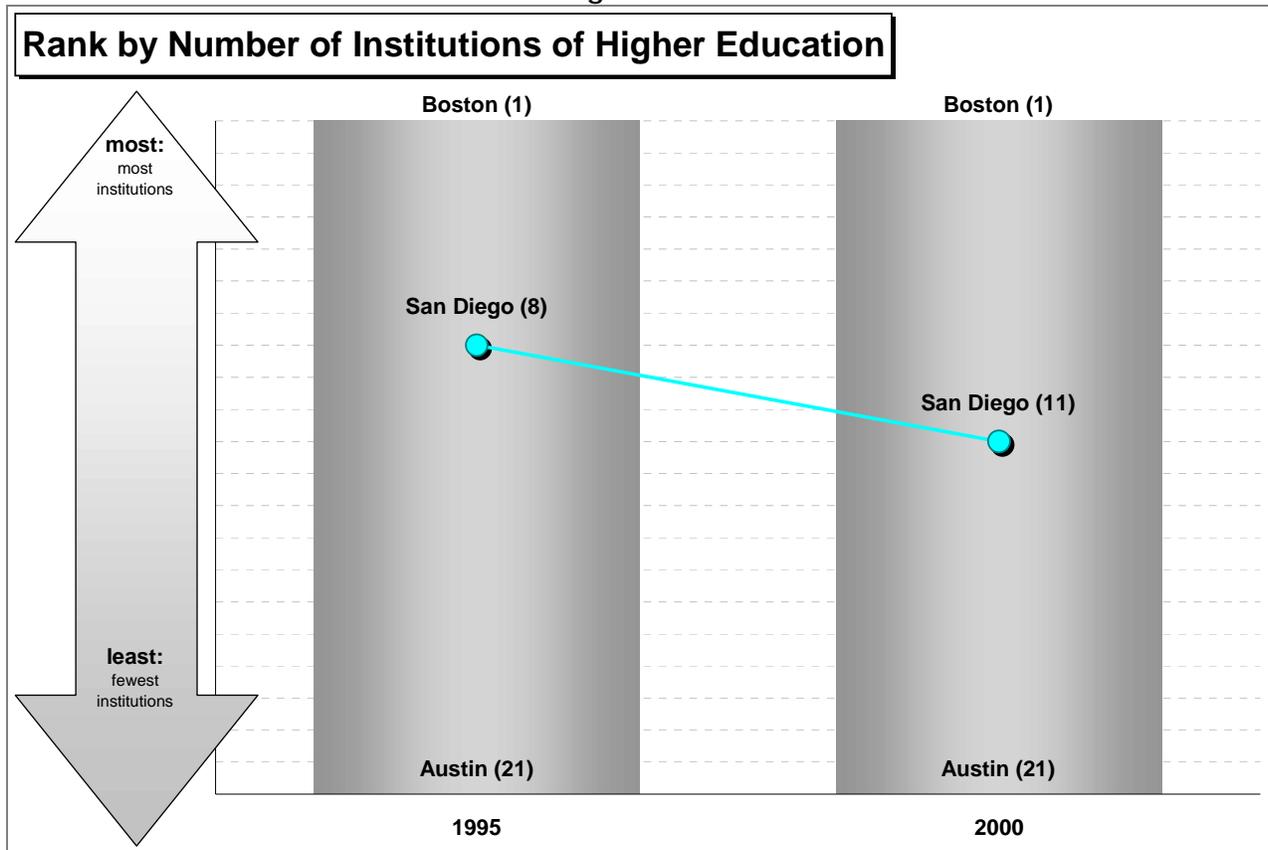
It is apparent that larger regions, such as Boston, have more institutions than smaller communities such as Austin. To account for the large differences in population sizes, the number of students and the total number of college graduates are divided by their region's population.

San Diego is rated Above Average for the number of students in higher education per regional population in 2000.
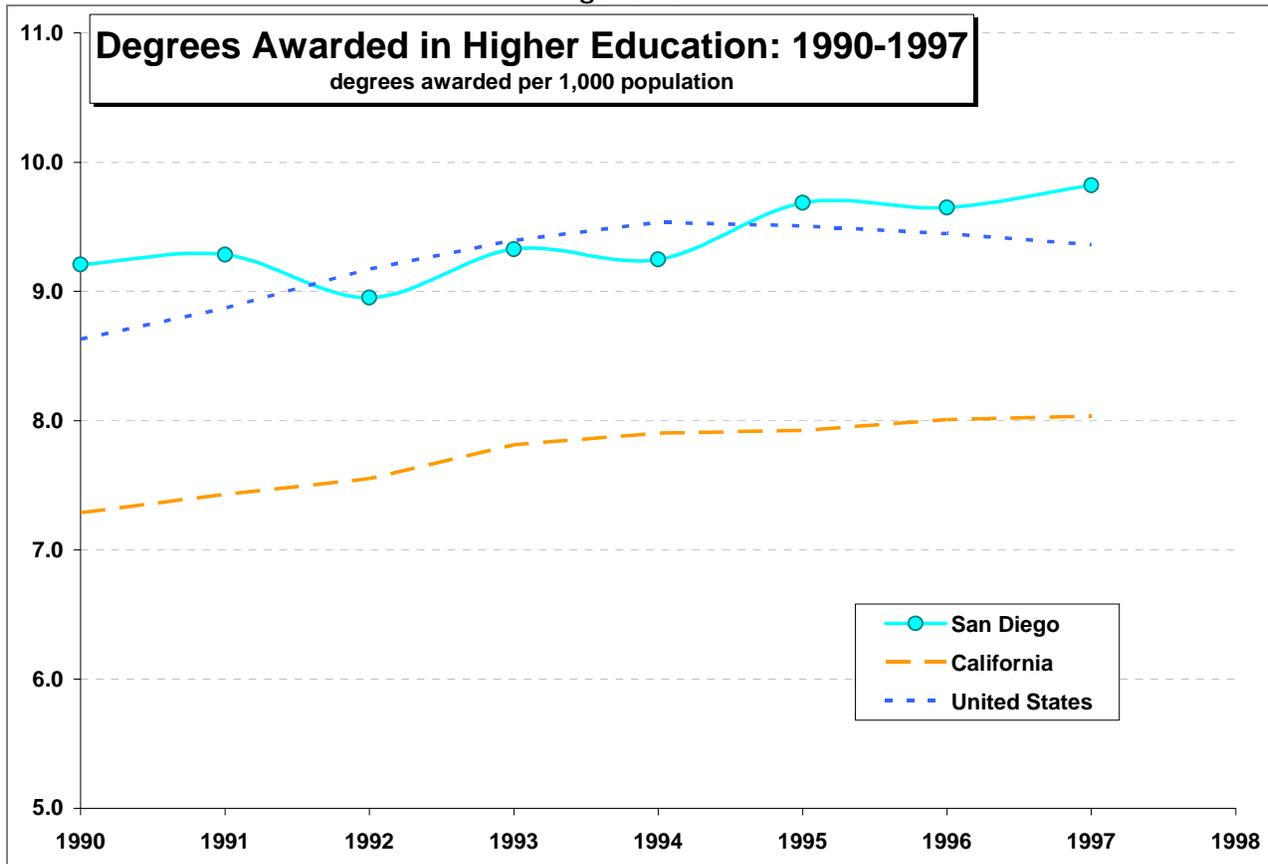
Dividing the number of students by the population reveals that San Diego is ranked 5th in 2000 while San Francisco is ranked 1st and Atlanta is ranked last [see Figure 100]. The 259,818 students in San Diego in 2000 represent about 9.2% of the region's population. For 2000, San Francisco's share is 11.8% while Atlanta's share is 4.2%. In 1995 San Diego is ranked 7th while San Jose is ranked 1st and Atlanta is ranked last.

Figure 100

Compared to California and the United States, the number of degrees conferred per 1,000 population is higher in San Diego in 1997. The San Diego ratio is consistently higher than the California ratio [see Figure 101]. However, the San Diego ratio varies around the United States ratio during the eight years for which we have data. The San Diego ratio rose above the United States ratio in 1995 and it appears they have been following differing trends – the United States ratio is declining while the San Diego ratio is increasing.

Figure 101

Degrees Awarded in Higher Education: 1990-1997
degrees awarded per 1,000 population

Legend: San Diego, California, United States

Have We Improved?

Mixed results. Based on historical San Diego data, the number of local institutions of Higher Education declined from 23 in 1995 to 21 in 2000. However, the number of graduates of institutions of Higher Education in San Diego increased 15.5% between 1990 and 1997 [from 23,141 in 1990 to 26,735 in 1997].

22. Transportation

To track San Diego's performance in transportation, the indicators of average commute time, roadway congestion and the annual number of per capita trips on public transit vehicles operating during peak hours are examined. Each provides important information about quality of life. Increased roadway congestion and longer commute times can lead to pollution, and inefficient use of time resources, as well as driver frustration. Public transportation provides a widely accessible alternative to traditional automobile travel.

How Is San Diego Doing?
The average commute time for San Diego residents was about 48 minutes in 1999. Roadway congestion is measured by examining the volume of traffic to the supply of roadway and the measure used is called The Roadway Congestion Index [RCI][62]. A lower value suggests less congested roads. For San Diego the RCI is 1.25 in 1999 implying roads are congested for more than 11 hours per day and this figure has increased about 5% during the last decade.

How Do We Compare?
Excellent for the average commute time for 1999. Compared to 20 other metropolitan regions, San Diego's average commute time is ranked 4th in 1999 at 48.7 minutes. Ranked 1st with the shortest average commute time is Norfolk with an average of 46.1 minutes. Atlanta is ranked last in 1999 with an average commute of 72.3 minutes [see Figure 102].
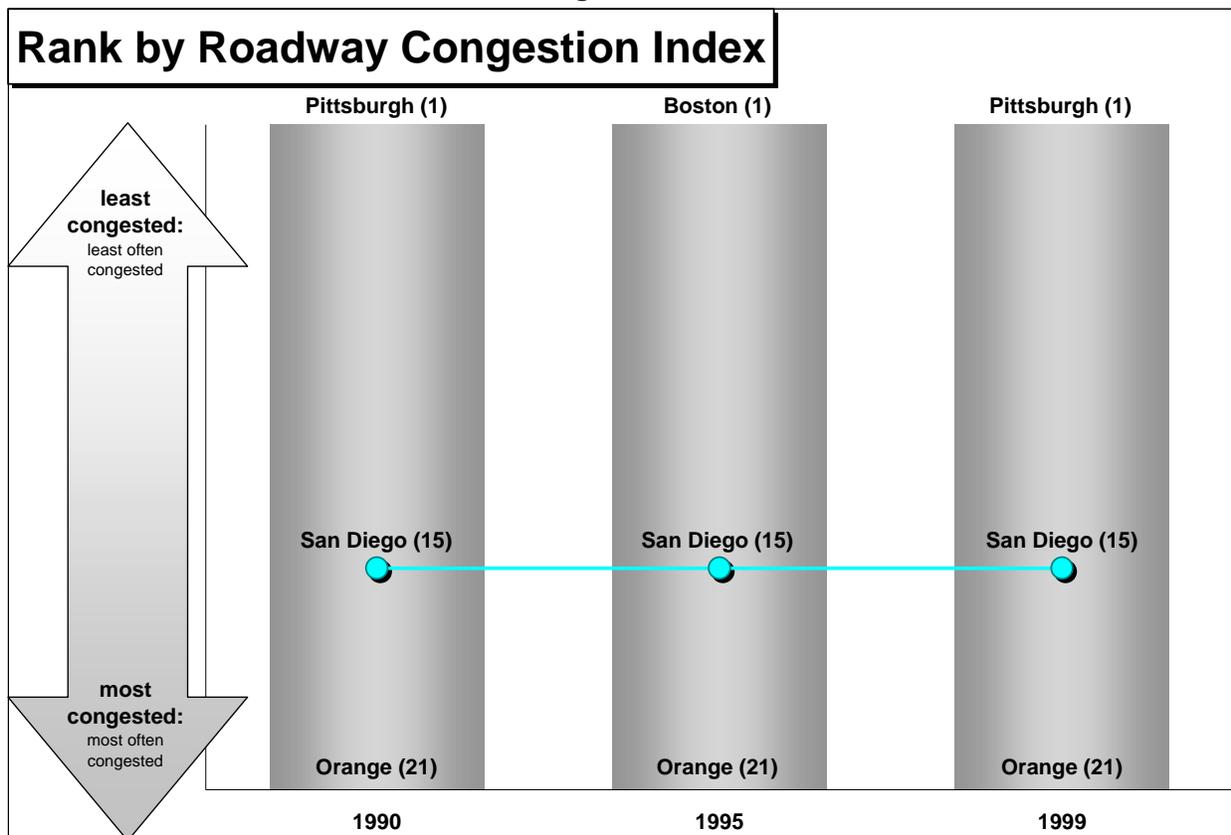
Figure 102

---
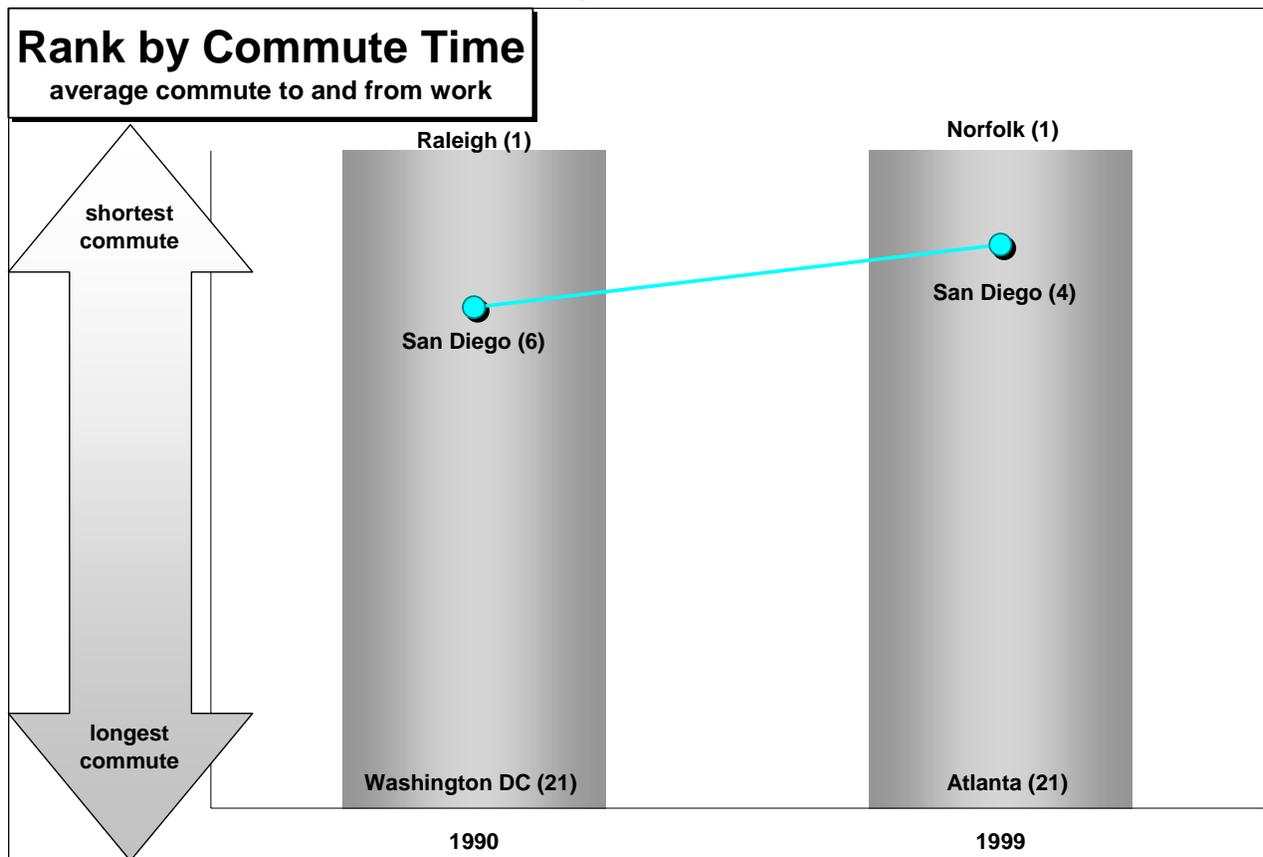
[62] Computed by the Texas Transportation Institute, The Roadway Congestion Index [RCI] is a ratio of daily traffic volume to the supply of roadway.

The Bureau of the Census compiles the average morning commute time every ten years and data are currently available for 1990. The afternoon commute tends to be about 20% longer than the morning commute. The data presented here are total commute times – the sum of the morning and estimated afternoon commute. The average commute time for 1999 is estimated by increasing the average commute time for 1990, by the increase in congestion for the period 1990 to 1999. For San Diego, congestion got worse by about 5% during the decade.

For Roadway Congestion, San Diego is Below Average for 1999. Compared to the other 20 metropolitan areas, San Diego is ranked 15th in 1999 with a Roadway Congestion Index [RCI] of 1.25. Pittsburgh is ranked 1st with an RCI of 0.78 while Orange, CA is ranked last with an RCI of 1.58.
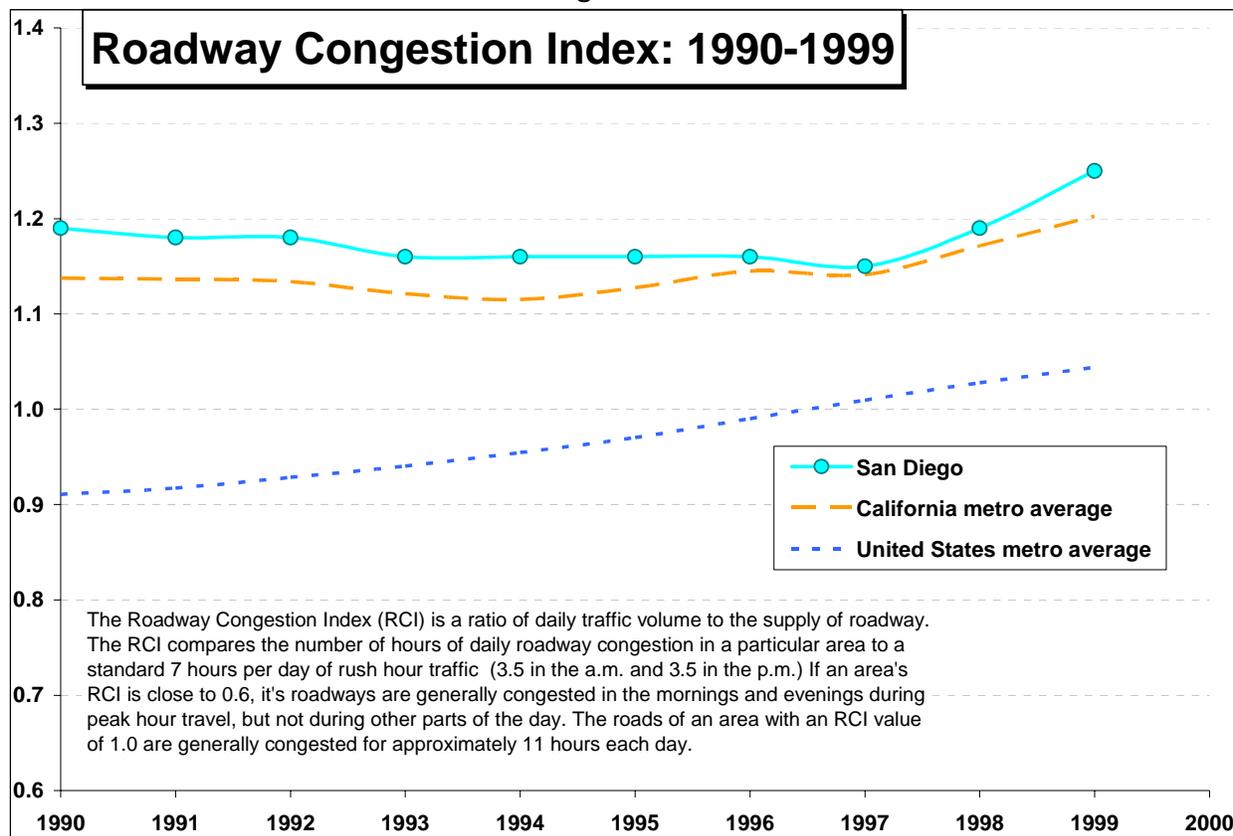
Figure 103

The Roadway Congestion Index (RCI) is a ratio of daily traffic volume to the supply of roadway compiled by the Texas Transportation Institute. The RCI compares the number of hours of daily roadway congestion in a particular area to a standard 7 hours per day of rush hour traffic (3.5 hours in the a.m. and 3.5 hours in the p.m.) If an area's RCI is close to 0.6, its roadways are generally congested in the mornings and evenings during peak hour travel, but not during other parts of the day. The roads of an area with an RCI value of 1.0 are generally congested for approximately 11 hours each day.

San Diego's RCI is very similar, but slightly higher than California's RCI. Compared to RCI data for the United States metro average, the San Diego RCI is consistently much higher, suggesting that its roads are more congested than the average US metropolitan area [see Figure 104].

Figure 104

Roadway Congestion Index: 1990-1999

Legend:
- San Diego
- California metro average
- United States metro average

The Roadway Congestion Index (RCI) is a ratio of daily traffic volume to the supply of roadway. The RCI compares the number of hours of daily roadway congestion in a particular area to a standard 7 hours per day of rush hour traffic (3.5 in the a.m. and 3.5 in the p.m.) If an area's RCI is close to 0.6, it's roadways are generally congested in the mornings and evenings during peak hour travel, but not during other parts of the day. The roads of an area with an RCI value of 1.0 are generally congested for approximately 11 hours each day.

San Diego's congestion has been worsening, but it appears to be doing so at a rate similar to that in other metropolitan regions.

Public transport provides an alternative to auto-based commuting, and can help alleviate roadway congestion. The indicator used here is called unlinked passenger trips and is defined as the following:

> The number of passengers who board public transportation vehicles in a year. Passengers are counted each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination.

These data are compiled by the Federal Transit Administration for buses and trolleys, commuter rail, heavy rail, light rail, demand response and other[63]. We summarize all categories to obtain unlinked passenger trips for the entire metropolitan region. All of these data, including the number of vehicles by type at peak period of operation, are contained in the appendix. Finally, we divide each region's total unlinked passenger trips by the region's population to get the annual number of unlinked passenger trips per capita.

---

[63] The definitions of all these transport types are on page 115-116.

How Do We Compare?

Above Average for 2000. Ranked 1st in both periods is San Francisco with the highest number of unlinked passenger trips per capita with about 179 in 2000. San Diego is ranked 8th with about 37 unlinked passenger trips per capita in 2000 and Tampa is ranked last with 8 unlinked passenger trips per capita [see Figure 105]

Figure 105
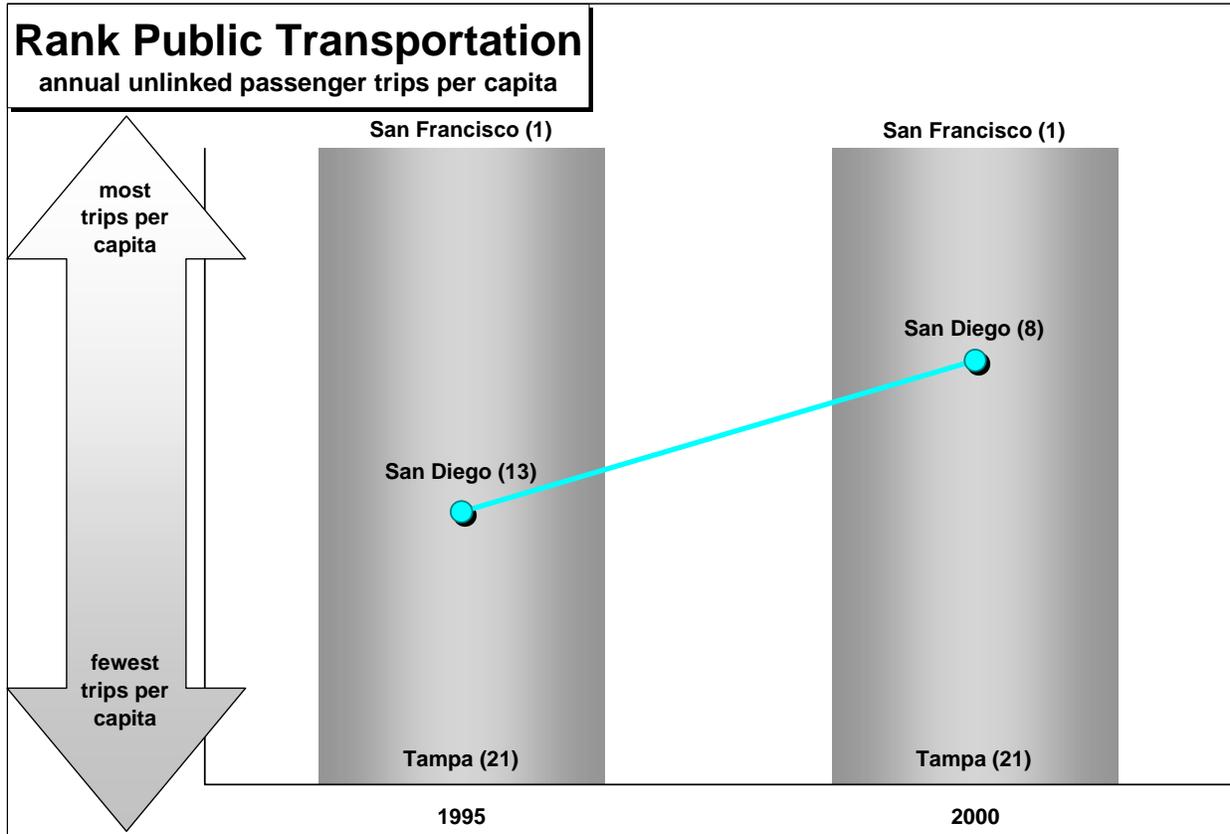
Compared to California data, San Diego has always been below the California average but its unlinked passenger trips per capita is growing more rapidly than the California average. Compared to the United States, San Diego began with a rate below the US average in 1994, surpassed the US average in 1996, and continues to grow faster than the US average [see Figure 106].

Figure 106
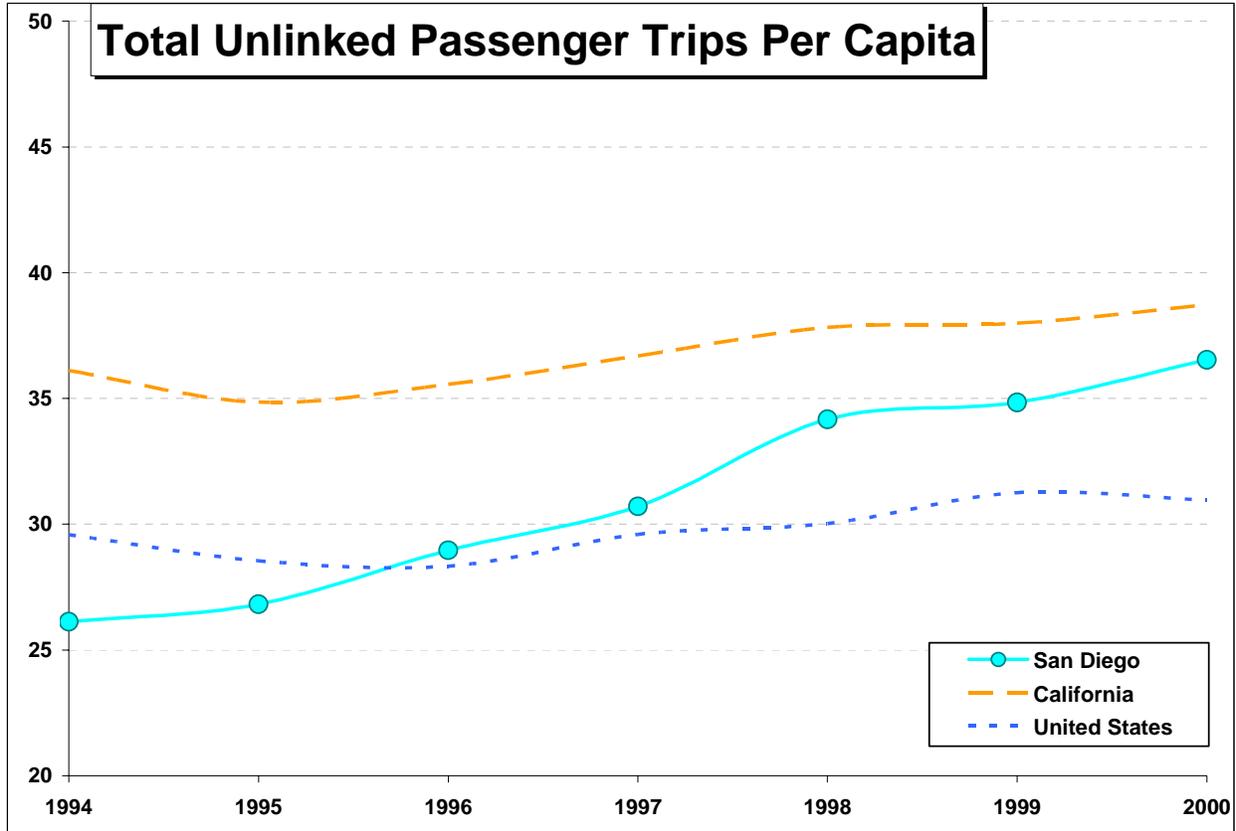
To gain some insight into the type of transportation modes used in San Diego and the United States, the distribution of unlinked passenger trips is compared. The various modes are defined by the American Transportation Association and are the following:

- **Bus** – a transit mode comprised of rubber tired passenger vehicles operating on fixed routes and schedules over roadways. Vehicles are powered by diesel, gasoline, battery or alternative fuel engines contained within the vehicle.
- **Commuter Rail** is a transit mode that is an electric or diesel propelled railway for urban passenger train service consisting of local short distance travel operating between a central city and adjacent suburbs. Service must be operated on a regular basis by or under contract with a transit operator for the purpose of transporting passengers within urbanized areas, or between urbanized areas and outlying areas. Such rail service, using either locomotive hauled or self propelled railroad passenger cars, is generally characterized by multi-trip tickets, specific station to station fares, railroad employment practices and usually only 1 or 2 stations in the central business district. It does not include heavy rail rapid transit or light rail/street car transit service. Inter city rail service is excluded, except for that portion of such service that is operated by or under contract with a public transit industry for predominantly commuter services [means that for any given trip segment (i.e., distance between any two stations), more than 50% of the average daily ridership travels on the train at least three times a week]. Only the predominantly commuter service portion of an inter city route is eligible for inclusion when determining commuter rail route miles.

- **Demand Response** is a transit mode comprised of passenger cars, vans or class C buses operating in response to calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick up the passengers and transport them to their destinations. A demand response operation is characterized by the following: (a) The vehicles do not operate over a fixed route or on a fixed schedule except, perhaps, on a temporary basis to satisfy a special need; and (b) typically, the vehicle may be dispatched to pick up several passengers at different pick-up points before taking them to their respective destinations and may even be interrupted en route to these destinations to pick up other passengers. The following types of operations fall under the above definitions provided they are not on a scheduled fixed route basis: many origins-many destinations, many origins-one destination, one origin-many destinations, and one origin-one destination.
- **Heavy Rail** is a transit mode that is an electric railway with the capacity for a heavy volume of traffic. It is characterized by high speed and rapid acceleration passenger rail cars operating singly or in multi-car trains on fixed rails; separate rights-of-way from which all other vehicular and foot traffic are excluded; sophisticated signaling, and high platform loading.
- **Light Rail** is lightweight passenger rail cars operating singly (or in short, usually two-car, trains) on fixed rails in right-of-way that is not separated from other traffic for much of the way. Light rail vehicles are driven electrically with power being drawn from an overhead electric line via a trolley or a pantograph. Also known as "streetcar," "tramway," or "trolley car", this category covers the San Diego trolley.
- **Other** – refers to all other transit vehicles to include automated guideway, cable car, ferryboat, inclined plane, jitney, monorail, publico and vanpool.

Comparing San Diego and the United States distribution of unlinked passenger trips for 2000 reveals that bus transport makes up the largest category for both [see Figure 107].

Figure 107

Distribution of Unlinked Passenger Trips
for 2000 by type of trip
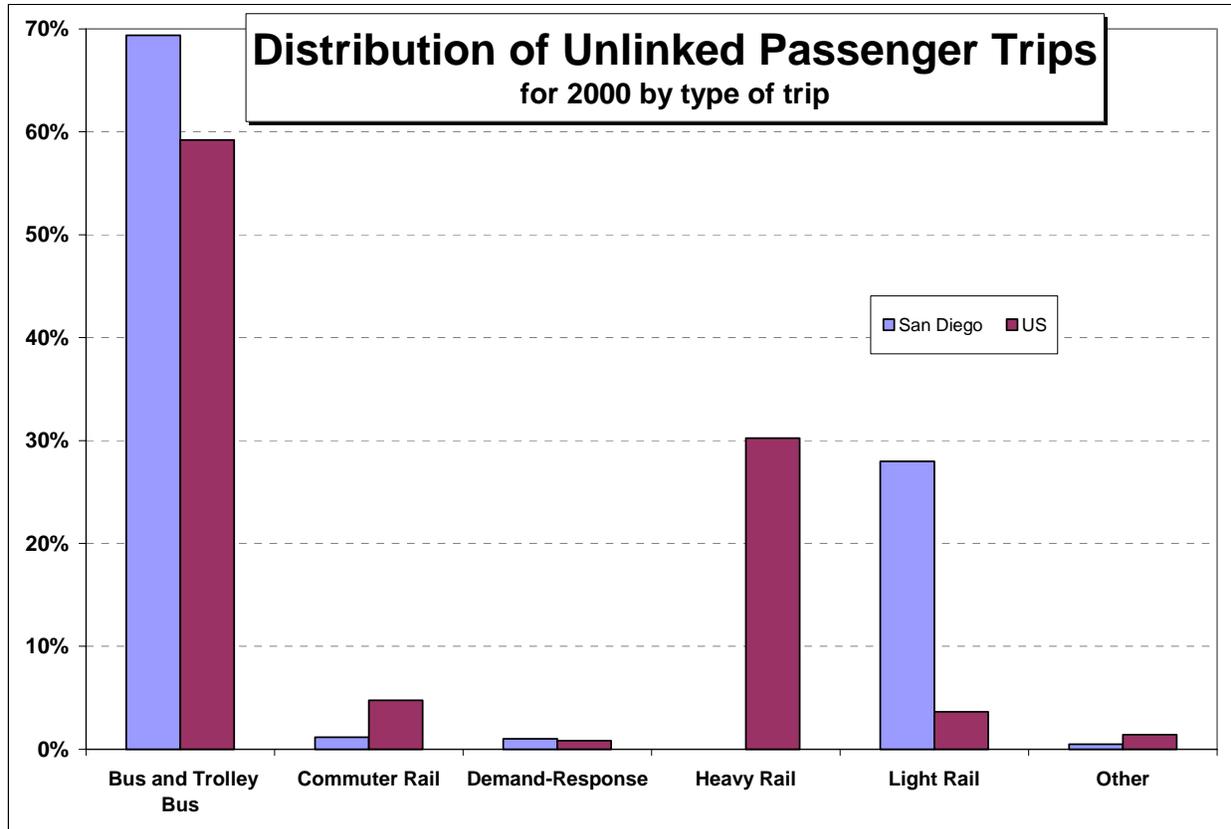
For San Diego the mode ranked 1st is bus and trolleybus with about 69% of all unlinked passenger trips. Ranked 2nd is light rail with about 28% of the total. Together these two categories account for over 98% of all unlinked passenger trips in San Diego. For the US, the mode ranked 1st is bus and trolleybus with about 59% of the total. Ranked 2nd is heavy rail with about 30% and ranked 3rd is commuter rail with about 5%.

<u>Have We Improved?</u>
Mixed Results. Based on historical San Diego data, roadway congestion deteriorated between 1990 and 1999 and this implies the average commute time also deteriorated. However, the total number of unlinked passenger trips per capita increased about 40% between 1994 and 2000 [from 26.1 in 1994 to 36.5 in 2000].

23. Capital Facilities Investment on Mass Transit

Compiling data on capital outlays for the metropolitan regions is a formidable task. Within a region different jurisdictions have responsibility for different categories of expenditures and this pattern varies between metropolitan regions. In addition, different jurisdictions use different fiscal years, use different schemes to classify their expenditures, and use different accounting systems. Thus, comparing data between metropolitan regions is a major undertaking. To facilitate the process we utilize data from the Bureau of the Census, Governments Division. These data hold merit because of their uniformity and consistency across both geographical and topical areas. The Census Bureau obtains these data from each state's controller's office, after which they classify and compile the database. This "census" of government finance is conducted every five years and this study contains data from the 1982, 1987, 1992 and 1997 census[64]. Capital outlays are expenditures to purchase assets or create value that add to the government's net worth and can include real estate, construction, and other assets that have a useful life longer than one year [automobiles, computers, etc.]. For greater detail on the definitions for capital outlays in this section see the glossary.

Variations in capital outlays, over time, are to be expected if one considers the process of executing a capital project. The project has to be conceptualized, planned, funded and then implemented. Implementation can occur in stages or can be a one-time effort. Because our data are only "snapshots" at two different periods of time, we do not know from which part of this process we are obtaining data, and the results may reflect lump-sum expenditures, or long-term projects.

<u>How Is San Diego Doing?</u>
In nominal dollars, governmental capital outlays for Mass Transit decreased about 89% to $4.5 million in 1997 from $40.1 million in 1982.

To determine if there have been any "real" changes in capital outlays, the nominal dollars data presented above are converted to dollars that are adjusted for inflation using the Implicit Price Deflator [IPD]. After conversion it is learned that capital outlays in constant 2000 dollars decreased about 93% to $4.7 million in 1997 from $70.1 million in 1982.

To determine the rate at which capital outlays are spent per resident, the inflation adjusted capital outlay data are divided by San Diego's population to obtain capital outlays per capita in constant 2000 dollars. After the computation it is learned that capital outlays per capita in constant 2000 decreased about 95% to about $2 in 1997 from about $35 in 1982.
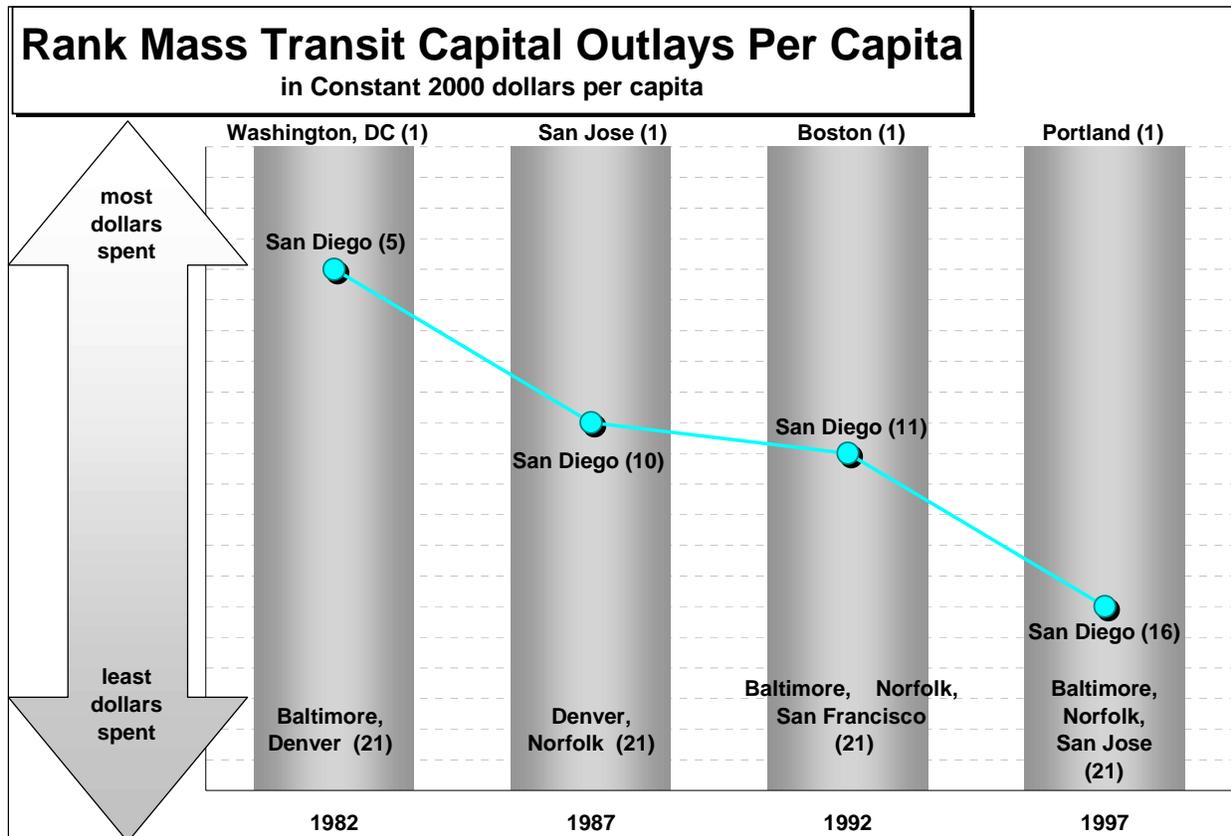
---

[64] The Census Department undertakes a sample of jurisdictions every year to compile revenue and expenditure data, however, these sample data are not utilized because they omit jurisdictions that are responsible for certain categories of expenditures. Thus, the sample data are misleading for certain categories of expenditures.

In short, there have been "real" per capita decreases in governmental capital outlays on Mass Transit in San Diego.

How Do We Compare?

Below Average for 1997. For capital outlays on mass transit (per capita in constant 2000 dollars) in 1997, Portland is ranked 1st with about $119, Baltimore, Norfolk and San Jose are all ranked last with $0, and San Diego is ranked 16th with about $2. San Diego's rank has actually fallen from 5th in 1982 to 10th and 11th in 1987 and 1992 to 19th in 1997. During this period, several regions have claimed the top spot for mass transit capital outlays, whereas both Baltimore and Norfolk are ranked last in three years with no capital outlays. Within the San Diego region in 1997, National City accounted for about 36% of mass transit capital outlays, San Diego City accounted for about 28%, and San Diego County accounted for about 21%. This is very different from 1987 when the San Diego Metropolitan Transit Development Board accounted for about 84% of mass transit capital outlays. In 1982 the San Diego MTDB and the North San Diego County Transit Development Board accounted together for about 77% of mass transit capital outlays in the San Diego region.

Figure 108

Rank Mass Transit Capital Outlays Per Capita
in Constant 2000 dollars per capita

| Washington, DC (1) | San Jose (1) | Boston (1) | Portland (1) |

most dollars spent

San Diego (5)

San Diego (10)

San Diego (11)

San Diego (16)

least dollars spent

| Baltimore, Denver (21) | Denver, Norfolk (21) | Baltimore, Norfolk, San Francisco (21) | Baltimore, Norfolk, San Jose (21) |
| 1982 | 1987 | 1992 | 1997 |

Compared to California and the United States, San Diego capital outlays on mass transit have fallen below both [see Figure 109].

Figure 109

Capital Outlays on Mass Transit
in Constant 2000 dollars per capita

Legend:
- San Diego, CA
- California
- United States
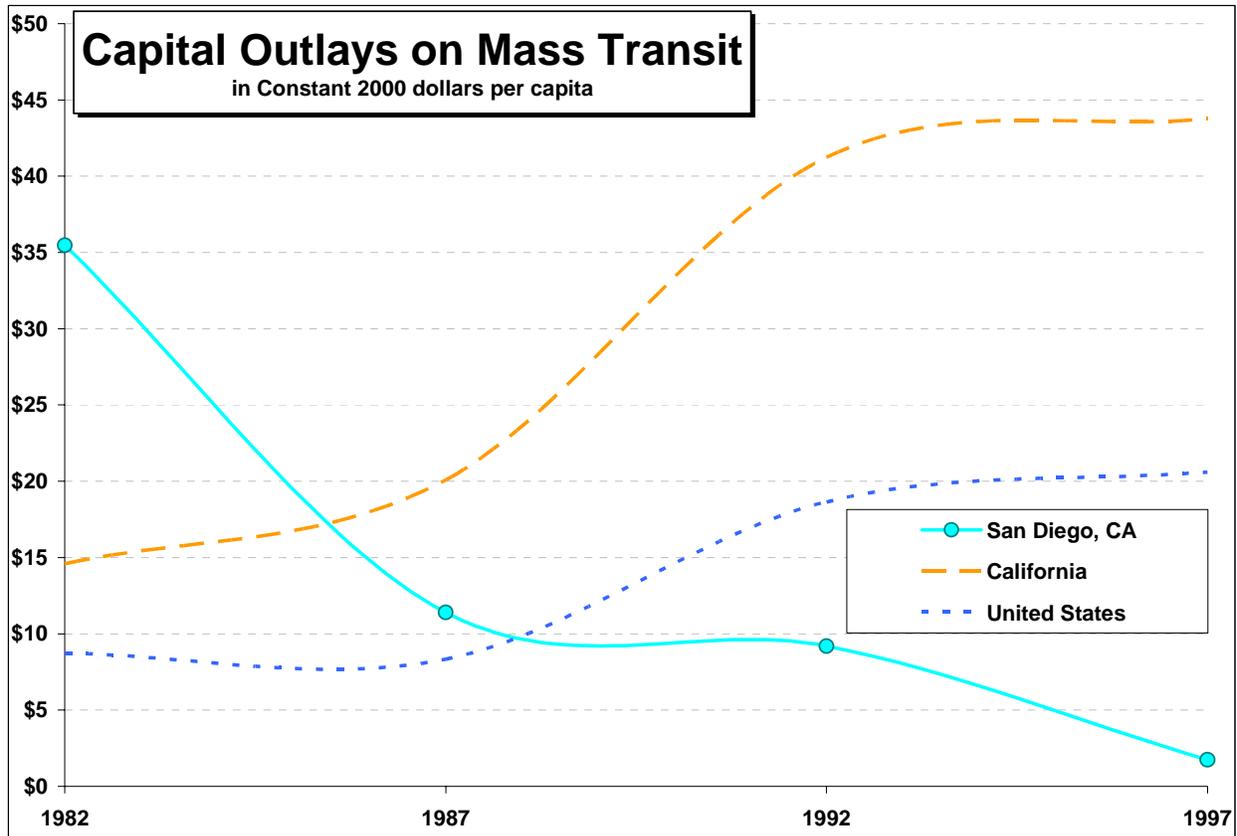
<u>Have We Improved?</u>
No. San Diego's capital outlays on Mass Transit decrease in nominal dollars, in inflation adjusted dollars, and on a per capital basis in constant dollars.