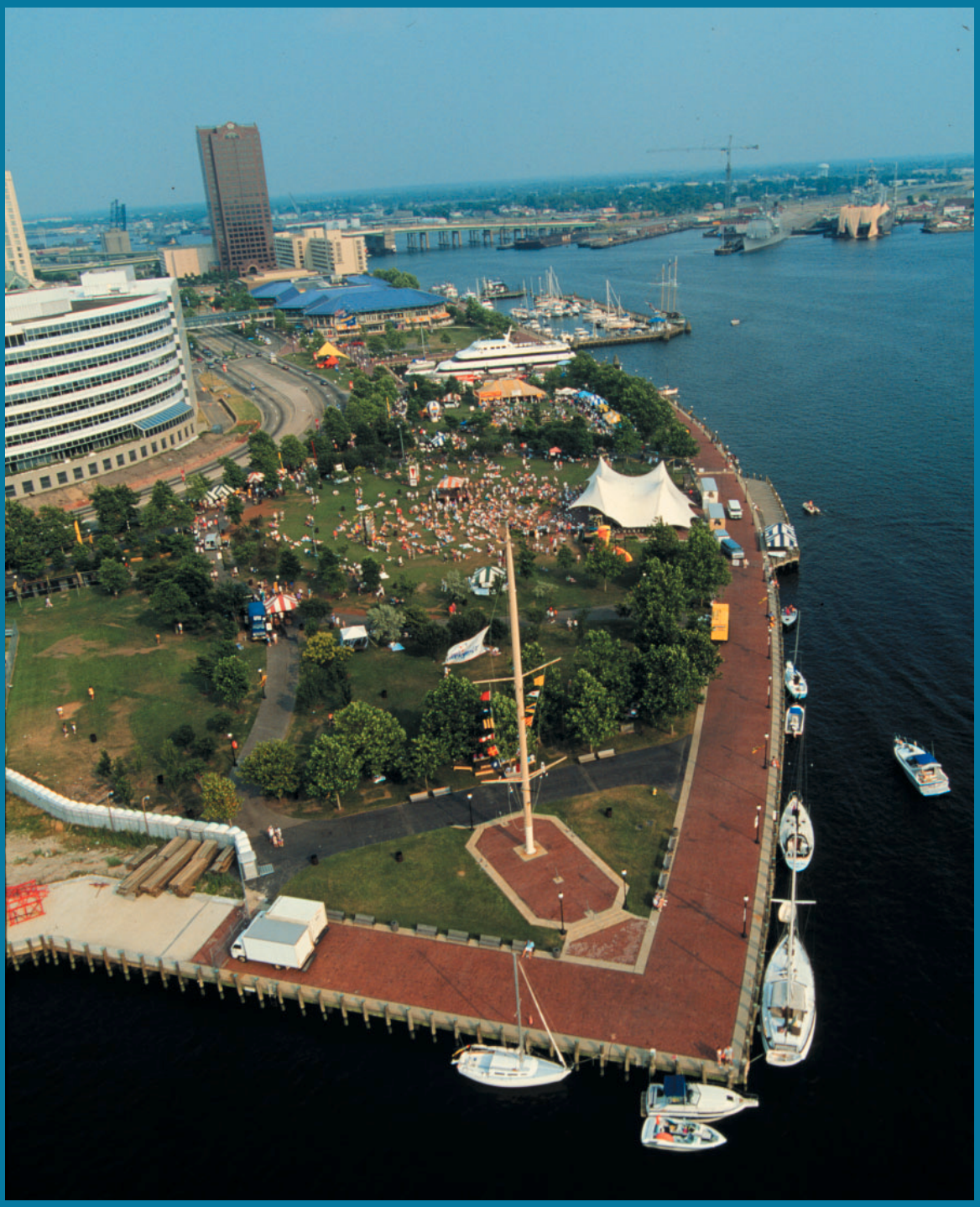

THE STATE OF THE REGION

HAMPTON ROADS 2000

REGIONAL STUDIES INSTITUTE • OLD DOMINION UNIVERSITY

9 October 2000

Dear Reader:

Those who know and love the region of Hampton Roads wish to make it an even better place to live than it is currently. In order for us to achieve that end, we must know literally "where we are" in critical areas. This first "State of the Region" Report is designed to provide citizens with a detailed, though not burdensome, look at several critical aspects of the lives we live in Hampton Roads. The Report focuses on topics such as the regional economy (including the tourist and military sectors), the workforce, K-12 education, technology, and, of course, government and regional cooperation.

Perhaps the Report's most surprising result is the expressed receptivity of citizens throughout the region to the idea of merging governments and many of the services these governments provide. It appears that the citizenry is well ahead of its elected political leaders in this regard.

Also notable are the following:

- The region's economy has performed remarkably well in light of military downsizing and decreased military expenditures. The region's economy continues to diversify away from defense-related activities.
- Tourism is a most important industry in Hampton Roads, but is evolving into an activity that caters increasingly to higher income individuals.
- The region's workforce is of mixed quality and workforce development is an important future need.
- K-12 student performance in Hampton Roads typically lags that nationally.
- Hampton Roads is technology rich, but its major technology is situated in the public sector and to a large degree has not yet been transferred to the private sector.
- Regional transportation plans are "pavement and automobile oriented" and are unlikely to meet the region's future needs, even if proposed roads are constructed.
- Hampton Roads is a "college town" in terms of the proportion of its population that is composed of college students, but it is not a center for university-based research and development activity, and that has hindered its economic progress.

This initial "State of the Region" Report concentrates upon providing a factual base for the citizenry and especially for policymakers. It is designed to tell us where we are in the year 2000. Subsequent annual "State of the Region" reports will focus upon particular aspects of the region's challenges and problems, for example, the probable effects of the development of a "superport" airport in Isle of Wight County, the possible merger of regional services such as police and fire, technology transfer, and so forth.

This Report would not have been possible without the generous financial support of the following individuals and organizations:

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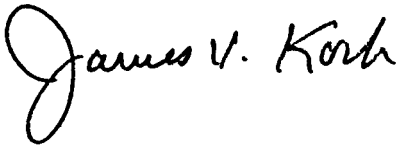
My hope is that this Report will inform you and stimulate your thinking about regional issues. Our region is a superb place to live, but we can make it even better.

Sincerely,



James V. Koch

President and Professor of Economics
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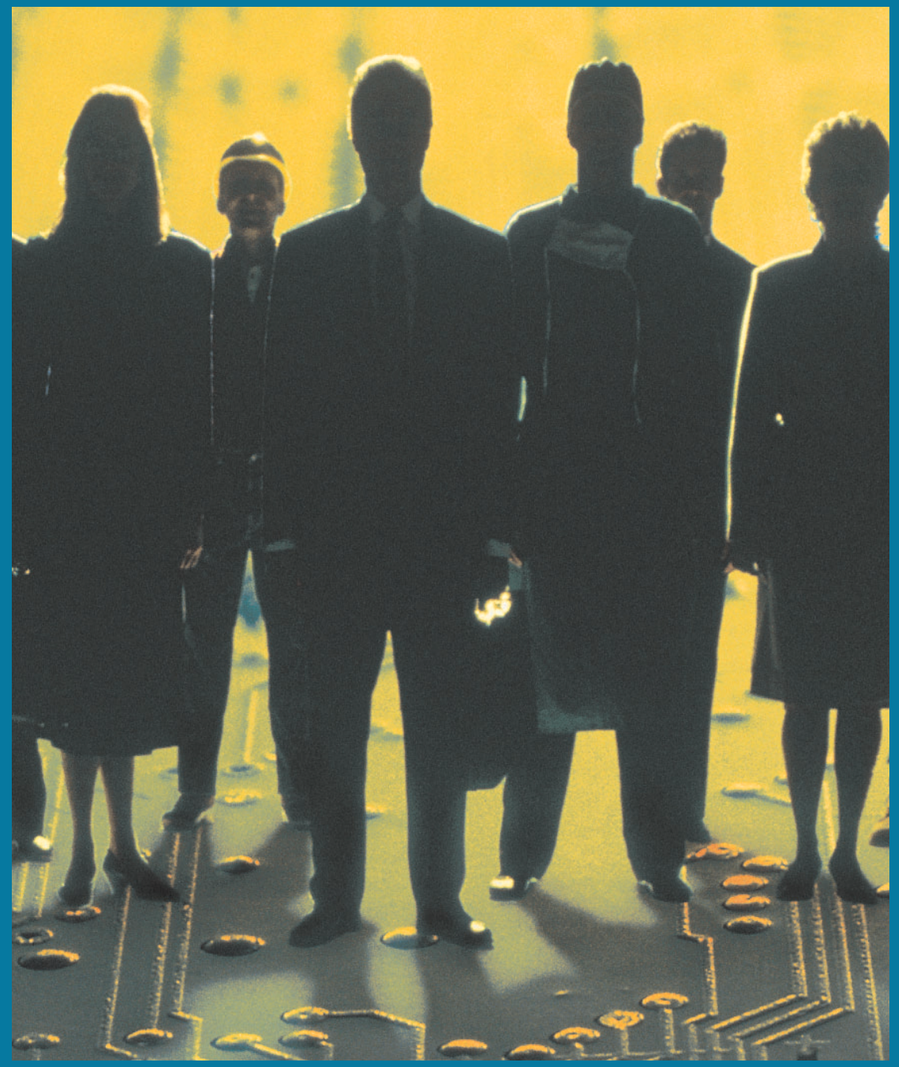
TABLE OF CONTENTS

THE STATE OF



THE STATE OF PUBLIC OPINION

To merge or not to merge? (That was just one of the questions asked in a recent survey of Hampton Roads residents.)

Would you like to see the 14 cities and counties of Hampton Roads merge into a single jurisdiction? Surprisingly, 50.5 percent of 1,169 people polled recently believe that such a merger should occur. For cities or counties where at least 20 individuals responded to this question, the percentage of those desiring a merger ranged from lows of 41.7 in Suffolk and 42.4 in James City County to highs of 54.8 percent in Gloucester County and 55.8 percent in Norfolk. The region's largest city, Virginia Beach, split evenly on this issue, with 153 respondents preferring a merger and 153 opposing it. South Hampton Roads residents, at 51.5 percent, are slightly more in favor of a merger than Peninsula residents, 48.4 percent. Support for a merger is relatively even across racial and ethnic groups: 54.2 percent of African Americans favored a merger, while 49.7 percent of whites/caucasians and 52.4 percent of all others expressed support for a single jurisdiction.

TABLE 1

Percent of Individuals Supporting Merger of Cities and Counties into a Single Jurisdiction

City or County	Percent Supporting Merger
Gloucester County	54.8
James City County	42.4
York County	47.7
Chesapeake	53.3
Hampton	47.2
Newport News	52.1
Norfolk	55.8
Portsmouth	52.7
Suffolk	41.7
Virginia Beach	50.0
Overall	**50.5**

Notes: 1,055 individuals responded to the question, "Should Hampton Roads be merged into a single jurisdiction?" Isle of Wight County, Mathews County, and the cities of Poquoson and Williamsburg are not presented because there were fewer than 20 respondents in those jurisdictions.

Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

Merger or not, a large majority of Hampton Roads residents, regardless of where they live, see the region as one continuous community that they use to meet their daily needs. Whether they travel for employment, shopping, recreation, entertainment or personal business, survey respondents reported that they rely on free and open access to all parts of the region regardless of boundary lines that formally separate jurisdictions. Because of this, a clear majority of residents see the need for regional cooperation through joint arrangements and combining of public services. This is particularly the case for mass transit: respondents to the survey reported traffic congestion as a major problem.

Most of the people who were surveyed view politics and government, as well as competition among the cities and counties, as impeding regional cooperation. They would vote for candidates who favor combining public services on a regional basis and agree that their elected officials should encourage formal working relations among the different Hampton Roads jurisdictions.

Overall, three-quarters of the residents rate their city as well as the region as a good or excellent place to live. However, they give low ratings to such factors as cost of living, transportation and earnings. Forty-five percent of those who view earnings as very poor report that they would move out of Hampton Roads if they had the opportunity.

The findings reported here are based on telephone interviews with of a random sample of 1,169 Hampton Roads residents, conducted by the Old Dominion University's Social Science Research Center, between May 8 and May 24, 2000. The sampling margin of error is ±2.9 percentage points at a 95 percent confidence level. That is, if another sample of the same size were repeated under the same conditions, then 95 percent of the time the deviation from the results reported would be no more than 2.9 percent in either direction (see page 17 for more details on the methodology).

To merge or not to merge was not the only question, however. Participants were asked about such matters as travel patterns, reasons for travel to different cities and counties, perceptions of regional cooperation among the different jurisdictions, perceived barriers to regional cooperation, perceptions of quality of life, and perceived constraints on the quality of life in the Hampton Roads region.

Key Findings

1. Survey data on travel patterns and activities of respondents show that Hampton Roads residents are as much a part of the regional community as they are of their particular city or county. Whether they travel for purposes of employment, shopping, recreation, entertainment or personal business, they depend on continuing access to all parts of the Hampton Roads region irrespective of formal boundary lines.

2. The inner-core cities (Norfolk, Portsmouth, Newport News, Hampton) continue to serve as the economic engine of the region, as measured by the number of people accessing jobs. Most jurisdictions, with the exception of the outer suburbs and Portsmouth, provide a broad range of services in meeting the needs of the respondents.

3. A majority of residents support combining public services among the different jurisdictions for the good of the region. This is particularly true for mass transit, where 72 percent favored combining transportation services. Other services receiving strong support for some form of joint arrangement included roads and streets, social services, emergency services, libraries, recreation facilities, public parks and economic development. On the other hand, merging public housing and schools did not receive majority support on this question.

4. On the question of merging several Hampton Roads cities into a single regional jurisdiction, 50 percent of the respondents approved and 50 percent were opposed.

5. Most respondents (62 percent) had not heard of the Hampton Roads Partnership, a regional organization that promotes regional cooperation.

6. Ninety-five percent of the people surveyed said their elected officials should encourage formal working relations among the various Hampton Roads jurisdictions. Seventy-six percent said they would vote for a candidate who favors combining services on a regional basis.

7. Most respondents (more than 60 percent) view politics and government, as well as competition among the cities and counties, as impeding regional cooperation. Business, the media and public employees are viewed as supporters by a majority of the residents.

8. A clear majority (more than 75 percent) report that the region and the city or county where they reside provide a high quality of life. Also, most of the respondents rated shopping, restaurants, entertainment, culture, museums and higher education as good or very good. On the negative side, cost of living, transportation and earnings were given a good or very good rating by only about a third of those surveyed.

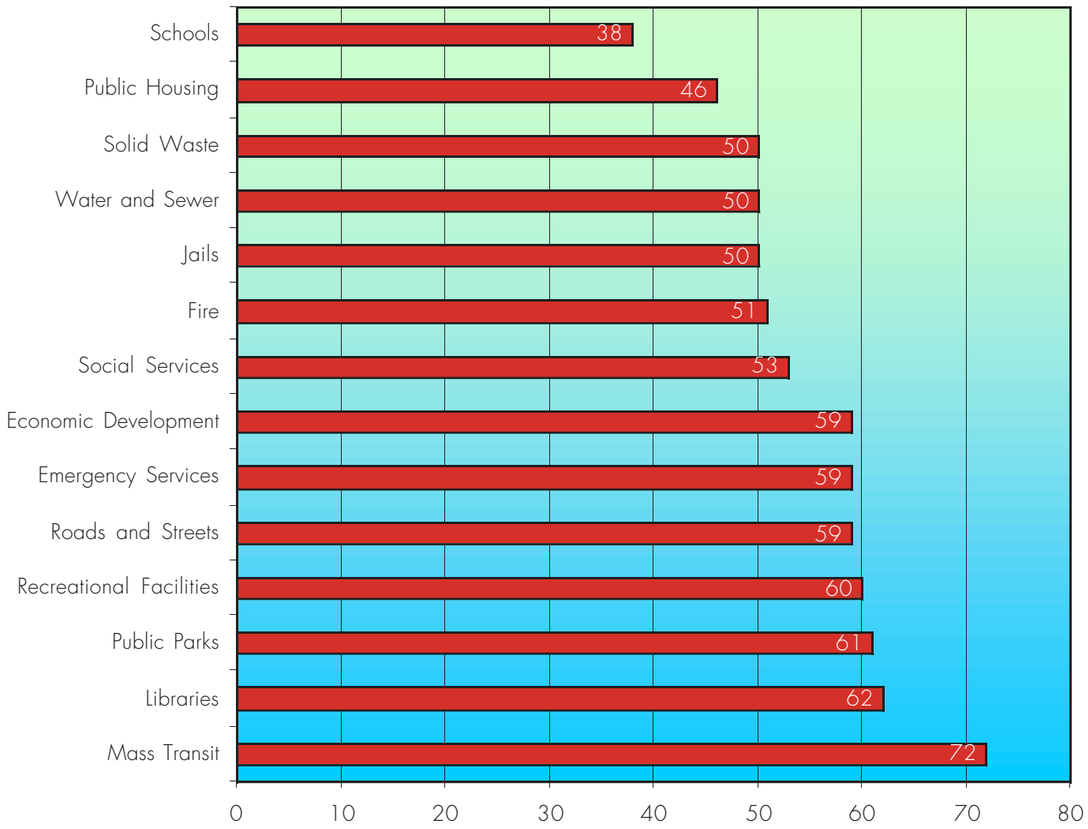
9. Forty-nine percent view traffic congestion as the biggest problem in their city or county. A higher proportion of residents from the urban core (45 percent) identified crime and drugs as a great or very great problem, compared to 15 percent of those who live in the suburbs.

Perceptions of Regional Cooperation

Most respondents favor some form of joint effort to combine public services on a regional basis (see Graph 1). This is particularly the case for mass transit, where 72 percent favored combining services. Other services that rated high for combining services (more than 50 percent) were roads and streets, social services, emergency services, libraries, recreation facilities, public parks and economic development. Neither the merging of the region's public housing, nor its schools, received majority support.

Taking into account geographic location on the question of combining services, no difference was found between residents on the Peninsula and those in South Hampton Roads. However, in comparing respondents from the outer suburbs with those from the inner suburbs and the urban core, 40 percent of those in the outer suburbs, 46 percent from the urban core and 30 percent of the inner suburb residents favored combining schools. Income also influenced views on combing schools. Low-income residents (45 percent) were more likely to favor combining schools as compared to those who are classified as upper income (32 percent of those earning more than $75,000). High-income residents were more likely to favor combining roads, mass transit, prisons and economic development (see Table 2).

GRAPH 1
Percentage of Hampton Roads Residents Favoring Combining Services on a Regional Basis



Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

TABLE 2

Respondents In Favor of Combining Services and Income (Percent Reporting "Favor" to "Strongly Favor")

Option	Low Income (<$25,000)	High Income (>$75,000)
Combine Schools	45%	32%
Combine Roads and Streets	50%	66%
Combine Mass Transit	64%	75%
Combine Prison/Jails	41%	60%
Combine Economic Development	57%	68%

Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

Most respondents (62 percent) had not heard of the Hampton Roads Partnership. No differences could be noted comparing the core cities, the outer suburbs and the inner suburbs. However, high-income respondents (earning more than $75,000) were more likely to have heard of the Partnership (54 percent) than those earning less than $25,000 (26 percent). Ninety-two percent of respondents said their elected officials should encourage formal working relations among the different Hampton Roads jurisdictions.

Of the respondents who gave an opinion, 76 percent said they would vote for a candidate who favors combining services and 24 percent said they would vote for a candidate who opposes formally combing services. Eighty-three percent of the urban-core residents, 72 percent from the inner suburbs and 68 percent from the outer suburbs reported they would vote for a candidate who favors formally combining services.

Opinions on the Pros and Cons of Regionalism

Most the people who were surveyed (more than 60 percent) view politics and government and inter-jurisdictional city and county competition as barriers to regional cooperation (see Table 3). On the other hand, a large majority view business and economic interests as being supportive of regionalism. Other supportive entities reported included the media (newspapers and television) and employees in the public sector. Residents living in the outer suburbs were less likely to view politics and government as a barrier (45 percent) as compared to those from the inner suburbs (65 percent) and the urban core (63 percent).

TABLE 3

Percent of Respondents Viewing Component as Barrier or Support to Regional Cooperation

Component	Viewed as Barrier	Viewed as Support
Competition of Jurisdictions	65%	35%
Politics and Government	63%	37%
Virginia State Legislature	46%	54%
Public Employees	30%	70%
Media	30%	70%
Business & Economic Interests	27%	73%

Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

Rating Quality of Life and Amenities

In rating their city or county on quality of life, 75 percent of the respondents believe it to be good to excellent; also on this issue, 50 percent said their city/county was better to much better in the past five years. In rating the Hampton Roads region, 77 percent reported good to excellent; and 57 percent said it has gotten better or much better over the past five years.

Residents from the inner and outer suburbs were more likely to rate their city as excellent (38 percent and 34 percent, respectively) as compared to 14 percent from the inner core. Individuals who earn more tended to be more positive in rating their cities than did low-income respondents (see Table 4). Eighty-five percent of those earning more than $75,000 rated their city as good or excellent. In contrast, 50 percent of those who earn less than $25,000 rated their city as good or excellent.

In viewing amenities in the region, 60 percent of the respondents rated the following as good or very good: shopping, restaurants, entertainment, culture, museums and higher education (see Graph 2).

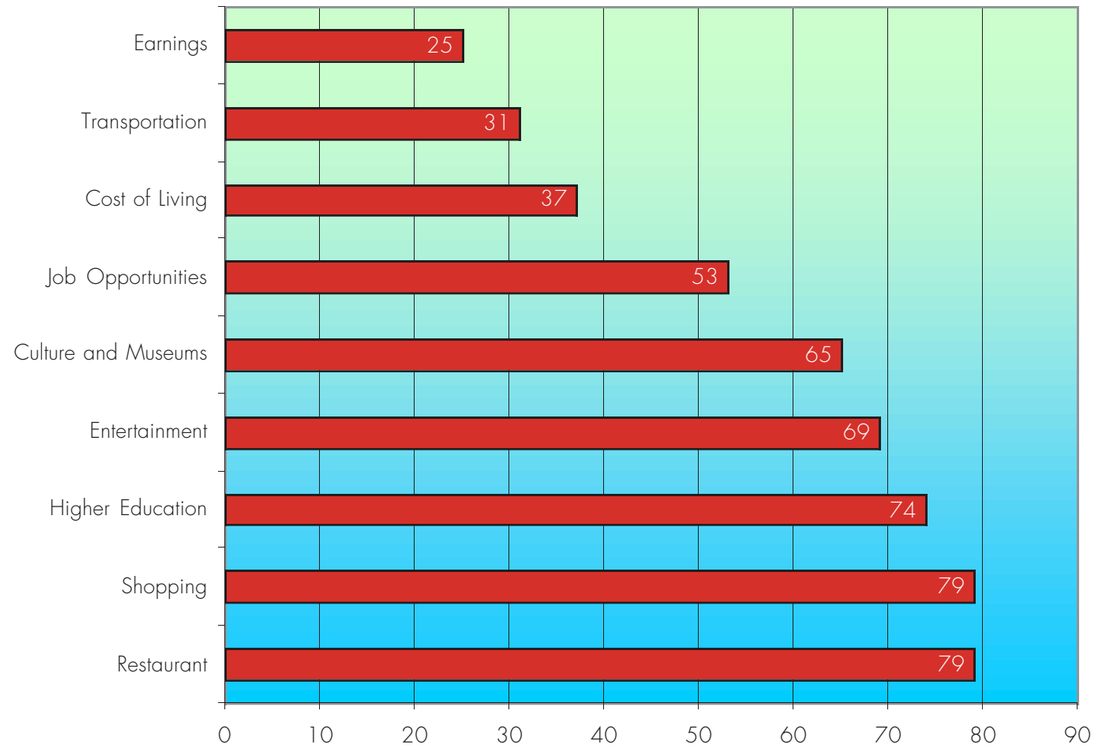
TABLE 4

Rating of City and Hampton Roads
(Percent Rating "Good" or "Excellent")

Location	Low Income (<$25,000)	High Income (>$75,000)
Your City	50%	85%
Hampton Roads	66%	85%

Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

GRAPH 2
Percentage of Respondents Rating
Hampton Roads Amenities as "Good" or "Very Good"



Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

On the negative side, cost of living, earnings and transportation in the region received good or very good ratings from only about a third of the people surveyed. Earnings were viewed positively by a mere 25 percent of respondents. While there appears to be little difference among respondents based on location, some differences can be noted based on income. Those earning less than $25,000 were less likely to rate job opportunities (44 percent), cost of living (24 percent) and earnings (17 percent) as good or very good, as compared to those earning more than $75,000 (60 percent, 31 percent and 32 percent, respectively).

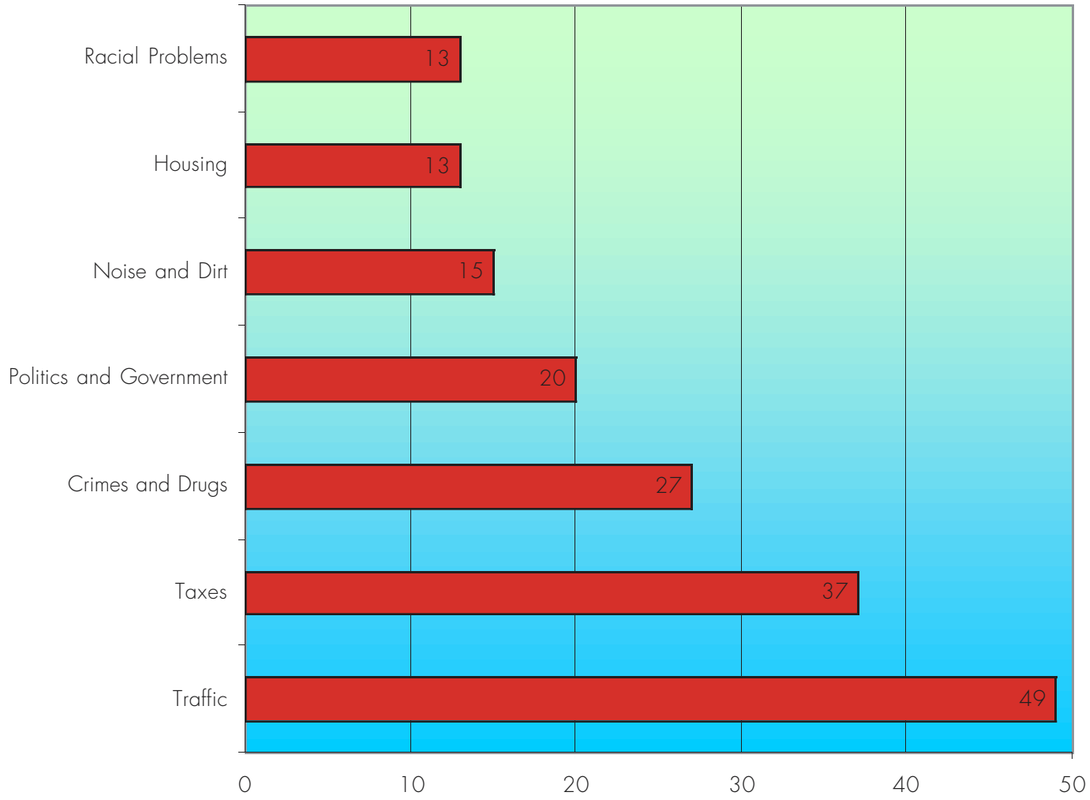
As a reflection of degree of satisfaction with the region, 77 percent report they would continue to reside in Hampton Roads. Of this number, 54 percent would stay where they are, 13 percent would move out of their neighborhood but stay in the same city or county, and 10 percent would move out of their city but remain in some other location in Hampton Roads. The remaining 23 percent indicated they would leave the region. It should be noted that the desire to leave is associated with perceptions of job opportunities and earnings. Of those who rated job opportunities as very poor, 35 percent said they would move out of Hampton Roads, as compared to 17 percent of those who rated job opportunities as very good. Of those who rated earnings as very poor, 45 percent said they would move out of Hampton Roads. In contrast, of those who rated earnings as very good, only 4 percent said they would leave Hampton Roads.

Age and the number of years one had lived in the area were also factors. Newer residents (38 percent) were more likely to report a desire to move out of Hampton Roads, as compared to those who had lived in the area for more than 40 years (11 percent). Younger people, age 30 or less, were more likely to say they would move out of Hampton Roads if given the opportunity (33 percent), as compared to 18 percent of those over the age of 50.

Perceived Problems

Respondents also were asked what they viewed as problems in their city/county (see Graph 3). **Traffic congestion was viewed as the biggest problem overall, with 49 percent of the respondents rating it as a great to a very great concern.** There was virtually no difference in the views of respondents on the Peninsula and those on the Southside for any problem.

GRAPH 3
Percentage of Respondents Identifying this Issue as a "Great" or "Very Great" Problem in City/County



Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

A higher proportion of respondents from the urban core (45 percent) reported that crime and drugs are a great or very great problem, as compared to 15 percent of those who live in the suburbs (see Table 5). Slightly more than half of the residents from the urban core and inner-suburban areas viewed traffic as a great or very great problem. In contrast, just 22 percent of the outer-suburban residents rated traffic as a great or very great problem.

TABLE 5
Perceived Problem and Location
(Percentage of Respondents Reporting Crime or Traffic as a "Great" or "Very Great" Problem)

	Outer Suburbs	Inner Suburbs	Urban Core
Crime	15%	15%	45%
Traffic	22%	52%	50%

Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

Those who have lived in Hampton Roads for more than 40 years were more likely to rate drugs and crime as a great or very great problem (39 percent). In contrast, 22 percent who have lived in the region for five years or less rated crime and drugs as a great to very great problem.

Respondents earning less that $25,000 a year were more likely to rate crime, housing and taxes as great or very great problems. This contrasts with higher income respondents who view these matters as less of a problem (see Table 6).

TABLE 6
High- and Low-Income Respondents Perceive Problems Differently
(Percent of Respondents Rating Crime, Housing or Taxes as a "Very Great" or "Great" Problem)

	Low Income <$25,000	High Income > $75,000
Crime	41%	22%
Housing	20%	7%
Taxes	40%	28%

Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

Regional Travel Patterns

On the subject of travel patterns in Hampton Roads, respondents were asked to what city or county they traveled most often in the month prior to the survey. Norfolk was the leading city, followed by Virginia Beach, Chesapeake and Newport News (see Table 7).

TABLE 7
Most Frequent Cities Traveled to in the Past Month

City	Percent of Respondents
Norfolk	24%
Virginia Beach	15%
Chesapeake	10%
Newport News	10%
Did not travel to other places	15%

Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

On the Peninsula, almost half of the respondents from Gloucester, Isle of Wight County, James City County, Mathews County and York County identified Newport News as the city they traveled to most frequently in the past month. Hampton was identified by 5 to 18 percent of the respondents traveling from these areas. Among Newport News residents, 32 percent identified Hampton, while 19 percent identified Norfolk. Twenty-four percent of Hampton respondents reported no travel to other cities for any reason in the month prior to the survey.

On the Southside, almost half (47 percent) of the Virginia Beach respondents identified Norfolk as their prime destination. Among Chesapeake residents, 38 percent identified Virginia Beach and 28 percent listed Norfolk as prime destinations. Among Norfolk residents, 41 percent identified Virginia Beach as their prime destination, and 20 percent reported no travel to other

cities for any reason in the month prior to the survey. Portsmouth respondents indicated Norfolk (26 percent), Chesapeake (22 percent) and Virginia Beach (19 percent).

Residents from the urban-core cities were most likely to travel to Virginia Beach (20 percent) or reported no travel to other places in the month prior to the survey (18 percent). Among inner-suburban residents, 56 percent reported traveling to Norfolk and 13 percent reported no travel to other cities in the month prior to the survey. Among outer-suburban residents, the greatest number (28 percent) reported traveling to Newport News. The remaining outer-suburban residents listed their most frequent destinations as follows: Chesapeake, 15 percent; Hampton, 13 percent; Virginia Beach, 12 percent; no travel, 12 percent.

The most common reasons given for traveling in Hampton Roads were business (39 percent), shopping (19 percent), personal chores (19 percent) and recreation/entertainment (13 percent). Those living in the outer suburbs were slightly more likely to report traveling to another city to shop (39 percent) than for job-related business (35 percent). However, for those in the inner suburbs, 42 percent traveled to another city for job-related business. Thirty-nine percent of the urban-core residents traveled for job-related business, while 17 percent traveled for the purpose of shopping.

Most of the people who traveled to Portsmouth did so for work-related reasons. A greater proportion of those who traveled to Norfolk (45 percent) came for work than to shop (15 percent). Of those who traveled to Chesapeake, 35 percent did so for work, while 30 percent went to shop. Residents traveled to Newport News for similar reasons: 33 percent came for work and 29 percent came to shop. Table 8 summarizes the percentage of respondents who traveled to the seven most frequently selected destinations for a particular purpose.

TABLE 8

Percent of Respondents Reporting Reasons for Traveling to City

City Traveled To	Business	Shopping	Recreation/ Entertainment	Personal	Other	Total
Chesapeake	35%	30%	5%	22%	8%	100%
Hampton	42%	20%	9%	18%	11%	100%
Newport News	33%	29%	8%	17%	13%	100%
Norfolk	45%	15%	16%	12%	12%	100%
Portsmouth	52%	0%	9%	21%	17%	100%
Virginia Beach	31%	18%	16%	26%	8%	100%
Williamsburg	36%	20%	24%	16%	4%	100%

Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

Of the 373 people who said they traveled to another city for employment, 34 percent said they traveled to Norfolk, followed by 14 percent who traveled to Virginia Beach, 11 percent to Chesapeake, 11 percent to Newport News and 10 percent to Hampton.

Of the 181 respondents who said they traveled to another city to shop, 24 percent said they went to Norfolk, followed by 19 percent to Chesapeake, 19 percent to Newport News, 18 percent to Virginia Beach and 11 percent to Hampton.

Of the 121 respondents who traveled to another city for recreation or entertainment, 36 percent traveled to Norfolk, followed by 23 percent to Virginia Beach and 14 percent to Williamsburg.

Notes on Methodology

DATA COLLECTION

The results reported here are based on a random sample of 1,169 Hampton Roads residents interviewed by telephone between May 8 and May 24, 2000. The interviews were conducted by the Social Science Research Center at Old Dominion University. Interviews were conducted between 3 and 9 p.m. on weekdays, and from 10 a.m. to 3 p.m. on Saturdays. The sampling margin of error is ± 2.9 percentage points at a 95 percent confidence level. Each interview typically required approximately 10 minutes to complete. The sample was derived from a population of random-digit-dialed telephone numbers. All numbers were subsequently randomly sorted for allocation to interviewers during the course of the study. The sample is stratified to represent the proportion of adults in the population age 18 or older for each geographic location in Hampton Roads.

SAMPLE DESCRIPTION

The resulting stratified, random sample matched the actual population distribution across municipalities in Hampton Roads (see Table 9).

TABLE 9

Sample Distribution Compared to Hampton Roads

Municipality	Raw Count	Survey Sample Percentage	Hampton Roads Actual Percentage
Gloucester County	32	2.7	2.3
Isle of Wight County	19	1.6	1.9
James City County	37	3.2	3.0
Mathews County	6	0.5	0.6
York County	48	4.1	3.8
Chesapeake	152	13.0	13.1
Hampton	98	8.4	8.8
Newport News	131	11.2	11.6
Norfolk	161	13.8	14.6
Poquoson	15	1.3	0.8
Portsmouth	81	6.9	6.4
Suffolk	43	3.7	4.2
Virginia Beach	342	29.3	28.1
Williamsburg	4	0.3	0.8
Total	**1169**	**100.0**	**100.0**

Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

TABLE 10

Annual Household Income

Range of Income	Percentage in Sample
Less than $25,000	16.7%
$25,001 - $50,000	39.9%
$50,001 - $75,000	25.4%
$75,001 - $100,000	11.3%
More than $100,000	6.7%

Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

TABLE 11

Age in Years

Age Group	Percentage in Sample
30 or younger	24.0%
31 – 40	20.6%
41 – 50	23.3%
51 – 65	19.5%
66 or older	12.7%

Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

TABLE 12

Race/Ethnicity

Race/Ethnicity Group	Percentage in Sample
White/Caucasian	66.8%
African American	25.0%
Hispanic	2.3%
Philippino	0.3%
Asian	1.2%
Other	4.3%

Source: Social Science Research Center at Old Dominion University, Regional Survey 2000

The median reported annual household income for all of Hampton Roads in the sample was between $25,001 and $50,000.

The average reported age in years in Hampton Roads in the sample was 44.5.

OTHER DEMOGRAPHIC CHARACTERISTICS

The average survey respondent has lived in Hampton Roads for 24 years. Thirty-nine percent of the sample have lived in the region for 26 or more years, while 18 percent have lived here for five or fewer years. Slightly more than 60 percent of the sample were female. Almost 40 percent had at least a college degree. Nearly 30 percent of the sample reported working in professional or managerial occupations, while about 7 percent described themselves as working in the military.

THE STATE OF K-12 EDUCATION

Are we adequately preparing our children to become contributing members in a knowledge-driven society?

Few things are more important to adults in Hampton Roads than the quality of their K-12 schools. These schools, and the students within their classrooms, represent the fondest hopes of this generation for a prosperous future. Many citizens and parents are willing to expend countless hours helping to maintain the quality of their schools and, to the extent they are able, make them even better. Pity the political leader who comes to be viewed as "anti-education." From the latest related statewide initiatives to more localized concerns, K-12 schools are always a focal point of the news in Hampton Roads.

Virginia, like many other states, has implemented standards-based curricula and high-stakes testing to counter widespread criticism of its schools. The public has voiced concerns that today's students are unprepared for a world transformed by technological advances, globalization and a groundswell of new knowledge about virtually every area of life. The Hampton Roads public is no exception. The advent of sophisticated technologies in business, health, the military, maritime and other industries in this region has brought us to a point at which skills in problem-solving, logical reasoning and critical analysis are mandated by employers in all fields. Are our local K-12 schools adequately preparing students to assume their place as contributing members of such a rapidly evolving, knowledge-driven society?

To answer that question, we need to focus on *teachers* (their training and competence, salaries, and supply and demand), *students* (enrollments and teacher/student ratio, SOL curriculum standards and student performance on standardized tests) and *issues confronting our schools* (for example, funding and resources, buildings, busing and redistricting, and time usage – including controversies over recess).

Teachers

A recent National Center for Education Statistics report sums up the challenges facing teachers throughout Virginia and nationwide: **"At the core of educational reforms to raise standards, reshape curricula and restructure the way schools operate is the call to reconceptualize the practice of teaching. Teachers are being asked to learn new methods of teaching, while at the same time they are facing the greater challenges of rapidly increasing technological changes and greater diversity in the classroom."**

TEACHER LICENSURE

The Virginia State Board of Education was aware of such challenges when, in 1995, it adopted new Standards of Learning (SOL) outlining "what teachers need to teach and students need to learn." At the same time, the board recognized that new, more demanding licensure regulations would be necessary if teachers were to "have the background needed to facilitate student achievement of these rigorous standards." By July 1, 1998, school divisions were required to implement the new licensure regulations, with July 1, 2000, set as the implementation date for teacher education programs in institutions of higher learning.

The basic path to licensure in Virginia is the completion of a bachelor's degree in a content area; completion of professional education course work; completion of pre- and post-clinical experiences; and fulfilling teacher testing requirements in reading, writing and mathematics (Praxis I) and in the content area (Praxis II). Reciprocity with other states that have a comparable teaching endorsement is another path to a state teaching license.

However, since the demand for teachers in certain subject areas may exceed the supply, alternative routes to licensure are also available, namely a conditional license in special education, a technical professional license and an alternative three-year nonrenewable provisional license available through an arrangement with the school division or nonpublic school where the individual is employed. In addition, a one-year state licensure arrangement for individuals switching from another field of work to classroom teaching became available the summer of 2000.

Because of its continuing effort toward reform and its commitment to teacher excellence, Virginia requires high scores on the Praxis I and II tests, which teachers must pass before they can be licensed. In fact, Virginia's cutoff scores are the highest of any state in the nation.

NATIONAL BOARD CERTIFICATION

Another way Virginia promotes teacher excellence is by encouraging teachers to seek National Board certification through the National Board for Professional Teaching Standards. This independent, nonprofit organization has developed rigorous standards against which teacher performance may be measured as part of its effort to bring greater respect and recognition to teaching as a profession. As of November 1999, 64 teachers in Virginia had achieved National Board certification. Of these, at least five teach in school systems in Hampton Roads.

In 1999, the Virginia General Assembly passed legislation to provide a National Teacher Certification Incentive Reward to those teachers who become Board certified. The state incentives include financial assistance with the $2,000 application fee for National Board certification, as well as other monetary awards. Many local school divisions offer additional financial incentives.

TEACHER SALARIES

There is little doubt that financial rewards are important in attracting and retaining proficient teachers. Yet, salaries for teachers are low compared to other professions requiring the degree of training and expertise expected of teachers. Not surprisingly, the issue of salaries is a popular topic of discussion in Hampton Roads. Salary was a major reason that nearly 200 Hampton Roads teachers switched to other schools for the 1999-2000 school year. The Portsmouth school district, which pays its teachers the lowest salaries in the region and has a less-than-desirable benefits package, lost 54 teachers to other school divisions. Chesapeake, with its newer, better-equipped and air-conditioned school buildings, drew the most teachers from other Hampton Roads school districts. If they are not able to increase salaries, some school divisions have been using various other enticements to attract teachers. Virginia Beach offers generous sign-up bonuses, and Norfolk has begun offering to reimburse teachers for six college credits per year – twice as many as before.

Table 1 shows the minimum and maximum salaries paid to teachers in Hampton Roads school districts at the bachelor's and master's degree levels. In addition to the figures listed, most of the region's school districts provide salary supplements to teachers who successfully complete advanced course work.

TABLE 1

1999 Teacher Salary Ranges and Percent Increases

School Division	Bachelor's Degree Salaries		Master's Degree Salaries		Percent Salary Increase Over Previous Year	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Virginia Average	$25,813	$40,581	$27,733	$43,115	2.93	1.51
Chesapeake	26,939	45,575	30,139	48,775	1.00	3.00
Hampton	27,300	42,750	29,100	44,550	1.11	0.99
Newport News	27,383	42,890	28,126	46,220	1.20	1.23
Norfolk	26,900	44,100	29,040	46,240	0.37	2.80
Portsmouth	26,416	40,421	28,479	47,511	0.00	0.00
Suffolk	27,110	41,007	28,865	43,362	3.20	2.43
Virginia Beach	26,910	47,109	29,410	49,609	0.13	0.00

Source: Based on information from 1998-99 Salary Schedules for Teachers. Virginia Education Association/NEA (Richmond, Va., 1999).

States vary greatly in the average salary paid to teachers. The average nationally for the 1998-99 school year was $40,574. Virginia, with its overall average of $37,709, ranked 24th among the states. Among neighboring states, the average teacher salary in Maryland was $42,514 (14th); in North Carolina, $36,883 (26th); in the District of Columbia, $48,275 (7th); and in West Virginia, $34,248 (38th). New Jersey had the highest average teacher salary ($51,692), and South Dakota, the lowest ($28,386).

Students

Nearly 235,000 students are enrolled in Hampton Roads schools. Table 2 lists the number of students in each school system as well as the students-to-teacher ratio. Caution must be exercised in interpreting these ratios, however, because the figures do not show precisely the number of students per classroom teacher, but include other school personnel as well (guidance counselors and librarians, for example).

The students-to-teacher ratio for the United States as a whole is 16.2. The average for Virginia is 14.2, making it one of the states with the lowest ratios. A number of states report a ratio of more than 20: Arizona, California, Oregon, Utah and Washington. California's is 21, and Utah has a ratio of 22.4

TABLE 2

Student Enrollment and Student-to-Teacher Ratios, 1999

School Division	Total Student Enrollment	Student-to-Teacher Ratios
Chesapeake	36,362	15.5
Hampton	23,661	14.0
Newport News	31,927	15.3
Norfolk	36,606	14.0
Portsmouth	17,687	13.5
Suffolk	10,836	14.7
Virginia Beach	77,521	14.9

Source: Based on information from 1998-99 Salary Schedules for Teachers. Virginia Education Association/NEA (Richmond, Va., 1999).

Accountability and Standardized Tests

Since a major concern in American education today is accountability, student performance on standardized tests has become the accepted, albeit controversial, way of measuring accountability. Student performance is used as the gauge to determine how well teachers are teaching, how well students are learning and how effectively school administrators are carrying out their responsibilities. Three major tests, each with a different purpose, are used to measure student performance.

THE STANFORD 9

The Stanford Achievement Test Series, Ninth Edition ("Stanford 9") is part of the Virginia State Assessment Program administered by the Virginia Department of Education in compliance with the Standards of Quality, which requires that nationally normed tests be used to measure the educational progress of students. The resultant scores show the progress of students in reading, mathematics and language (writing) in grades 4, 6 and 9, as compared to students in the Stanford 9 national norm groups who took the same tests at the same time of year and under identical conditions. (Some students are exempted from the tests, mainly because of either disabilities or limited proficiency in English.) Table 3 shows how students in Hampton Roads and in the Commonwealth of Virginia as a whole performed on the Stanford 9. A 50th percentile rank indicates an average performance, based on comparison with the national norm group.

TABLE 3

Stanford 9 Test Results for Hampton Roads Schools, Fall 1999

Grade 4		Percentile Rank			
School Division	% Students Taking Test	Total Reading	Total Math	Language	Partial Battery
Virginia	**96**	**52**	**57**	**57**	**56**
Chesapeake	96	53	59	63	58
Hampton	95	42	52	47	48
Newport News	96	41	45	43	44
Norfolk	95	38	45	47	44
Portsmouth	95	33	32	43	37
Suffolk	95	39	46	49	45
Virginia Beach	98	49	59	58	55
Grade 6					
School Division	% Students Taking Test	Total Reading	Total Math	Language	Partial Battery
Virginia	**95**	**59**	**62**	**53**	**60**
Chesapeake	95	57	59	54	58
Hampton	97	49	54	45	51
Newport News	96	50	54	44	52
Norfolk	89	44	48	36	46
Portsmouth	94	39	34	39	39
Suffolk	94	49	57	49	53
Virginia Beach	98	59	61	52	59
Grade 9					
School Division	% Students Taking Test	Total Reading	Total Math	Language	Partial Battery
Virginia	**92**	**60**	**65**	**50**	**56**
Chesapeake	91	59	51	51	54
Hampton	92	57	48	48	52
Newport News	94	51	44	40	47
Norfolk	73	42	33	34	38
Portsmouth	87	43	36	37	41
Suffolk	87	42	35	32	39
Virginia Beach	95	60	55	49	56

Source: Based on data from the Virginia State Assessment Program, 1999 Detail Report, Table B, Stanford 9, Fall 1999 Division Results—National Percentile Ratings, Virginia Department of Education. Available on the World Wide Web: http://www.pen.k12.va.us/VDOE/Assessment/VSAPreport/1999/

SCHOLASTIC APTITUDE TEST (SAT)

The Scholastic Aptitude Test, which tests math reasoning and verbal achievement skills, is sometimes referred to as the college entrance examination. Institutions of higher learning utilize SAT scores to help ascertain whether a student is prepared for success at the collegiate level. Table 4 shows the SAT scores for Hampton Roads.

The combined SAT scores of all the Hampton Roads school systems which reported data for 1999 are below the national average of 1016. (It should be noted that the highest Scholastic Aptitude Test scores possible on each portion of the test is 800.) Three school systems – Chesapeake, Hampton and Virginia Beach – reported average SAT scores above the Virginia average. However, none of the average Hampton Roads school systems' SAT scores are impressive, especially when many college admissions criteria include minimum SAT scores of 1100 (combined verbal and math) for regular admission as a freshman. At some schools, the criteria include a minimum 1400 SAT score and a GPA of 3.5 or higher.

Many students discover that they have to settle for their second or third choice of a college or university. Moreover, some four-year institutions are increasing their minimum SAT admission criterion, which further disadvantages a number of Hampton Roads students who are seeking college admission. In addition to the overall SAT averages reported by the Hampton Roads school systems, the average SAT scores for minority students must also be considered for this discussion. The average scores that were available show no distinction between caucasian and minority students. Nationally, SAT scores for students of color tend to be below those of white students, with one exception: Asian-American students tend to have higher scores on the math portion of the SAT than all other groups of students. It has been reported, however, that over the past 20 years, the average scores for all minority students has increased. For example, the average verbal scores for African-American students have increased 24 points and the average math scores have shown a 34-point increase.

TABLE 4

SAT Scores for Hampton Roads, 1999

School System	Verbal	Math
Chesapeake	485	472
Hampton	474	457
Newport News	n.a.	n.a.
Norfolk	446	436
Portsmouth	n.a.	n.a.
Suffolk	455	419
Virginia Beach	504	493
State Average	508	499
National Average	505	511

Sources: The Virginian-Pilot, "Average SAT scores for Virginia students show little change," September 1, 1999, p. A3. "Hampton SAT scores on the rise." Retrieved July 4, 2000, from the World Wide Web: http://www.sbo.hampton.k12.va.us/Whywerethe1stChoice/ontherise.htm Virginia Beach information based on data from Tables 2.19 and 2.20 "Scholastic Assessment Test (SAT I)," Office of Accountability, Virginia Beach City Public Schools. Retrieved from the World Wide Web: http://www.vbcps.k12.va.us/satschoo.pdf

STANDARDS OF LEARNING (SOL) TESTS

The Standards of Learning Tests, more than any other standardized tests, have stirred up considerable controversy in Hampton Roads. Parents and students complain about the pressure and great anxiety the tests produce because so much depends upon their outcome. **Teachers complain about loss of time for creative student projects and the necessity of requiring too much memorization. Many teachers say the mandate to focus their instruction almost exclusively on the SOL causes them to forgo their most creative teaching approaches in order to "teach to the test."** They also report a fear of job loss in view of high pressure from administrators to make sure that all students pass.

Another oft-heard criticism is the lack of student readiness for a particular grade level's requirements and its effect on student motivation. Also, many students believe the teacher has to rush through material to cover everything required for the test and is not able to allow time for interaction on topics of interest. In *The Virginian-Pilot's* annual survey of more than 1,200 high school seniors in the spring of 2000, more than three-fourths said the SOLs hindered rather than helped their education, and reduced classroom creativity.

Of the four areas of SOL exams (English, Mathematics, History-and-Social Science, and Science), the percentage of students who pass the History SOL Tests in all grade levels is consistently less than the percentage of students who pass the SOL Tests in the other three content areas. Whereas the Science and Mathematics SOLs have been touted as consistent with current scientific and mathematical knowledge and are balanced in the presentation of factual information, problem-solving, reasoning, investigating and understanding appropriate to students' developmental stages, the History SOL has been criticized for being too focused on the memorization of unrelated facts and too removed from the developmental stages of children. The criticism has especially been voiced with regard to requirements and expectations for students in grades 1 to 5. In response to such criticisms, the Virginia Board of Education announced that it will be revising the Standards of Learning for Social Studies in October or November 2000.

As Table 5 shows, in all grades, the Hampton Roads school divisions which had the highest percentage of students who passed the SOL Tests in 1999 were Virginia Beach, Chesapeake and Newport News. Of these three school divisions, Virginia Beach had the highest percentage of students who passed in all grade levels.

It should be noted that by the 2006-07 school year, a public school in which a Virginia Board of Education-specified percentage of students do not pass the SOL Tests may be denied accreditation. And while that deadline remains, the Virginia Department of Education made certain changes in late July 2000 which will allow some flexibility in how the accreditation requirements are met.

TABLE 5

Students Who Passed the Standards of Learning Tests, 1999

Adjusted Rates (percent)

Grade 3

School Division	English	Mathematics	History	Science
Virginia	**61.10**	**67.62**	**62.11**	**68.34**
Chesapeake	61.62	71.25	52.92	67.98
Hampton	50.06	58.17	45.92	55.84
Newport News	54.20	60.63	59.00	63.61
Norfolk	50.38	56.28	46.23	54.55
Portsmouth	48.80	46.54	42.07	47.64
Suffolk	44.00	57.69	58.81	53.32
Virginia Beach	67.06	73.85	66.18	69.17

Grade 5

School Division	English	Mathematics	History	Science
Virginia	**75.08**	**50.85**	**45.87**	**67.27**
Chesapeake	75.46	52.09	45.07	65.97
Hampton	68.83	42.55	26.58	57.17
Newport News	70.57	47.95	46.51	61.83
Norfolk	68.43	39.76	37.24	53.24
Portsmouth	62.12	22.86	25.50	44.81
Suffolk	70.49	42.76	31.27	59.24
Virginia Beach	77.83	57.89	51.25	68.78

Grade 8

School Division	English	Mathematics	History	Science
Virginia	**68.22**	**66.08**	**40.79**	**77.38**
Chesapeake	72.81	67.86	44.17	79.84
Hampton	67.89	66.47	26.78	72.08
Newport News	67.11	68.21	35.97	75.26
Norfolk	51.99	39.78	21.31	61.11
Portsmouth	50.65	31.94	26.62	53.15
Suffolk	56.36	46.17	20.08	70.03
Virginia Beach	73.16	74.15	41.54	84.13

High School End of Course Assessments (SOL)

School Division	English	Mathematics	History	Science
Virginia	**75.69**	**49.50**	**44.82**	**69.34**
Chesapeake	69.36	46.64	45.45	66.20
Hampton	74.73	48.81	21.73	63.29
Newport News	78.97	44.61	41.48	64.45
Norfolk	69.40	44.04	31.26	62.26
Portsmouth	59.26	14.52	20.26	45.96
Suffolk	63.36	15.39	28.43	48.16
Virginia Beach	78.90	54.87	28.12	78.27

Source: Based on data from the Virginia Department of Education. Retrieved from the World Wide Web: http://www.pen.k12.va.us/sol99

A major concern voiced over the implementation of the SOLs has centered around children who may be poor, or who are members of minority groups which have been denied many opportunities other children have experienced, or who are immigrants. What if these students cannot meet the standards? The Virginia Department of Education has emphasized its awareness of such concerns and states that the commonwealth is "not going to leave any children behind. Nor do we believe it is right to presume that children cannot achieve to high standards just because they are of a certain race, ethnicity or income level."

In spite of such assurances, however, many Virginia citizens have voiced their fears that some students will not be able to pass, forcing them to go through life without a high school diploma – or that disheartened students will drop out as soon as they are old enough to do so, rather than go through the humiliation of failing the SOL Tests required for graduation. During the summer of 2000, in response to such concerns, state education leaders considered the option of initiating a "basic diploma" in addition to the "standard" and "advanced" high school diplomas. However, employers, educators and civil rights leaders strongly opposed the idea, saying a lowering of standards would not be doing students a favor and would hamper their future in the job market. Officials of the state division of the National Association for the Advancement of Colored People wrote to Virginia's secretary of education opposing the notion of such a diploma.

In the end, the Virginia Department of Education added some flexibility to the diploma requirements, allowing students to earn high school diploma credits through passing certain other approved tests in addition to the SOLs. But the idea of a third less rigorous "basic diploma" for general students was dropped. (The board did, however, create what it calls the "modified standard diploma," which is more academically rigorous than the basic diploma would have been, but which is limited to "students with documented disabilities who are proceeding under a federally mandated Individual Education Program.")

The importance of academic achievement among minorities is much discussed among Virginia's education leaders. Kirk Schroder, president of the Virginia Board of Education, reported in a Virginia Department of Education news release that there is evidence that "Virginia's new academic reforms are raising academic achievement among African-American students." When he and Paul Stapleton, superintendent of public instruction, appeared before the Commission on Educational Accountability in the late summer of 1999, they emphasized that the passing rates of African-American students in Virginia had increased over the year before in 26 of the 27 SOL Tests. Schroder pointed out that in 16 of the 27 subject areas tested in grades 3, 5, 8 and high school, the gains made by African-American students were greater than those made by caucasian students. These education officials considered these gains as evidence that "the gap between African-American and caucasian students' scores has begun to close," while noting at the same time that "we still have a considerable way to go to close the achievement gap completely." But the journey has begun.

SCHOOL FUNDING

Although many people think local property taxes are the major source of revenue for the public schools, a high proportion of school funding is provided by the state and federal governments. **State funding, the major source of school revenue, comes from state aid to education, state lottery profits, and state sales and use taxes. However, to the degree that education in Hampton Roads is dependent upon property taxes for a considerable share of funding, school quality will vary according to the property values and non-revenue-producing, tax-exempt properties in different areas.**

The latest available statistics for three of the region's school systems illustrate. Virginia Beach, for example, reports that during the 1997-98 school year, 55.1 percent of revenue came from state funds, 38.1 percent came from local sources and 6.9 percent came from federal funds. In Norfolk, the 2001 budget for the city's schools is based on an expectation of 63.6 percent of funding from the state of Virginia, 33.6 percent from the city, 1.9 percent from federal sources and 0.9 percent from other local sources. The school board serving the City of Hampton has prepared its 2002 budget based on an expectation of 64.4 percent in state funds, 34.8 percent in local funds and 0.8 percent in federal funds for Hampton schools.

According to a U.S. Census report issued in May 2000, school revenue for the United States during the 1996-97 fiscal year came from states (48.8 percent), the federal government (6.4 percent) and local sources (44.8 percent). For Virginia, the proportions of school revenue were 40.5 percent from the state, 4.9 percent from federal sources and 54.6 percent from local sources.

States varied greatly in the average dollar amount spent per student. In 1996-97, New Jersey had the highest expenditure per student ($9,461), and Utah the lowest ($3,810). The U.S. average was $5,873 per student. Table 6 shows the per-pupil expenditure for Virginia and the school systems of Hampton Roads.

Cities such as Norfolk and Portsmouth face considerable funding difficulties due to a number of factors that result in lower property tax bases. Both cities, for example, have a lower per capita income level than other Hampton Roads cities. Both cities have been identified through federal government agencies as Economic Empowerment Zones, which denotes their eligibility for federal dollars under a variety of grant programs. However, the federal grant opportunities are highly competitive and are typically awarded to fewer than 15 regions annually. In addition to the lower per capita income levels, Norfolk faces an additional funding burden; that is, the city has a huge nontaxable property base that consists of the Navy base, the port, two universities and one community college, low-income housing and other properties that pay no property tax.

TABLE 6

Per Student Amounts Spent in Public Elementary and Secondary School Systems, Hampton Roads, Va., 1996-97

Area	Total Per Student Expenditure
Virginia	**$5,715**
Chesapeake	$5,257
Hampton	$4,995
Newport News	$5,114
Norfolk	$5,425
Portsmouth	$5,359
Suffolk	$4,828
Virginia Beach	$4,821

Source: Based on data from Table 17, U.S. Census Bureau, Public Education Finances: 1997. Washington, D.C.: U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau publication GC97(4)-1, Issued May 2000.

TECHNOLOGY

The importance of technology in the modern world cannot be overemphasized. Computer skills are essential in virtually any field of endeavor, and the Technology Standards of Learning for Students and Technology Standards for Instructional Personnel highlight their critical role. **Yet, in Hampton Roads schools, there is no consistency in computer access, even though students are expected to pass examinations showing they have mastered the requirements of the Technology Standards of Learning by the end of grades 5 and 8.**

In a December 1998 "Report to the Commonwealth of Virginia," the authors of the *Milken Exchange on Education Technology* raised some disconcerting issues concerning the state of technology in Virginia's schools. Among the findings are the following:

1. Virginia's investment in technology for classrooms is evident, especially in the fact that the student-to-computer ratio is 10.9 to 1, which is near the 12 to 1 nationwide ratio.

2. Approximately 60 percent of Virginia's schools have at least one Internet-connected computer per classroom. However, many suburban schools have 75 percent of their classrooms wired, while only 36 percent of urban classrooms are wired. A close examination of schools in Hampton Roads reflects this data. Schools in Hampton, Newport News and Virginia Beach are well equipped with classroom computers, while schools in Norfolk and Portsmouth lack the essential education technology to adequately prepare students to meet the Technology SOL competencies.

3. Virginia's students and teachers are demonstrating competencies in basic skills; however, educators "are not yet using technology effectively to improve student learning." In the Milken study, many teachers reported that classroom computers are used primarily for remediation and/or independent student projects. Many teachers also reported that their primary computer usage involved word processing of their lesson plans, handouts, quizzes and tests, and spreadsheet management, such as grade and attendance record-keeping.

4. While a large number of both teachers and administrators agreed that educational technology should be used effectively "in terms of problem-solving, organization, research skills and taking responsibility for their own learning," the necessary training for teachers has not occurred to effect this higher cognitive and critical thinking levels of intellectual engagement. Moreover, the positive impact on student learning in both subject-area basic skills, as well as critical thinking and analytical skills, has not been realized.

5. Most of Virginia's teachers are interested in using education technology in their classrooms, especially to facilitate conditions under which their students will excel. However, many teachers do not know how to integrate essential technology into their classroom curriculum and instruction. Moreover, teachers lack opportunities not only to develop their technology proficiencies but also to redesign their curriculum and instruction to meet the cognitive and analytical skills that students need at higher levels.

It is imperative that teachers in Hampton Roads, as well as throughout Virginia, have access to educational technology and that they receive adequate technological training. School administrators in Virginia must provide opportunities for teachers to be trained in the following areas: (a) high level of education technology usage; (b) redesign of curriculum and instruction that includes a significant integration of computer use in the classroom; and (c) advancement of education technology that includes accountability in the positive impact on PK-12 student learning as measured on standardized achievement tests.

Similar concerns are being voiced on the national level. The U.S. Department of Education's Office of Educational Technology is currently conducting a yearlong review and revision of the national educational technology plan, and as a first step convened a variety of experts for the two-day "Forum on Technology in Education: Envisioning the Future" in December 1999. Emerging priorities were identified and various white papers were commissioned to address the challenges of assuring, among other priorities, that "all teachers will effectively use technology" and that "all students will be technologically literate and responsible cybercitizens."

ISSUES RELATING TO TIME

A number of issues that generate much school-related discussion in Hampton Roads cluster around time to do all that needs to be done and space in which to do it. During the year 2000, some of the time-related issues in the news ranged from debates over a state-required "moment of silence," to parental concerns about recess, to time schedules for mastery of certain subjects.

Recess. Many educators have emphasized the role of play in children's learning and in their development of communication and social skills. Recess was the traditional and time-honored way of providing time for play during the busy school day. However, with the increasing emphasis on accountability and high-stakes standardized testing, many schools began eliminating recess so that more time could be allotted to mastering the requirements of the Standards of Learning. Parents became concerned. After 750 parents signed a petition calling for daily recess, the Chesapeake School Board voted to ensure that elementary schoolchildren will have at least 15 minutes of recess each day of the school week. In late July, the State Board of Education voted to require daily recess in schools throughout the state.

Scheduling time. Schools may want different time arrangements for scheduling fulfillment of certain requirements. Beginning in the fall of 2000, Virginia will require students in grade 11 to pass algebra, along with at least two other equally or more difficult math courses before graduation, or they will not earn their high school diplomas. To give students a longer window of time to fulfill the state math requirement, Portsmouth schools in 1998 instituted a requirement that algebra must be taken and passed by the end of the ninth grade or they will not be promoted to grade 10. Since that time, about half of the ninth-graders have not been promoted. This has not only caused problems for the students, but also has resulted in problems for the administration, such as class scheduling.

Pointing out that the math requirement was largely to blame, the school superintendent requested that Portsmouth students be given "a gift of time" with the passing requirement moved to the end of the 10th grade for a temporary period while textbook and other changes were being implemented. However, the Portsmouth School Board feared the change would be a disservice to the students by not holding them to the highest academic standards.

Other schools have had other kinds of time-related problems. Suffolk was forced to cancel 10 summer school classes, and Chesapeake had to close its summer school registration early. Time for required courses that many students expected to take in the summer will now have to be crowded into the fall schedule. Students most affected are seniors needing certain courses before graduation or students who had failed courses and hoped to repeat them over the summer months. **The main reason for the dearth of summer school classes is a teacher shortage. Teachers reportedly feel the pay is too low to give up their time in the summer, and many say they are exhausted from the school year and need time to restore energy and enthusiasm.**

Space Issues

Buildings. School buildings in Hampton Roads range from new state-of-the-art structures (with air conditioning, carpeting and an infrastructure for computer networking systems) to school buildings constructed 50 or more years ago and lacking these and other amenities. The region has experienced controversy between those who want to preserve old school buildings as part of the area's history and those who wish to demolish them and put in their place new school buildings more in keeping with the needs and standards of today's world. The remodeling vs. demolishing controversy over Norfolk's Taylor Elementary School (which was torn down) and Blair Middle School (now under discussion) are examples.

School capacity and redistricting. Overcrowding is a problem in many school districts, which has led to the use of portable classrooms. A number of elementary, middle and high school students attend schools where enrollments exceed 100 percent capacity. One school in Chesapeake, for example, is at 138.4 percent capacity and has 28 portable classrooms. At the same time, other schools are below capacity, some as low as 60 percent.

These facts lead to the question of redistricting, another often controversial matter. Redistricting is necessary when a neighborhood or designated school area either grows or shrinks in its population of school-age and younger children. If the school population diminishes, there is room in that school for students from an overcrowded district. If the population grows, students may be bused to another area; or another school may be built.

The number of students in a class is critical to success, and classrooms must be kept at optimal size. **The average class size in the first grade is 21 in Norfolk, 22 in Chesapeake, 24 in Portsmouth and 22 in Virginia Beach. But in high school math, the numbers are generally higher.** For example, a high school math class in Norfolk has an average of 26 students. In Chesapeake, the number ranges from 20 to 30. Twenty-six is the average in Portsmouth, and in Virginia Beach the average is 25 to 30.

School boards often clash with parents over redistricting plans. Some parents may have moved to a particular area specifically because of the reputation of the schools their children would be attending, only to have the district change shortly after they purchased a home in that area. In some cases, parents are concerned about their children being forced to attend a school far away from their neighborhood, which means long-distance busing. Virginia Beach recently faced controversies over redistricting, and the Ocean View area of Norfolk was the center of a debate over cross-city busing. The latter debate also brought up issues of busing for racial balance, causing Norfolk to re-examine its policy on busing and look for ways to shorten the time on bus routes without compromising integration.

Issues Still Needing Exploration

It is impossible, in this space, to cover all the issues of K-12 education in Hampton Roads. Issues such as the charter school movement, demographics, the degree of parental involvement, efforts to prevent school violence and the special programs available to students are only a few of the additional topics that could be examined. Suffice it to say that K-12 education in Hampton Roads is dynamic rather than static. Our schools and school boards are working to produce a well-equipped population of future decision-makers and problem-solvers, even as they work to meet their own challenges, seek answers to their own questions and resolve their own problems.

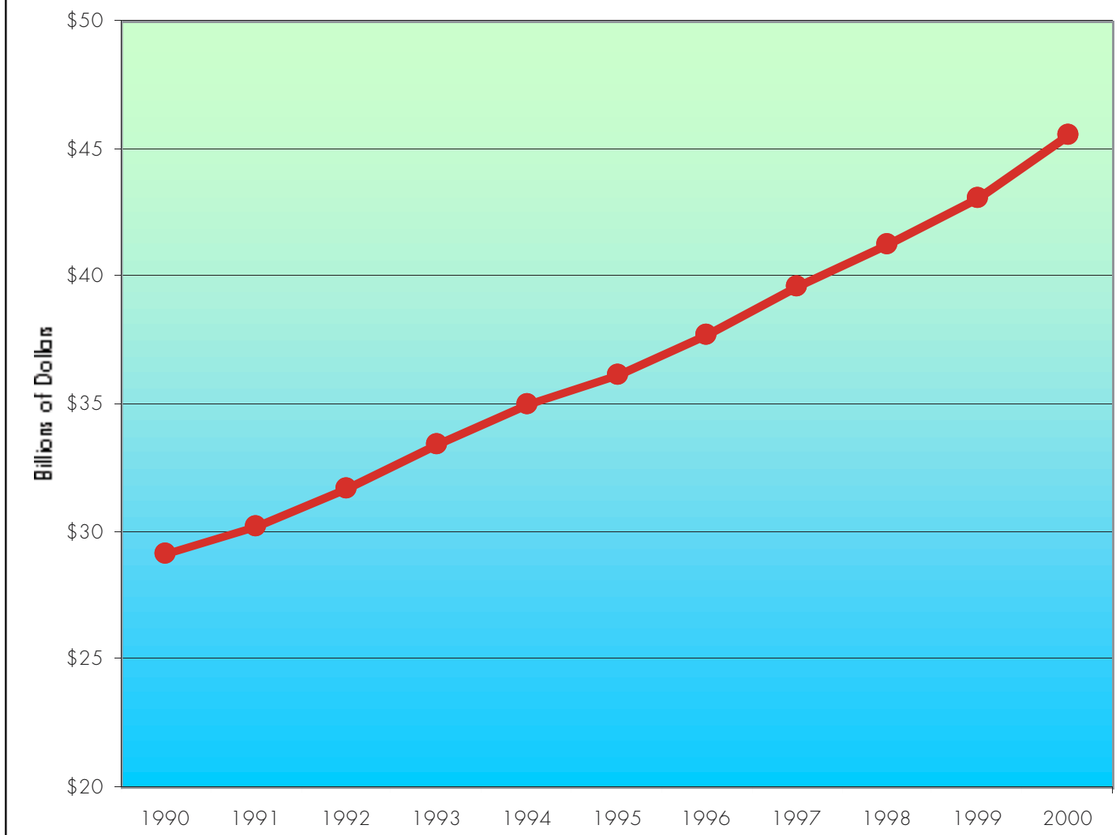
THE STATE OF

THE REGIONAL ECONOMY

What are the antidotes to a "manic-depressive" economy?

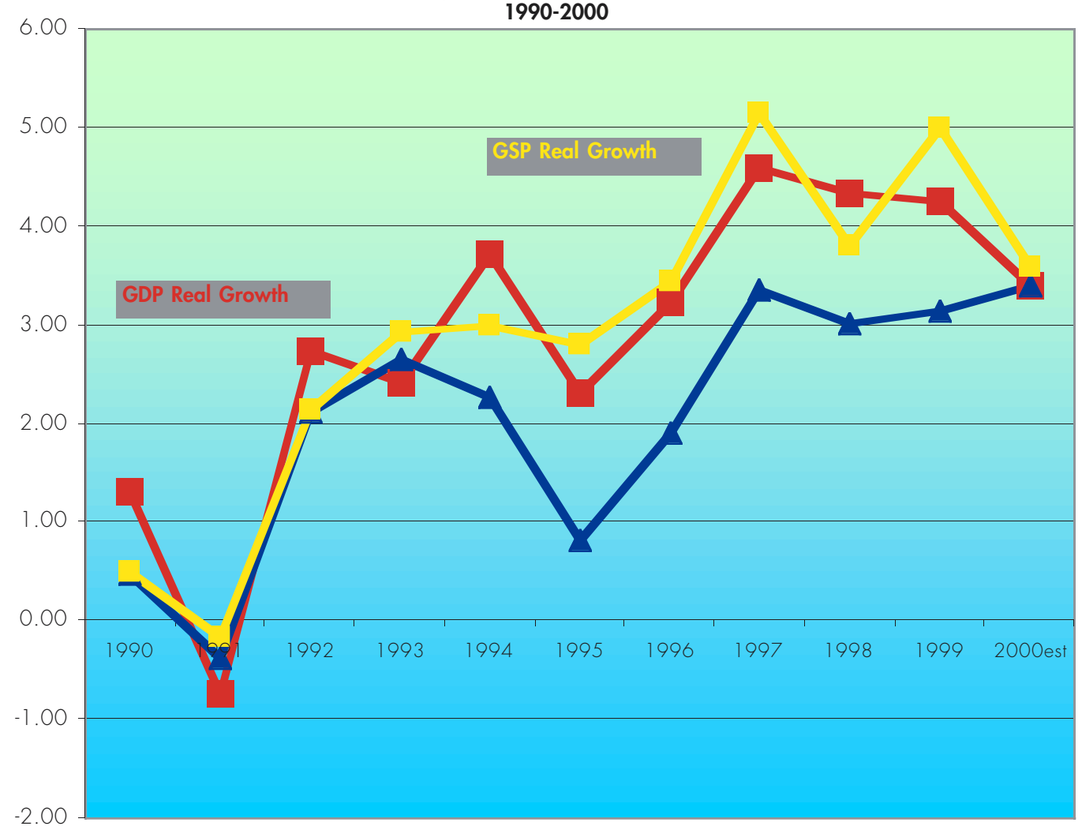
Many factors come into play when predicting the future of the Hampton Roads economy. Defense spending, non-defense-sector growth and a commitment to collaboration among private and public high-tech industries are three very large variables that contribute to the region's pulse and prospects for long-term health. All of these factors, as we will see here, are interconnected. Per capita income, often used to measure a region's economic well-being, should continue to exhibit "baseline improvement" in Hampton Roads, but if the standard of living is to rise above average, some changes would need to be made to the region's economic base.

GRAPH 1
Hampton Roads GRP



Source: Old Dominion University Forecasting Project

GRAPH 2
Year-to-Year Total Output Growth Rates
Hampton Roads, Virginia and U.S.
1990-2000



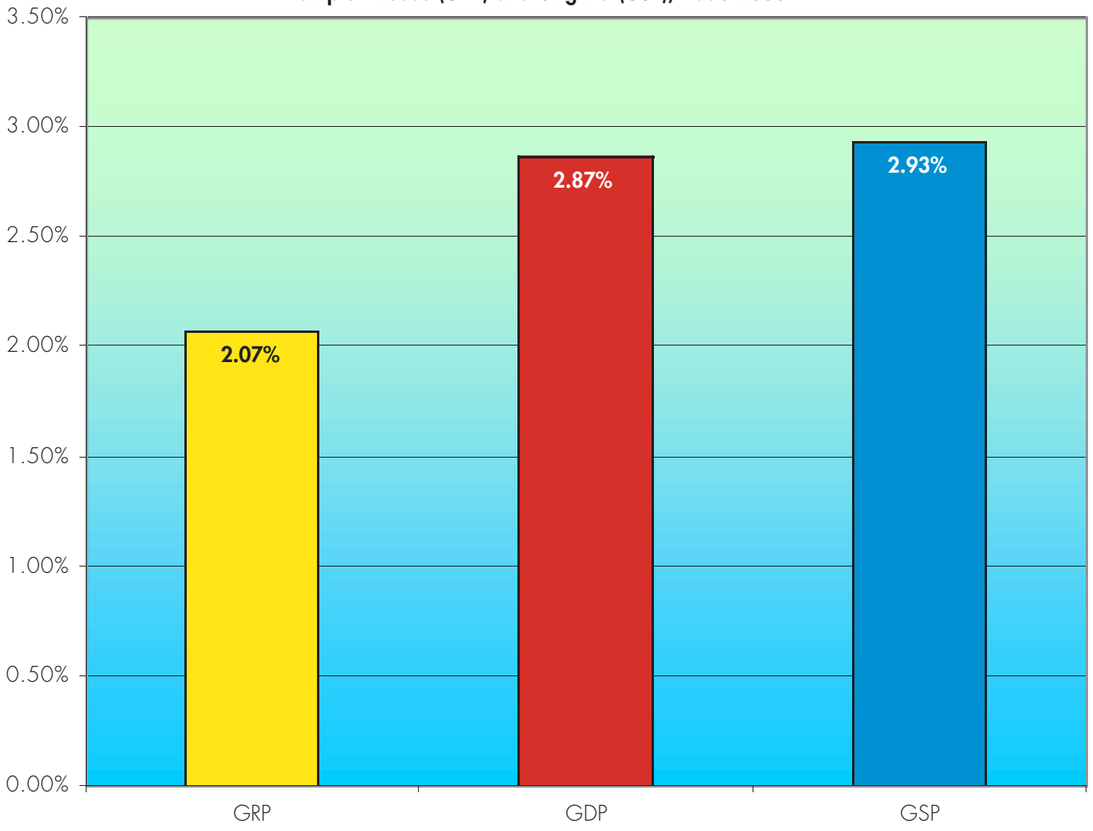
Source: Old Dominion University Forecasting Project

Overall Economic Performance

The economy of Hampton Roads (which the U.S. government labels the Norfolk-Virginia Beach-Newport News Metropolitan Statistical Area, or MSA) produced a Gross Regional Product (GRP) of $43.1 billion in 1999. This is hardly a trifle, for it is larger than most of the world's national economies. And, Hampton Roads' GRP is forecast to increase to $45.77 billion in 2000. As seen in Graph 1, the region's GRP, unadjusted for price changes, climbed from $29.2 billion in 1990 to an expected $47.77 billion in 2000.

The decade of the '90s brought significant changes to the region's economy. Among the most significant was a decline in the defense industry's importance to the Hampton Roads economy. The economic significance of the defense industry fell from 42 percent in 1990 to approximately 29 percent in 2000. As the '90s unfolded, and the defense downsizing and reorganization proceeded, the region's economy struggled to keep up with that of the nation and the rest of Virginia. In fact, it did not. Graph 2 displays "real" (price inflation eliminated) growth rates of the region, state and nation from 1990 to 2000. Since the 1991

GRAPH 3
Average Yearly Real Economic Growth for the U.S. (GDP), Hampton Roads (GRP) and Virginia (GSP), 1990-2000

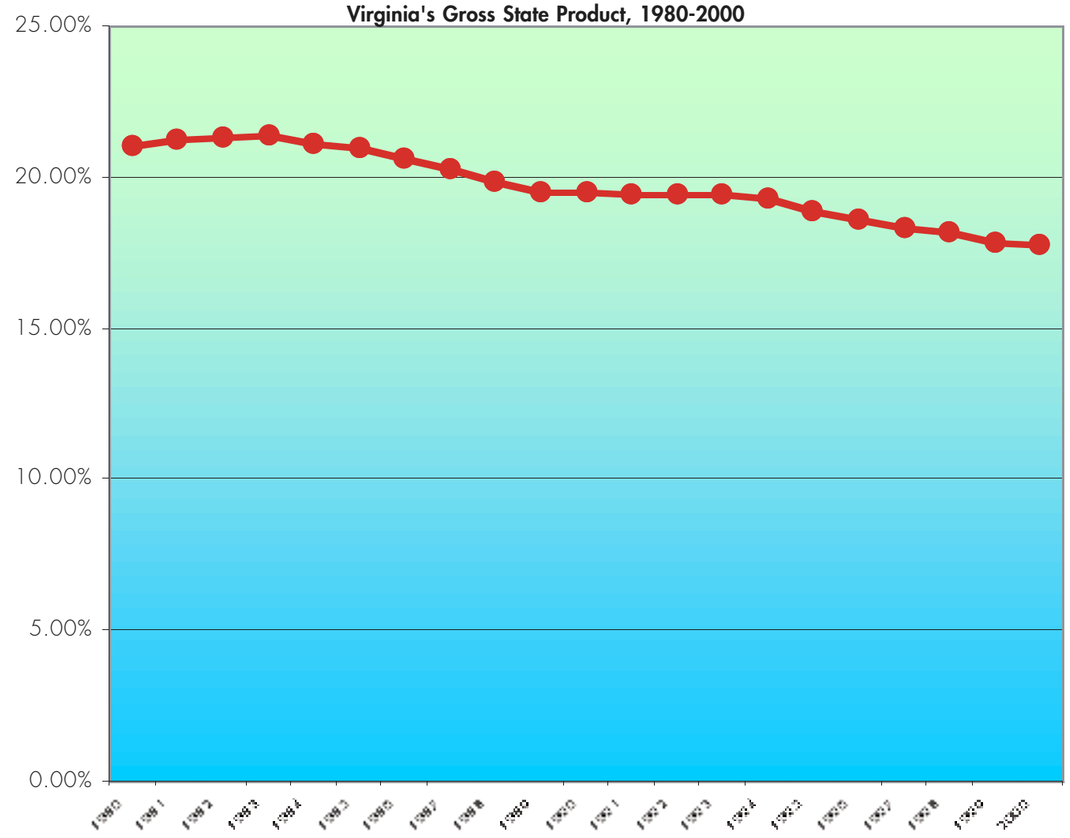


Source: Old Dominion University Forecasting Project

recession, the region's gross output has more often than not lagged behind that of both Virginia and the nation. From 1990 to 2000, Hampton Roads' GRP (Graph 3) real growth rate was an average eight-tenths of a percentage point per year below that of the nation's Gross Domestic Product (GDP) and six-hundredths of a point per year below the real growth rate of Virginia's Gross State Product (GSP).

The negative economic growth rate gap in the '90s between Hampton Roads and Virginia was nothing new, however. The disparity between this region and the state has persisted since the mid-1980s. **In every year since 1984 to the present, Virginia's economic growth rate has exceeded that of Hampton Roads. The result of this year-in, year-out differential has been a persistent decline in Hampton Roads' share of state output.** As seen in Graph 4, the region's share of Virginia's output fell from 21.4 percent in 1983 to approximately 17.8 percent in 2000.

GRAPH 4
Hampton Roads' Gross Regional Product as a Proportion of Virginia's Gross State Product, 1980-2000

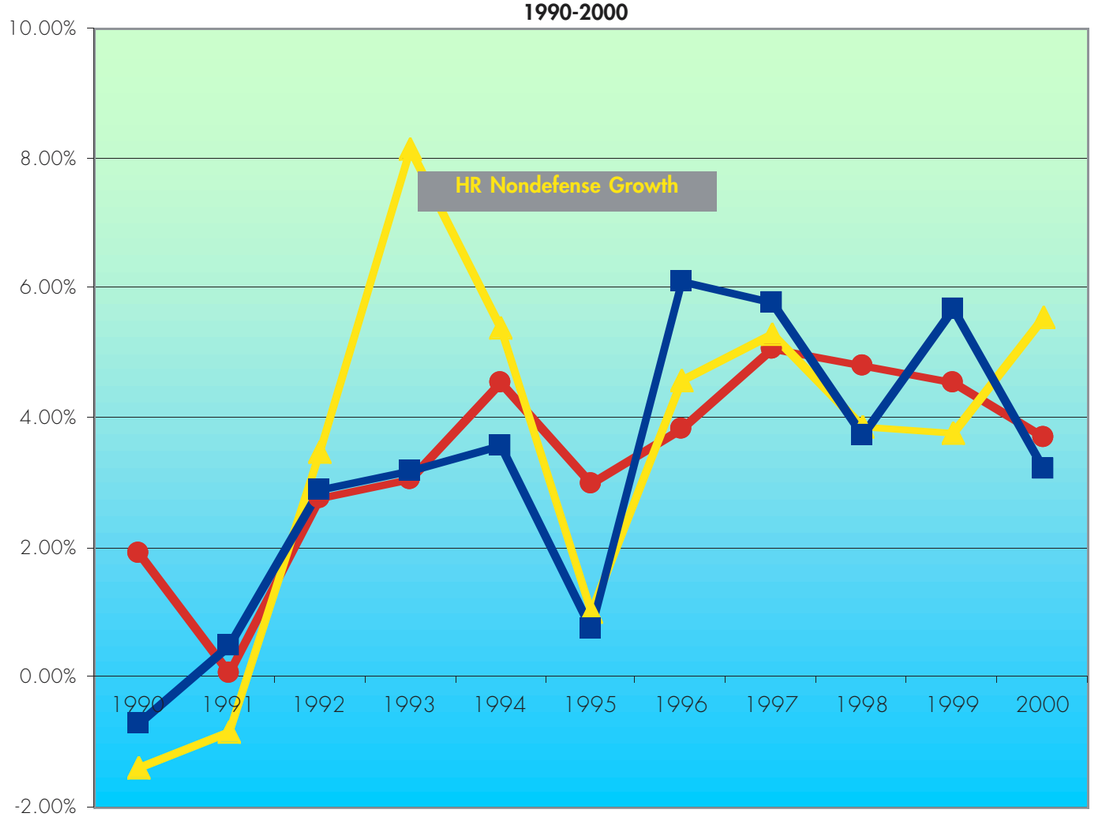


Source: Old Dominion University Forecasting Project

The Nondefense-Related Economy of Hampton Roads

As negative and cloudy as the previous data seem, they actually contain a silver lining. As Graph 5 indicates, Hampton Roads' nondefense-dependent sector, which currently accounts for 71 percent of the GRP, grew rapidly, often outstripping the yearly growth rate of the rapidly expanding nondefense-dependent sectors of the national and state economies. Further, the trend growth of the nondefense-dependent sector of the region's economy matched that of the nation and state. Displayed in Graph 5 are the mean year-to-year growth rates of the nondefense-dependent sector of all three

GRAPH 5
Nondefense Sector Growth Rate of Output for Hampton Roads, Virginia and U.S.
1990-2000

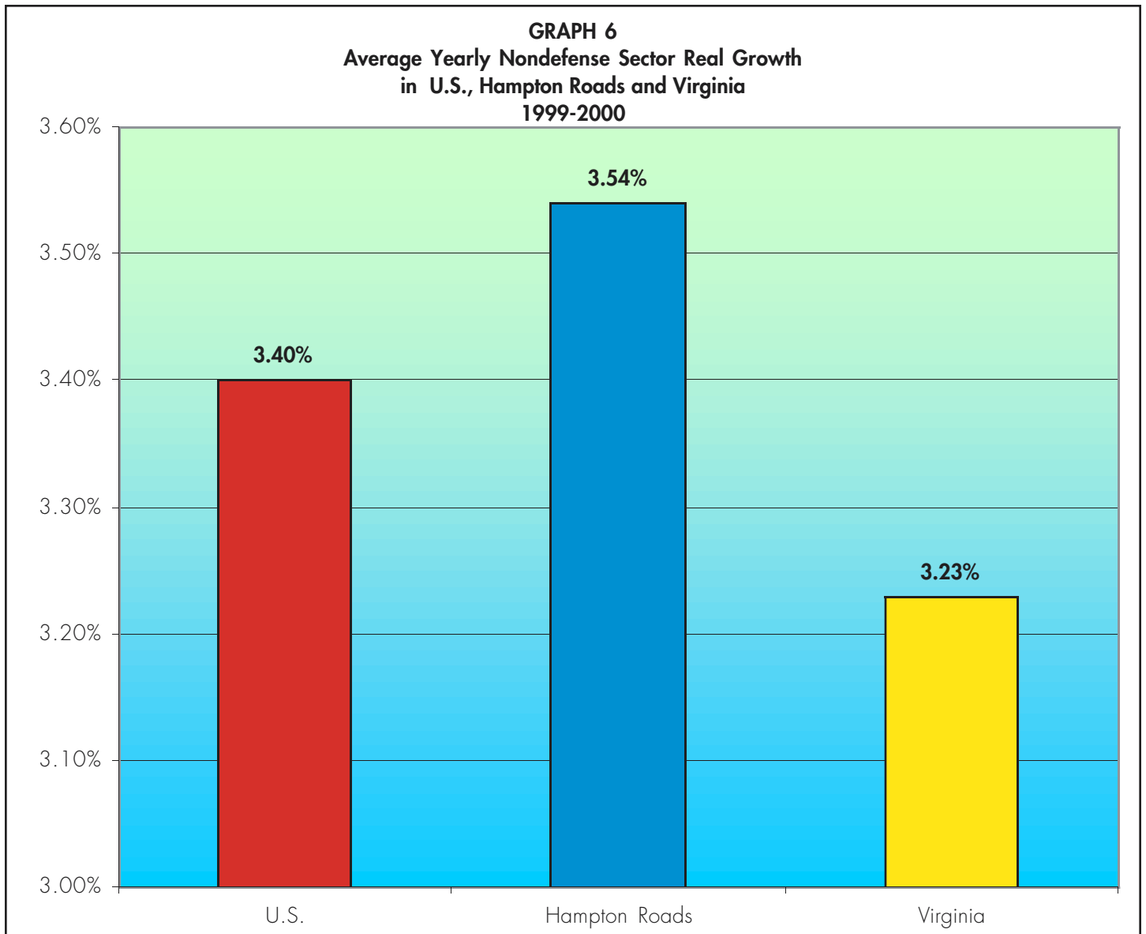


Source: Old Dominion University Forecasting Project

economies. The region's average nondefense-dependent sector growth rate of output during the 1990s was slightly better than that of both the national and state economy (see Graph 6).

During this period, the nondefense-dependent sector of Hampton Roads' economy grew an average of slightly greater than three-tenths of a percentage point per year faster than that of the rapidly growing Virginia economy, and slightly more than one-tenth of a percentage point per year more than the national economy.

GRAPH 6
Average Yearly Nondefense Sector Real Growth
in U.S., Hampton Roads and Virginia
1999-2000



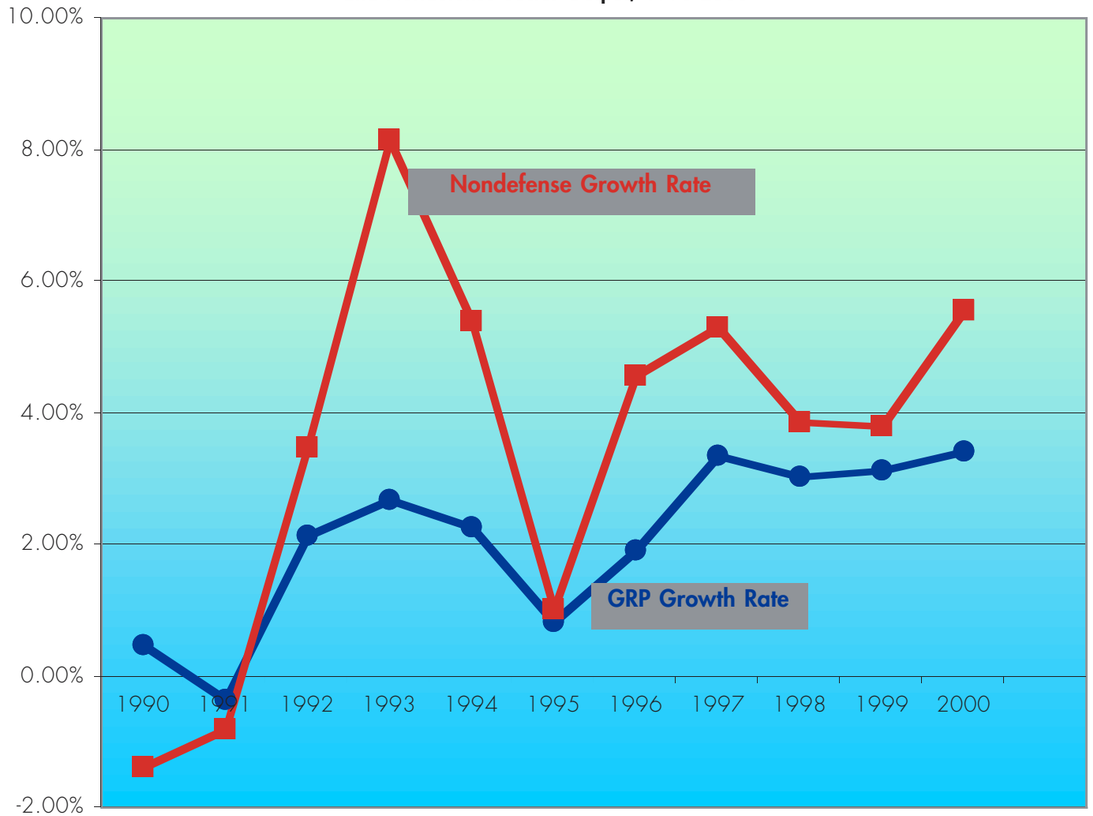
Source: Old Dominion University Forecasting Project

The average yearly growth in the output of the nondefense-dependent sector of the Hampton Roads economy was an estimated 3.54 percent per year through the '90s, a rate which far exceeds the 2.07 percent average year-to-year growth rate of the region's GRP. The yearly growth in output of Hampton Roads' GRP and its nondefense sector are displayed in Graph 7. With the exceptions of 1990 and 1991, when the region experienced an infusion of additional defense spending, Hampton Roads' nondefense output growth has exceeded that of its GRP.

Variations in defense spending are largely responsible for the difference in the decade-long average growth rate of the nondefense sector of the area's economy and its GRP growth rate. **Adjusted for price changes from 1990 to 2000, the output of the Hampton Roads nondefense-dependent sector grew at a rate of more than twice that of the region's real GRP.** Measured over the entire period, the region's real nondefense-dependent output grew by a total of 47 percent while real GRP grew by 20.5 percent.

The Hampton Roads economy has been highly cyclical over the past 20 years. During the 1990s, the region's economy was a case study of how the growth of a metropolitan area's economy can be adversely affected by a lack of diversification within its economic sub-sectors. Measured in terms of real GRP, the lack of economic diversification had much the same economic outcome in Hampton Roads during the 1970s, as national defense policy called for a significant reduction in defense funding.

GRAPH 7
Year-to-Year Growth Rates of Hampton Roads' Gross Regional Product and Nondefense Sector Output, 1990-2000



Source: Old Dominion University Forecasting Project

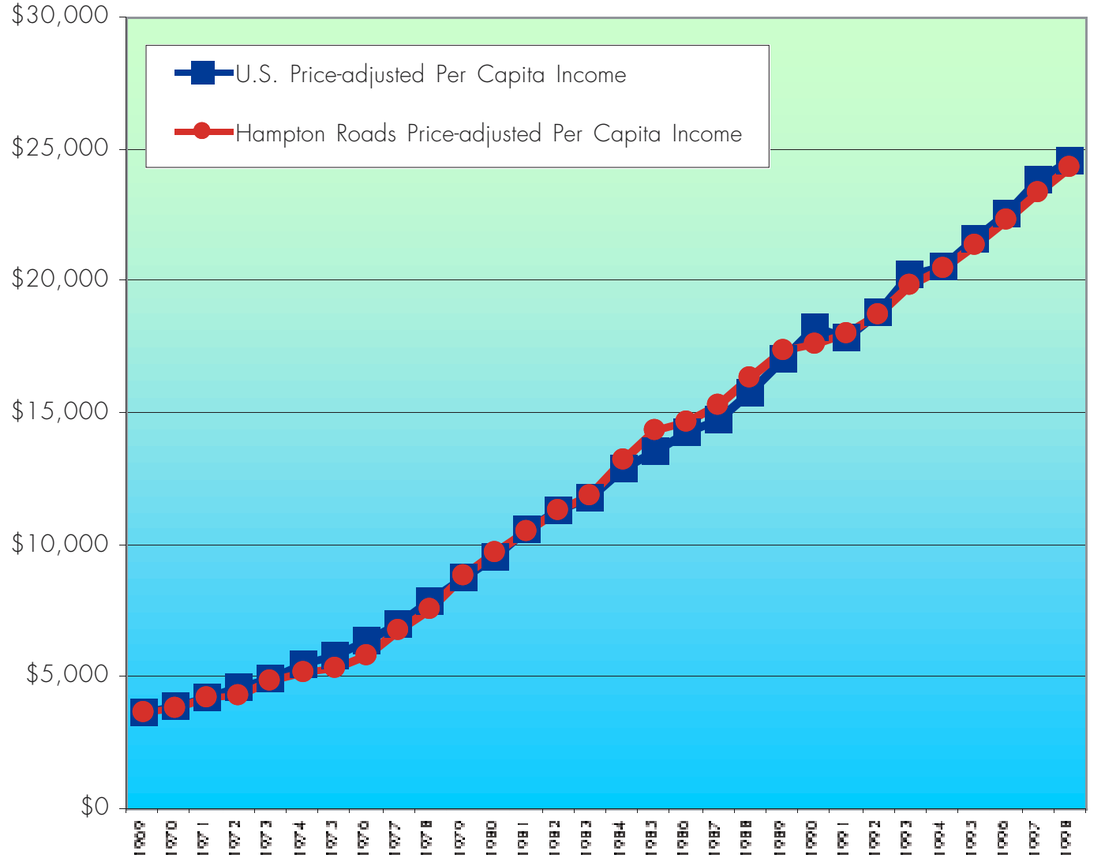
Much the opposite economic outcome resulted in the 1980s because of the then dramatic increase in defense spending during the Reagan administration. **Figuratively speaking, over the past two decades, we have lived in a manic-depressive economy.**

The antidote to this situation appears to be at least partially at hand. While the defense-dependent portion of the Hampton Roads economy has fallen from a 25-year high of 44.3 percent in 1985 to approximately 29.1 percent in 2000, data suggest that the nondefense sector of the Hampton Roads economy has more than kept pace with the rapid growth of the national and Virginia economies, an event concealed by the intensity of the defense downturn. The positive performance of the nondefense sector of the region's economy, along with the possible end to defense-spending reductions in the area (which are discussed in another section of this report), bode well for future economic growth in the area.

The Region's Economic Standard of Living

A commonly used measure of a region's economic well-being relative to the rest of the country is its nominal per capita income. However, in the process of assessing an area's relative economic standard of living, comparing nominal per capita income data between economic units such as nations or metropolitan areas, can be misleading. A more accurate measure requires consideration of price differences between economic units or purchasing-power parity. Price levels in the largest metropolitan areas of the country typically are higher than those in Hampton Roads.

GRAPH 8



Source: Old Dominion University Forecasting Project

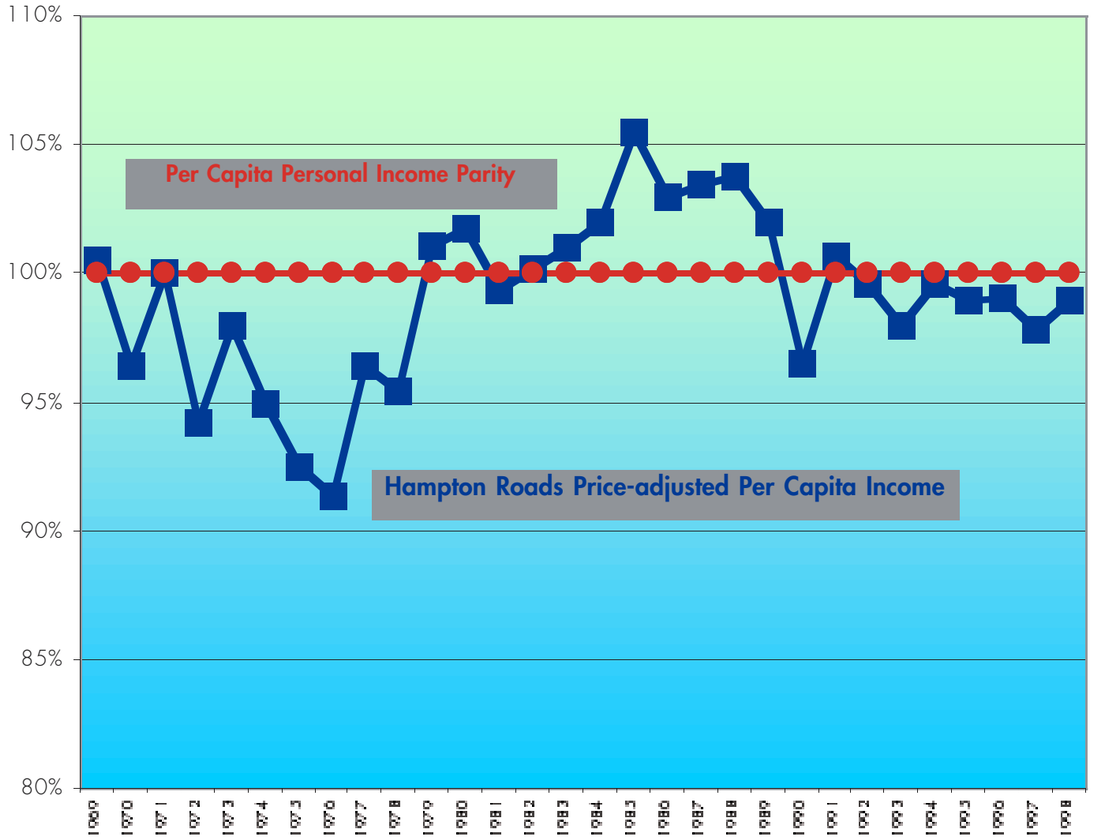
After accounting for price differences between U.S. metropolitan areas, Hampton Roads real personal income per capita stood at 98.9 percent of U.S. real personal income per capita in 1998, the most recent year for which complete data are available. In other words, the region's relative economic standard of living in 1998 was slightly below average.

As seen in Graph 8, Hampton Roads' price-adjusted personal income per capita has closely tracked the U.S. trend over the

past 30 years. Hampton Roads' real personal income per capita fell below that of the United States' during the '70s, rose above that of the nation's in the '80s and fell back to near parity in the '90s.

The year-to-year variation in the region's real per capita personal income relative to parity with that of U.S. real personal income per capita can be seen in Graph 9 (here, 100 percent represents parity with the national average). What is remarkable about this exposition is how Hampton Roads' real personal income per capita trends closely hover around the U.S. mean, drifting under parity during periods of defense spending reductions, but moving above the national average during the 1980s defense build-up and again during the Gulf War, with its infusion of defense spending in Hampton Roads. This type of real per capita personal income fluctuation is typical of metropolitan areas throughout the United States where active-duty military personnel represent more of a significant segment of those areas' total employment.

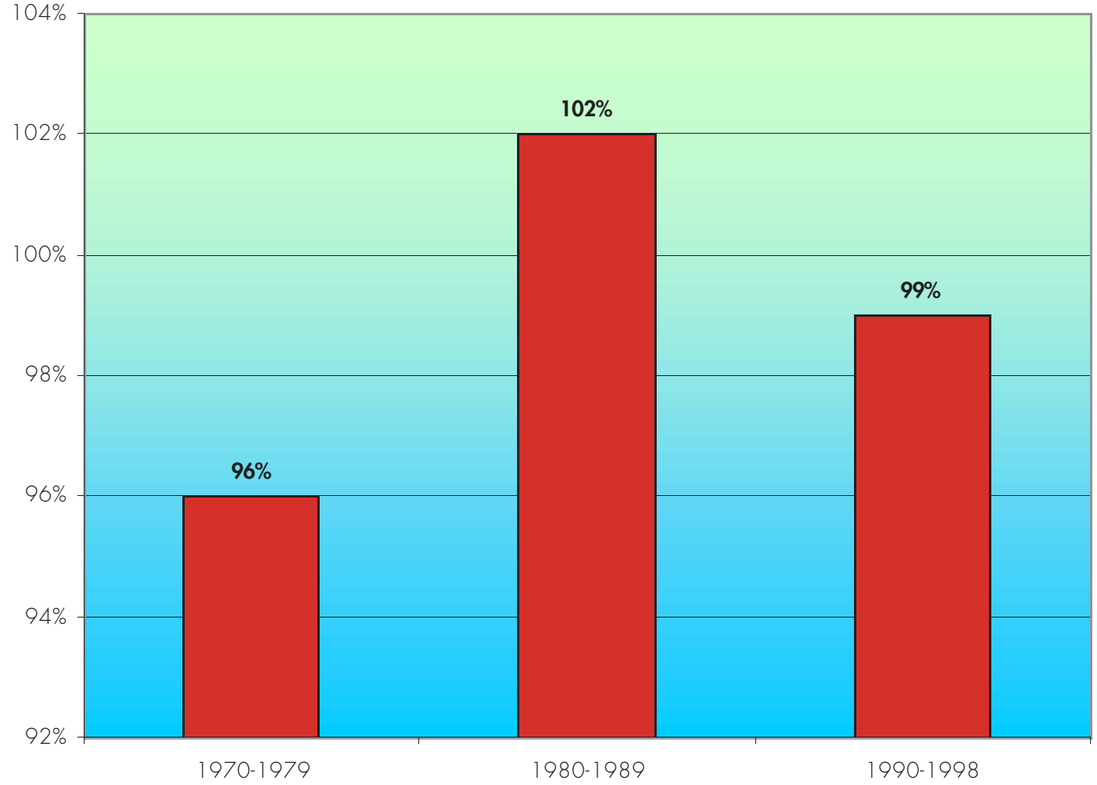
GRAPH 9



Source: Old Dominion University Forecasting Project

Taking a longer-run perspective, Hampton Roads' real per capita personal income, compared to that of the entire country, was 96 percent in the 1970s, 102 percent in the '80s and 99 percent in the '90s (see Graph 10). These data suggest that over the last 30 years the area's economic base, in the absence of relatively large defense-spending fluctuations, tends to generate an economic standard of living close to the U.S. mean, with some slight improvement in the income-generating power of the base since the '70s. If the type of growth exhibited by Hampton Roads' nondefense sector during the '90s is repeated in the next decade, and negative defense-spending fluctuations are kept to a minimum, the region's per capita real personal income should continue this baseline improvement.

GRAPH 10
Real Per Capita Income for Hampton Roads



Source: Old Dominion University Forecasting Project

Future Economic Growth: Breaking Out of the Mold

In recent years, considerable attention has been focused upon the region's standard of living, most often approximated by its per capita income. **Clearly, if Hampton Roads' standard of living is to move out of its "average" mold, then the structure of the region's economic base must change.** A preliminary study of factors correlated with metropolitan-area income conducted at Old Dominion University indicates there are two general categories of these factors associated with per capita income differences across metropolitan areas. One way to view these two categories is through a modern rendition of the tortoise and hare fable, or from an "Old Economy" and "New Economy" perspective.

THE "OLD ECONOMY" PERSPECTIVE

One of the most important characteristics statistically associated with a metropolitan area's level of per capita income is the degree of industry-sector concentration in its workforce. High per capita-income metropolitan areas tend to exhibit diversification in the distribution of their workforces across industries and have a relatively strong concentration in wholesale trade, communications, and finance, insurance and real estate (FIRE). Recent research indicates that an increase in the structural diversity of a regional economy adds to its ability to lure new and diversified industries.

The economic substructure of the Hampton Roads economy is similar to those of other MSAs whose workforces contain more than 7 percent active-duty military personnel. Whether large or small, from Jacksonville, N.C., to Honolulu, Hawaii, military-oriented regional economies exhibit strong similarities in their industrial structures and typically lack diversification in the relative distribution of employment across industries. In particular, employment proportions in the wholesale trade, communications and FIRE industries typically are significantly below those metropolitan areas with high per capita personal income. None of these military communities, including Hampton Roads, has a real personal income per capita greater than 106 percent of the national mean.

This comparison suggests that one strategy to raise per capita income in the region would be to, one step at a time, recruit industries, particularly in the FIRE and wholesale trade sectors, that could help diversify the industrial substructure of Hampton Roads. This is not a flashy strategy, but one whose payoff is slow and comes in the form of agglomeration, or scale economies, that are attractive to firms whether they be high- or low-tech. For example, research at Old Dominion University indicates that for every one-percentage-point increase in the proportion of its FIRE workforce, a community on average earns about $500 more in per capita income.

One drawback to this strategy is that Richmond is already well established as the regional hub for these potential economic growth sectors. Although only two-thirds the size of Hampton Roads, Richmond actually provides a significant proportion of the FIRE, legal services, business services, wholesale trade and communications services for the Hampton Roads area. Richmond's economic structure is similar to those of the higher per capita-income MSAs. The city has, in a very real sense, enhanced its per capita income by assuming economic scale advantages that would more normally accrue to the larger population center of Hampton Roads. **In this sense, the real economic development competition for cities in Hampton Roads is not with each other, but Richmond.**

THE "NEW ECONOMY" PERSPECTIVE

Another significant predictor of per capita-income growth is the proportion of "high-tech" employment within a metropolitan area. Surprisingly, Hampton Roads holds a considerable advantage over most other U.S. metropolitan areas in the proportion of high-technology jobs within its economy. Whether or not this advantage can be exploited is the apparent key to future economic growth rates and subsequent income generation above the national average.

The U.S. Office of Technological Assessment, the National Science Foundation and the U.S. Department of Labor have created an empirically useful definition of high-technology occupations. Applying this definition to data from the U.S. Bureau of Labor Statistics, Hampton Roads employment by occupation ranks 33rd among 315 U.S. metropolitan areas (within the top 11 percent) in the proportion of employment in high-technology occupations. However, as we shall see, one of the major problems with Hampton Roads' technology employment is that it is predominantly public sector in origin (U.S. government), and federal agencies have not been highly attuned to technology transfer and commercialization.

As seen in the table below, high-technology employment in Hampton Roads is roughly one-third that of San Jose, Calif., the national leader. San Jose's technological base, however, is predominantly private sector- and university-based. Communities with a high concentration of military personnel, such as Colorado Springs, Colo., San Diego, Calif., and Hampton Roads, also tend to have relatively high concentrations of civilian technology workers. Nonetheless, these military-heavy communities also tend to have price-adjusted per capita incomes close to or less than the national average. Why? Because these technology workers tend to work in "technological silos" – that is, they work on projects that either have no spillover effects to the nonmilitary economy, or their military employers have been uninterested in technology transfer and commercialization (or are prohibited by law from pursuing this option).

High-technology Occupation Rankings for 315 Selected MSAs in 1997

Rank	MSA	High-technology Civilian Occupations as a Percent of Civilian Occupational Employment
1	San Jose, Calif.	16.47
2	Huntsville, Ala,	14.36
3	Boulder, Colo.	12.75
4	Cedar Rapids, Iowa	11.91
5	Raleigh-Durham, N.C.	10.35
.		
7	Washington, D.C.	9.71
.		
9	Boston, Mass.	8.28
.		
18	San Francisco, Calif.	6.62
.		
24	San Diego, Calif.	6.23
.		
33	Hampton Roads, Va.	5.59
.		
58	Charlottesville, Va.	4.60
.		
61	Richmond-Petersburg, Va.	4.46
.		
89	Lynchburg, Va.	3.83
.		
129	Roanoke, Va.	2.98
.		
311	Gadsden, Ala.	0.33
312	Victoria, Texas	0.29
313	Enid, Okla.	0.23
314	Cumberland, Md.	0.13
315	Kokomo, Ind.	0.00

Source: Old Dominion University Forecasting Project

Given Hampton Roads' relatively high proportion of technology workers, it appears the region would have a head start over most U.S. metropolitan areas in any attempt to form a pool or critical mass of technology workers, if only their work could be removed from their "silos." Whether or not such a pool could begin to spin off new firms and products at a rate that exceeds that of the nation would depend substantially upon the degree and level of information exchange between its members.

Paul Krugman, an economics professor at MIT and regular *New York Times* columnist, notes that research on regional economic development reveals that a "pooled labor market" of workers with industry-specific skills is an important factor in the local development of that industry. That is, a clustering of firms employing workers with similar skills creates the potential for informational "spillovers" among the firms. Such "spillovers" can reduce production costs and increase creativity for technology-oriented industries. The problem in Hampton Roads is that these "spillovers" have not occurred as often as they could – or should.

Despite its relatively high concentration of technology workers, the region has not realized the economies of scale that could result from this wealth of skilled human capital. Technology workers at locations such as the Joint Training, Analysis and Simulation Center, NASA Langley Research Center, the Jefferson Laboratory and Naval Station Norfolk may be prohibited by law, order or custom from talking substantively with nonfederal and nonmilitary technology workers. Fraternization is not the rule of the day; intellectual "silos" are. Breaking down those barriers is an important key to the future economic prosperity of Hampton Roads.

In the world of high-technology, firm startups and commercialization, information is a critical raw material. The close proximity of a pool of scientists, engineers and other technology workers is an important condition necessary for the creation of high-tech products. However, the creation of such products is also aided by information exchange, the means to build human capital and the availability of financing.

The twin keys to this information exchange, and to capitalizing on the technology concentrations at federal installations in Hampton Roads, are university technology transfer and commercialization programs that partner with these federal installations, and regional organizations such as the Hampton Roads Technology Council, which can work to increase communication between federally employed technology workers (including those in the military) and private-sector and university entrepreneurs and scientists.

As Krugman, David Birch, the Milken Institute and a half dozen other economic development gurus have demonstrated, universities play a crucial role as catalysts in the creation of informational "spillovers." They are places to turn to for building human capital, and sources for the latest research and ideas in a specific area, for meeting and exchanging information, and for recruiting people who can help to implement the vision of a product. Thriving research universities are places where the distinctions between professors and entrepreneurs, between academics and private-sector technology workers, are becoming more and more difficult to define. Professors increasingly are entrepreneurs and entrepreneurs are professors.

Thus, a critical long-run step for communities that wish to increase "spillovers" and spur economic development is to ensure the development of a significant regional university research and technology infrastructure. However, in Hampton Roads, it is apparent that an additional step must be taken – namely, to diminish the information "silos" that characterize its technology today. While this would likely require a change in the cultures of the federal laboratories and installations in the region, the stakes are so high that progress in this arena would appear to be a very high priority for Hampton Roads .

THE STATE OF THE MILITARY

What impact has military downsizing had on Hampton Roads?

From the sprawling Naval Station Norfolk, home port of the Atlantic Fleet, to Fort Eustis, the Peninsula's largest military installation, Hampton Roads has long been known for its sizable population of Department of Defense personnel and diversity of military bases. In all, more than 100,000 active-duty personnel are stationed in Hampton Roads, approximately 80 percent of whom serve in the U.S. Navy. While Norfolk is no longer considered solely a "Navy town," it continues to be home to the largest naval base in the world.

Given the diversification that has occurred in the region's economic base in recent decades, it would be incorrect to state that the Department of Defense (DOD) expenditures determine the prosperity of Hampton Roads. Nonetheless, more so than nearly any other large metropolitan area in the United States, the fortunes of Hampton Roads are tied to the military and to the Department of Defense. As demonstrated in an accompanying section describing the area's economy, the region's economic prosperity is closely related to defense expenditures and trends. The relative decline in military spending by the U.S. government in the '90s (at least relative to other things such as education and the environment) has had a significant impact on this region. An examination of these expenditures and trends offers some interesting findings regarding their import for Hampton Roads and its economic future.

Military Expenditures in Hampton Roads

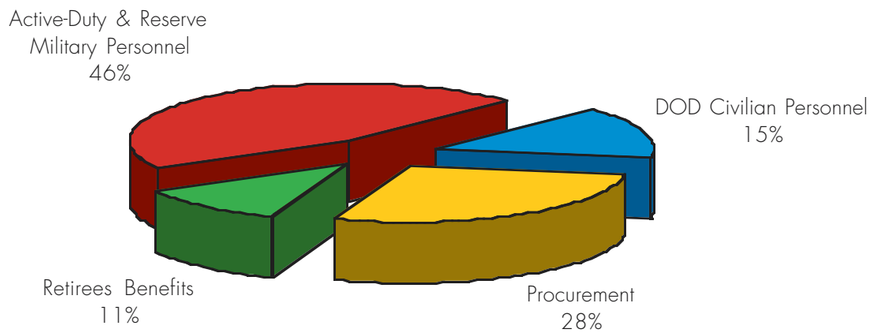
U.S. Department of Defense expenditures are the largest, single source of economic activity in Hampton Roads. In 2000, direct DOD expenditures and their resulting spinoff purchases accounted for an estimated 29 percent of the region's Gross Regional Product (GRP). This proportion far exceeds that of defense spending nationally, where DOD expenditures account for roughly 7 percent of the Gross Domestic Product (GDP). **In terms of the proportional effect of defense spending on U.S. regional economies, Hampton Roads is about four times more dependent on DOD expenditures than the average metropolitan area.**

Currently, the region absorbs roughly 2.4 percent of the nation's annual defense budget. Sixty cents of every dollar spent by DOD in the region is for active and reserve military and civilian personnel who serve in or for the Air Force, Army, Marines and Navy. DOD spends 28 cents of every dollar on private-sector procurement (see Graph 1), purchasing from private firms such goods and services as ship construction, ship repair, ship maintenance, construction of facilities, consulting services, materials, utilities, equipment and transportation. In addition, retirement and disability benefits account for slightly more than 11 cents of every defense dollar spent within the region.

Arguably, the most important economic issue of the '90s in Hampton Roads has been the decline in defense spending. Throughout much of the '80s, defense spending as a proportion of regional economic activity accounted for approximately 42 percent of the region's GRP. As seen in Graph 2, this proportion was at its '90s peak in 1990 and 1991 during the Persian Gulf War, roughly three years after the end of the Reagan administration military build-up. From 1990, when defense spending accounted for 42 percent of Hampton Roads' GRP, the proportion fell dramatically to a projected 29 percent in 2000.

This decline has also affected the growth rate of the region's economy. Had the defense industry maintained its share of regional economic activity throughout the '90s, year-to-year economic growth in the region would have been an estimated 1 to 3 percentage points higher for each year after 1991. Thus, although the region's overall economic growth rate since 1991 has lagged behind that of the nation, the nondefense portion of the region's economy has grown slightly faster than that of the nondefense sector of the nation.

GRAPH 1
Distribution of Defense Expenditures in Hampton Roads
Projected for 2000



Sources: U.S. Department of Defense and U.S. Department of Commerce

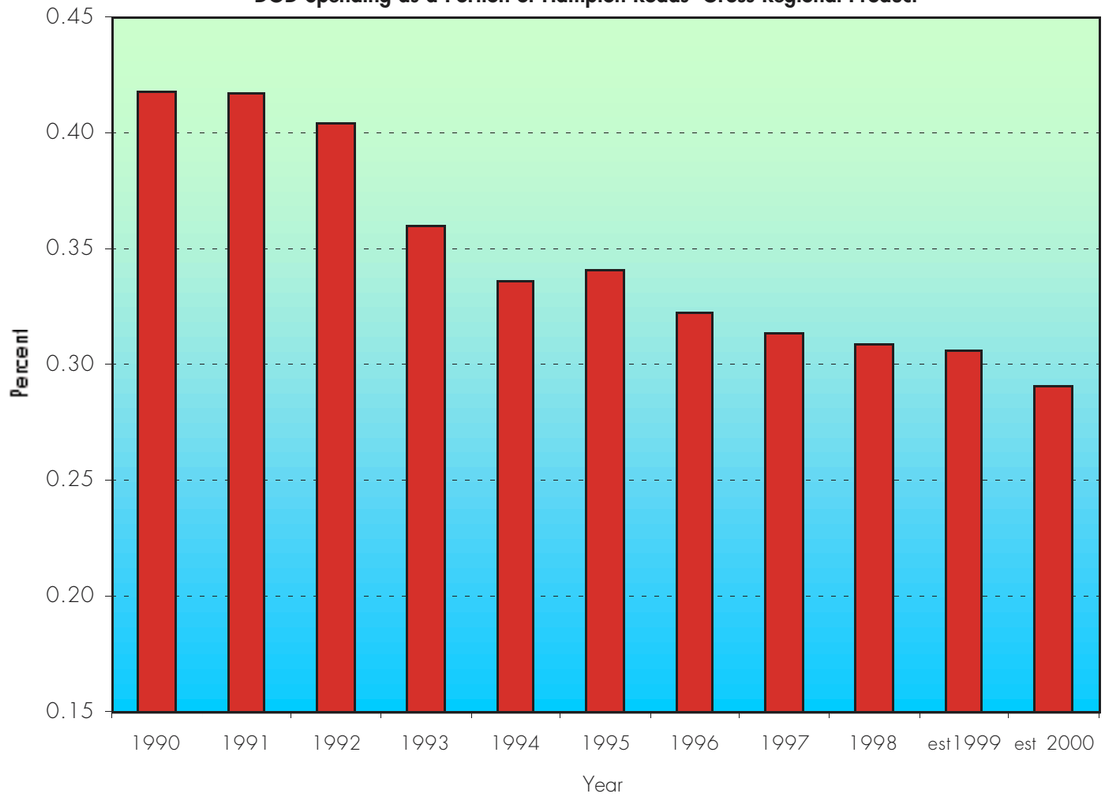
Compensation of Active-Duty Military Personnel

The slightly more than 100,000 active-duty military personnel who serve in Hampton Roads currently earn approximately $3.4 billion in aggregate pay and allowances. Uniformed military employment accounted for 13.7 percent of the region's workers and an estimated 15 percent of the regional wages and salaries paid in 1999. When compared to the average U.S. metropolitan area, these figures are 1.1 percent and 1 percent, respectively.

The average soldier or sailor stationed in the region earned about $33,500 in 1999, or about 5 percent less per year than the estimated $35,500 in wages and salaries paid to the average full-time person working in other domestic U.S. industries. **In addition to personnel reductions, one of the most significant factors dampening Hampton Roads' GRP and per capita income growth in the '90s was the relatively slow growth in military pay over the period when compared to pay increases for private-sector workers.** Congress deliberately held military pay increases to 50 basis points (.5 of 1 percent per year) below that of the national mean in the private-sector mean since 1990.

This situation will dramatically change over the next six years, for two reasons. First, Congress in its fiscal 2000 Defense Authorization Bill allocated a staggered series of military pay raises in 2000 that will amount to an estimated 6.7 percent increase over 1999 in average military compensation. This increase should exceed compensation for private-sector workers by about 2 percentage points in 2000. Second, Congress has further mandated that, starting in 2001 and continuing through

GRAPH 2
DOD Spending as a Portion of Hampton Roads' Gross Regional Product



Sources: U.S. Department of Defense, U.S. Department of Commerce and Old Dominion University Forecasting Project

2006, average military pay raises will exceed average private-sector wage growth by 50 basis points (.5 of 1 percent) per year. The sum total of the government's actions on military compensation over the next six years should raise average pay in the military to parity with the private sector by 2006.

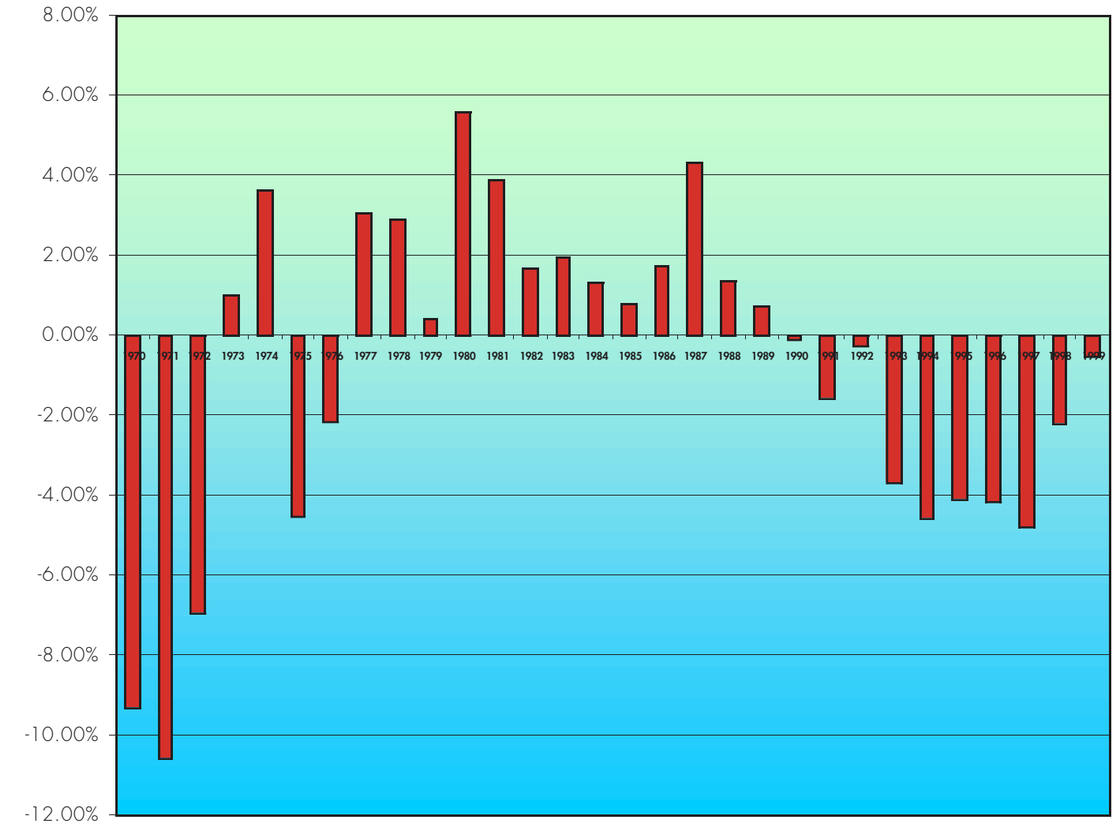
The Old Dominion University Forecasting Project estimates that the scheduled 2000 boost in military pay will add an additional $230 million in direct pay increases to the regional economy and lead to a subsequent increase of roughly $320 million in the Gross Regional Product. **In terms of its effect on GRP, the 2000 pay raise is greater than the economic equivalent of the recent move of the Cecil Field F-18 squadrons to Oceana Naval Air Station, and has the same impact as the creation of 6,600 new full-time jobs paying $35,000 annually.**

Active-Duty Force Levels

The number of active-duty military personnel based in Hampton Roads fell from an estimated 135,000 in 1990 to approximately 100,000 in 2000. The regional force reduction of about 26 percent over the '90s was less than for the nation as a whole (32.2 percent), however. This reflects the consolidation of forces in this area that resulted from various rounds of base closures around the nation in the '90s.

Although the military presence in Hampton Roads is often cited as having a stabilizing effect on the region's economy, it can be observed in Graph 3 that, taken over long periods, the military tends to be a drag on the regional economy or spur to it, depending on shifts in national defense policy. For example, from 1970 to 1979, the number of military personnel in the region fell by 13.3 percent. During the significant defense spending increase of the 1980s, the number of military personnel stationed in Hampton Roads rose by 19.3 percent. In the post-Cold War '90s, the number of active-duty soldiers and sailors based in the region fell by 22.8 percent. **Hampton Roads, then, has its own economic cycles that are not necessarily in sync with the**

GRAPH 3
Year-to-Year Percentage Change in Hampton Roads Military Employment



Sources: U.S. Department of Defense, U.S. Department of Commerce and Old Dominion University Forecasting Project

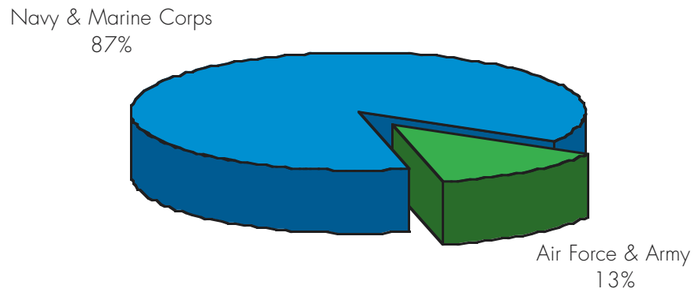
national economy. Here, the Department of Defense often has had more of an effect on the regional economic cycle than the national economy.

Over the 30-year period of 1970 to 2000, the United States has experienced three national recessions: 1974-75, 1980-82 and 1991. Based on data from the Old Dominion University Forecasting Project, there have been two recessions in Hampton Roads: 1974-75 and 1991. During these two periods, military force reductions in the region were pro-cyclical; that is, the reductions added to the severity of the local recession. On the other hand, the region was able to avoid entirely the spread of the 1980-82 national recession because of the counter-cyclical effect of military force increases.

Currently, active-duty military employment in Hampton Roads has stabilized. Based on military force projections from DOD, the Office of Management and Budget, and the Navy's Mid-Atlantic Command, the number of military personnel assigned to Hampton Roads will, assuming that the F-18 Super Hornet squadrons stay in the region, remain fairly stable over the next five years. **Given the lack of foreseeable change in the level of military personnel, the effect of military employment changes on the growth rate of the region's GRP should be neutral at least until 2006, something the region has not experienced in at least 30 years.**

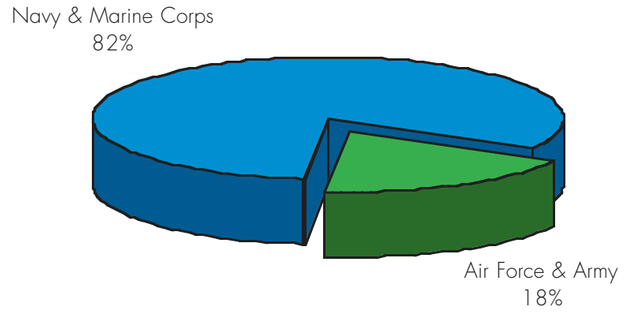
Although the Navy remains the "big kid on the block," measured in terms of the composition of the military services represented in Hampton Roads, a subtle, but substantial, change in this distribution has taken place over the past decade. As seen in Graphs 4A and 4B, the Army and Air Force share of military personnel in the region has risen from slightly less than one in eight to nearly one in five. This shift is particularly notable on the Peninsula, where Army and Air Force personnel accounted for about 80 percent of active-duty military personnel in 1999.

GRAPH 4A
Distribution of Military Personnel in Hampton Roads by Service in 1990



Source: U.S. Department of Defense

GRAPH 4B
Distribution of Military Personnel in Hampton Roads by Service in 1999



Source: U.S. Department of Defense

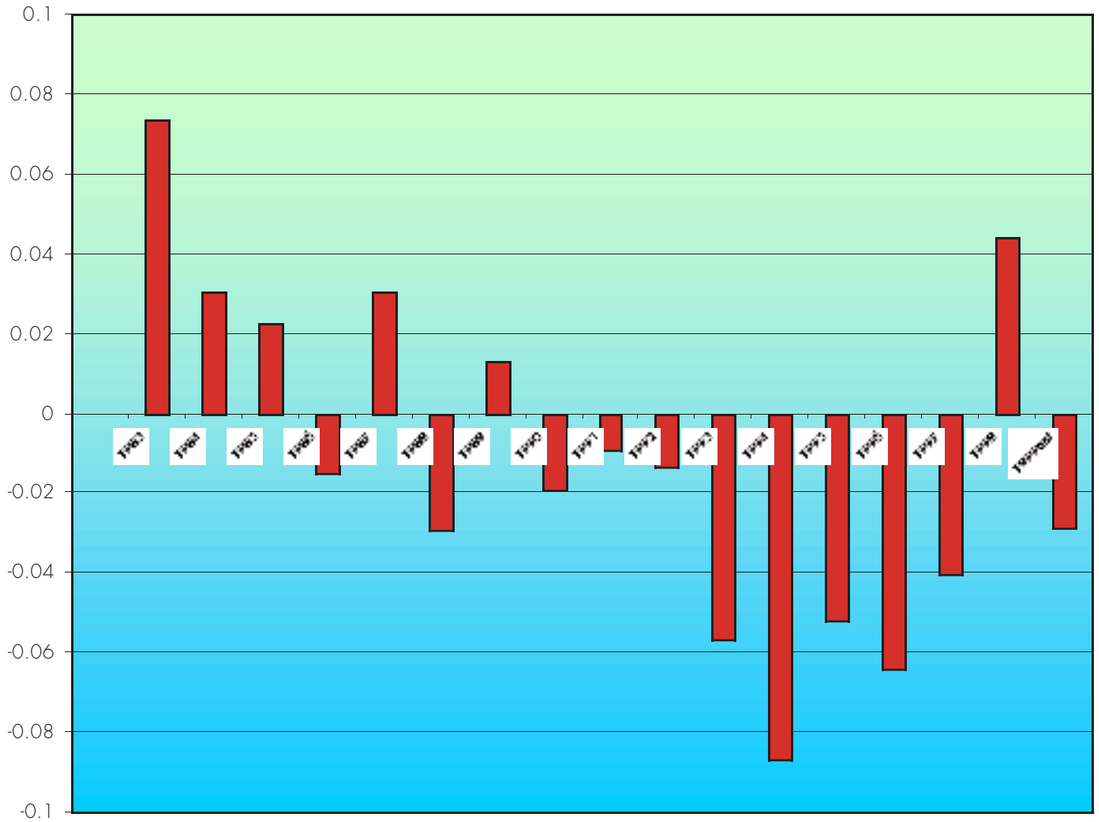
Military Retirees

An estimated 52,400 people, or about 5 percent of the adults living in Hampton Roads, received military retirement benefits totaling almost $1 billion in 1999. Military retirement benefits for that year amounted to 2.6 percent of total personal income earned by residents of the region and were ultimately responsible for more than 3 percent of the region's GRP. These benefits rose slightly in importance with respect to regional economic activity and economic growth during the first half of the '90s, but have been a stable proportion of regional income and product since 1995. Over the next five years the growth rate of military retirement benefits is expected to decline slightly as the growth rate of the number of military retirees tapers off with the stabilization of the level of active-duty personnel.

Civilians Employed by the Military

Approximately 4.4 percent of civilians employed by the Department of Defense work in Hampton Roads. DOD civilian employment represents 3.8 percent of the region's workforce, as compared to .5 percent in the average metropolitan labor force. Civilian DOD employment in Hampton Roads experienced 30-year lows in the latter part of the '90s, with an estimated 27,800 workers in 1999. As Graph 5 illustrates, with the exception of 1998, civilian DOD employment has decreased consistently since 1987 at a mean rate of 3.3 percent per year, with job losses totaling nearly 12,000 positions. Almost half of the eliminated positions have been at the Portsmouth Naval Shipyard.

GRAPH 5
Year-to-Year Percentage Change in Civilian Employment



Sources: U.S. Department of Defense, U.S. Navy Mid-Atlantic Command and Old Dominion University Forecasting Project

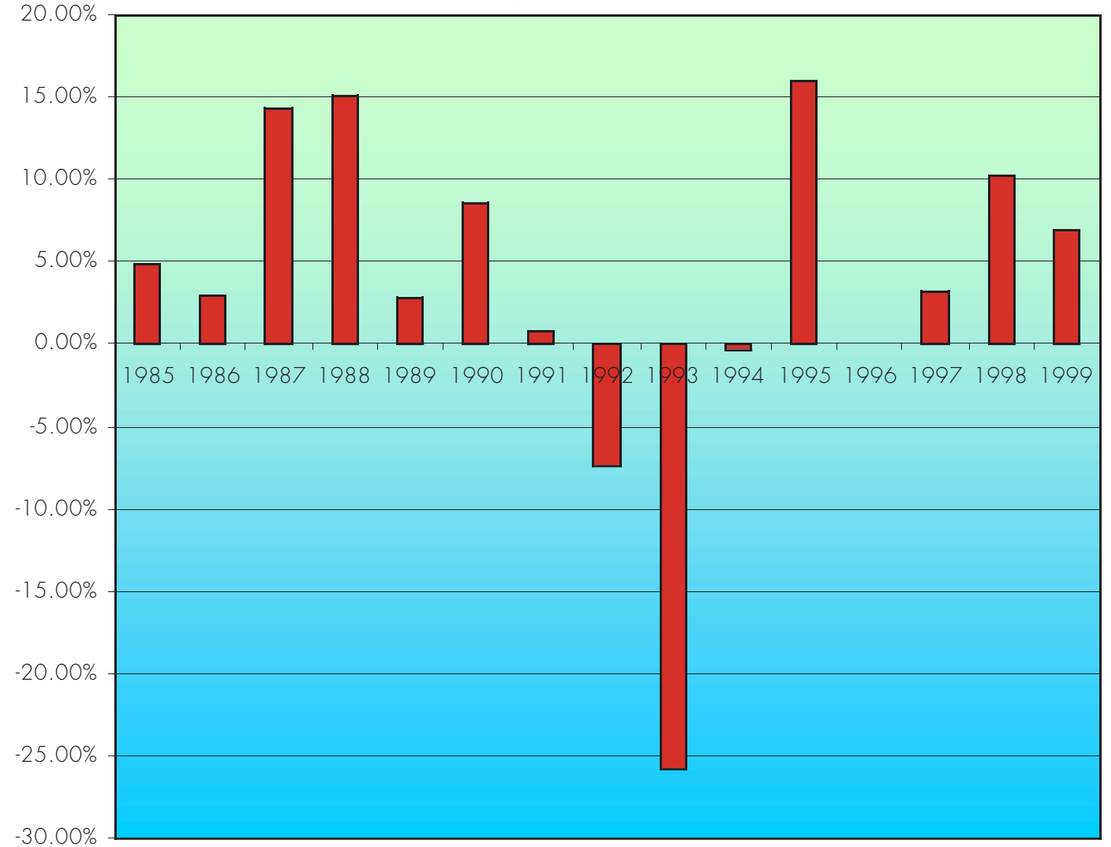
The year-to-year reduction of DOD civilian employment has acted as a drag on regional economic growth. The Old Dominion University Forecasting Project estimates that at the peak of the employment reductions from 1993-97, DOD civilian employment reductions retarded regional economic growth by an average of 30 basis points (.3 of 1 percent) per year. Further, the $50,000 average yearly wage of DOD civilian employees in Hampton Roads is about 40 percent above the $35,500 average wage of a full-time employee in the United States. The loss of these comparatively high-paying jobs has accounted for as many as 50 basis points in the decline of the region's per capita income relative to that of the nation since the late 1980s.

DOD Procurement

When direct expenditures, indirect expenditures and procurement contract imports from outside the region are accounted for, DOD private-sector purchases of goods and services in Hampton Roads are expected to reach $2.3 billion in 2000. These purchases will amount to an estimated 8.3 percent of the region's GRP. Defense procurement in the region has to some extent followed the year-to-year pattern of military and civilian personnel downsizing during the '90s. However, as seen in Graph 6, the decline of nominal procurement expenditures was concentrated in the years 1992-94.

As the decade of the '90s unfolded in Hampton Roads, DOD goods and services procurement followed two very different stories: one bad and one good, at least as regional economic impact was concerned. These stories centered on the private-sector shipbuilding and repair industry and the policy of government "outsourcing" of functions to the private sector.

GRAPH 6
Year-to-Year Percentage Change in DOD Procurement in Hampton Roads



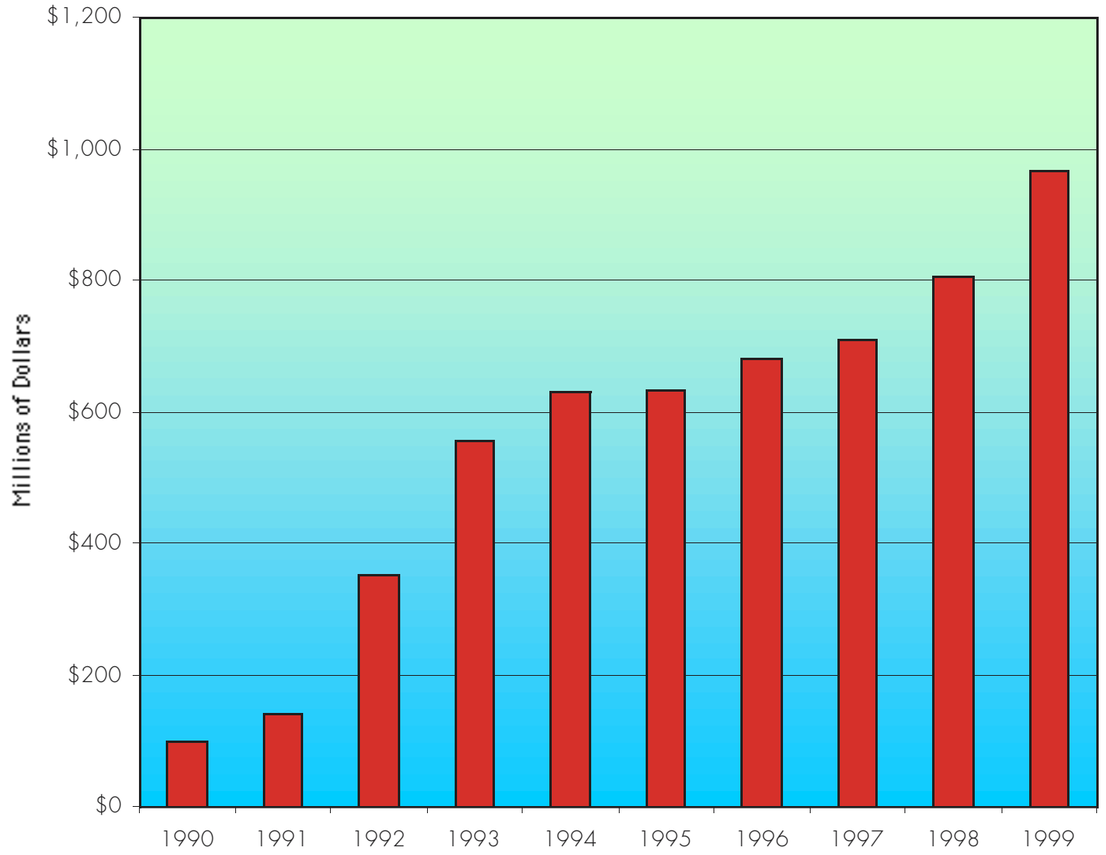
Sources: U.S. Department of Defense and Old Dominion University Forecasting Project

DOD private-sector spending in the region for shipbuilding and repair, after adjusting for inflation, fell by about 52 percent from its height of $2.5 billion 1990 to $1.5 billion in 1999. Employment in the industry followed a similar pattern. In addition, the decline of shipbuilding and repair expenditures has changed the distribution of procurement dollars in the region. In 1990, shipbuilding and repair accounted for an estimated 96 percent of procurement spending in the region; by 1999, this figure had fallen to about 61 percent.

The shipbuilding and repair decline appears to have bottomed out for now, with annual expenditures regionally of about $1.5 billion per year estimated in 2000. However, the construction of a new aircraft carrier notwithstanding, near-term prospects in this industry are less than bright as the Navy struggles with allocating scarce dollars between operational demands and ship repair.

A much more positive story about DOD procurement within the region emerges after subtracting shipbuilding and repair from total procurement expenditures. This "net procurement" involves contracting with the private sector for a gamut of services, such as base infrastructure construction and repair, equipment servicing and technical services, which were previously performed by personnel within the military commands. Graph 7 shows that net procurement rose dramatically during the 1990s, from an estimated $100 million in 1990 to nearly $1 billion in 1999. The almost tenfold rise in spending has been a boon to both the creation of new businesses and expansion of existing businesses in the region's private sector.

GRAPH 7
Estimated Net DOD Procurement in Hampton Roads



Sources: U.S. Department of Defense, U.S. Navy Mid-Atlantic Command and Old Dominion University Forecasting Project. Procurement spending is estimated using five-year moving averages and is net of regional imports. Sources: U.S. Department of Defense, U.S. Navy Mid-Atlantic Command and Old Dominion University Forecasting Project. Procurement spending is estimated using five-year moving averages and is net of regional imports.

The Future

Given that defense expenditures account for 29 percent of Hampton Roads' economic activity, it is obvious that fluctuations in these expenditures can have a significant effect on that activity. As previously mentioned, military personnel can expect increases in pay above those of the national average in the civilian workforce until at least 2006. These raises will play a positive role in increasing per capita income in Hampton Roads. **The cumulative effect of the new military pay-raise legislation could increase price-adjusted personal income, per capita, by as much as 1 or 2 percentage points over the next five years.**

Other potential DOD factors affecting the Hampton Roads economy are more speculative, but each carries its own set of economic consequences. The most significant of these potential factors center around: (1) ship construction and repair; (2) future base realignment and closure committees (BRACs); and, (3) the current Navy Department review of the disposition of its F-18 Super Hornet squadrons.

SHIPBUILDING AND REPAIR

Over the next five years, at least two important events will affect the shipbuilding and repair industry. The first is congressional authorization of the new CVX carrier. The carrier, to be constructed by Newport News Shipbuilding, has not been completely authorized by Congress, although initial funds for research and development and advanced planning have been approved. Second, the Navy plans to conduct major overhauls of its Aegis-class cruisers. Local shipbuilding and repair firms are potential recipients of these relatively large contracts. The total potential economic impact on the region from these projects is estimated at $1.4 billion per year from 2003-07.

A FUTURE BRAC?

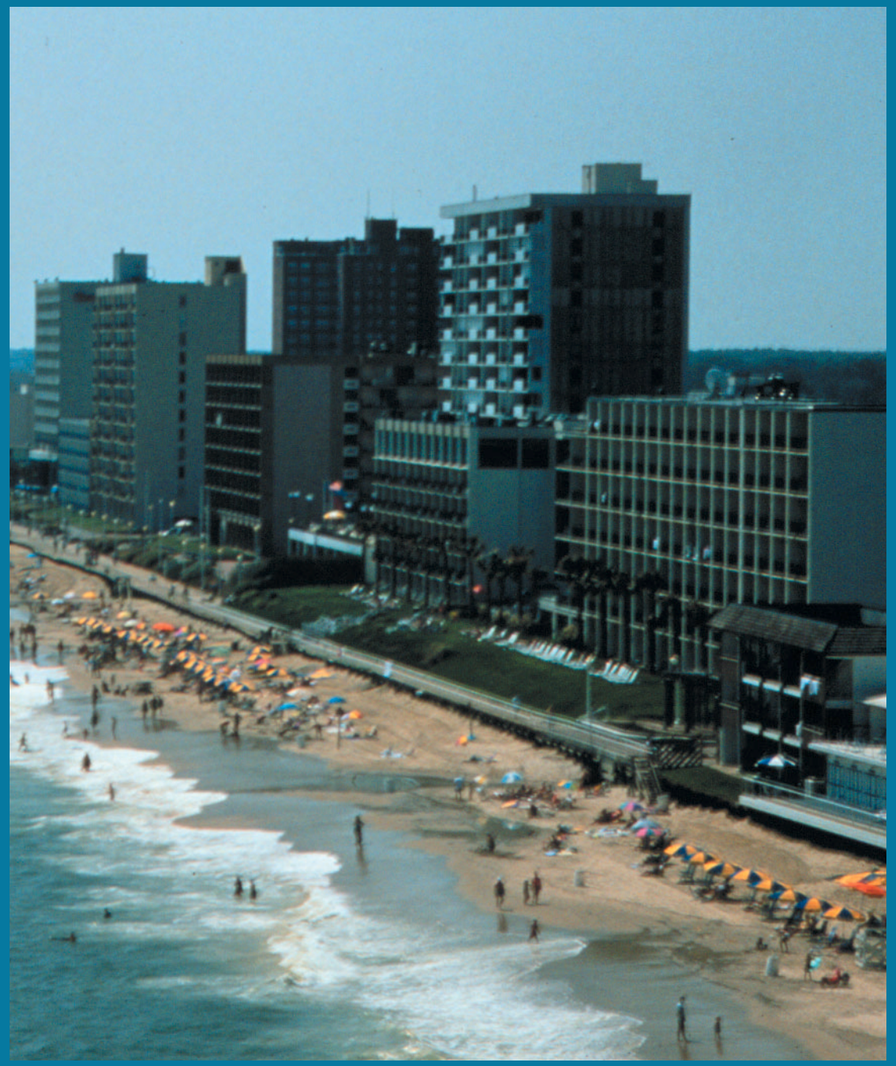
It is virtually impossible to predict the actions of any future BRAC. However, it is probable that, should a new BRAC be appointed, Hampton Roads will benefit as the DOD attempts to gain scale advantages through consolidation of forces in this area. There is, however, a possible exception to this optimistic picture, and that is Fort Monroe. Should Fort Monroe be selected for closure, the total economic impact on the region's GRP would be in the vicinity of a negative $200 million per year.

THE SUPER HORNET?

The Navy Department will likely render a decision on the geographical disposition of the new F-18 Super Hornet in 2002. If Naval Air Station Oceana is not selected as the base for all the Super Hornet squadrons, the region could lose as much as $195 million per year of its GRP. For each squadron selected to move out of the region, the total economic impact on the GRP would amount to roughly a negative $14 million per year.

PROSPECTS FOR THE IMMEDIATE FUTURE

Given the long lead times and phase-in requirements of the possibilities described above – congressional defense allocations, the new pay-raise formula for military personnel and Department of Defense projections of personnel levels – it is most likely that over the next three to five years DOD expenditures in the region will increase by an average of only about 2 percent annually. What does this mean for the region? **Unless something unusual occurs, the military's impact on the Hampton Roads economy will continue to decline over the next few years. By 2005, the defense-dependent share of the region's economy could fall from the current 29 percent to 25 percent.**



THE STATE OF TOURISM

Is upscale the way to go to attract more tourist dollars?

If Virginia is for lovers, then Hampton Roads is for lovers of vacations. From the historic streets of Colonial Williamsburg to the surf and sand of modern-day Virginia Beach, this region offers visitors a wide variety of enticing attractions.

Without question, tourism and related travel spending spell big business for Hampton Roads, and its impact on the region has been on the rise. Since 1990, tourism expenditures have jumped from $1.48 billion to $2.25 billion, or 52 percent, and have been growing more rapidly here than elsewhere. During the same time period, tourism expenditures grew only 44.5 percent and 48.4 percent in Virginia and the entire United States, respectively. **Further, travel spending in Hampton Roads accounted for 5.08 percent of the Gross Regional Product (GRP) in 1990 and 5.41 percent of the GRP in 1998. In other words, more than $1 of every $20 in the region's GRP is derived directly from tourist expenditures.** Meanwhile, tourism as a share of the Commonwealth's Gross State Product declined from 5.46 percent in 1990 to 4.84 percent in 1998. The same trend held for the country as a whole, where travel spending accounted for 5.75 percent of the Gross Domestic Product in 1990, but only 5.6 percent in 1998.

Why Most Cities Are in the Dark About Their Tourism

Although tourism is an important and expanding industry in Hampton Roads, reliable primary data on tourism is available only for the City of Virginia Beach. The resort city has been commissioning surveys of out-of-town visitors every month from May to September since the early 1980s. In 1994, Virginia Beach started additional surveys of overnight visitors for March/April and October/November. Additionally, the city has commissioned a monthly occupancy study of hotels/motels every year for at least the past 10 years. These surveys provide information on characteristics, plans, activities and vacation patterns of tourists, as well as their socio-economic status and demographic characteristics.

No other locality in Hampton Roads, including historic Williamsburg, which clearly is a major destination market in the region, systematically collects, analyzes and provides information on tourism. Therefore, information about tourists and other travelers coming to Hampton Roads must be obtained from secondary sources. Two of the major sources of this data are the Virginia Tourism Corporation (VTC) and Smith Travel Research (STR). Yet, there are potential problems with both of these sources.

VTC has compiled and published annual data on traveler spending, travel payroll, travel employment, state travel taxes and local travel taxes generated in all cities and counties in Virginia since 1990. However, VTC does not provide estimates of visitors either for any locality or for the Commonwealth.

Smith Travel Research collects information only from hotels/motels in the United States. The information collected includes the number of hotels or motels, the number of hotel rooms available, occupancy rates, average daily room rates and revenue earned by operators per available room. STR collects this information through a sample of hotels that voluntarily provide information. The proportion of hotels reporting to STR has significantly increased over time. For example, the number of hotels in the United States providing information to STR increased from 49.6 percent in 1990 to 65.6 percent in 1999. From 1990-99, the sample proportions for the Commonwealth of Virginia increased from 61.5 percent to 77.4 percent, and for Hampton Roads from 55.5 to 69.5 percent. Information from STR, as stated above, is available for the United States, Virginia, Hampton Roads and various cities located within the region for each month starting with January 1990 and ending with April 2000.

Tourism Trends

The best available measure of tourism activity for Virginia and Hampton Roads is total travel spending, as reported by VTC. Travel spending is defined as the direct spending by all travelers, including meals, lodging, transportation, shopping, admissions and entertainment. VTC also reports four other travel impact categories: (1) travel payroll, which represents wages and salaries corresponding to direct travel-related employment; (2) travel-related employment; (3) direct travel-related state taxes generated within a locality; and, (4) direct travel-related local taxes generated within a locality. All of the above categories exclude indirect or multiplier impacts.

Traveler spending in Virginia increased from $8.1 billion in 1990 to $11.7 billion in 1998, or by 44.5 percent. The Virginia portion of the Washington, D.C., MSA is by far the most dominant area in traveler spending. This area accounted for 48.1 percent of traveler spending in the Commonwealth in 1990, but fell to 45 percent in 1998. Hampton Roads, the second largest metropolitan area in traveler spending, accounted for 18.35 percent of traveler spending in 1990, a share that increased to 19.3 percent in 1998. Richmond/Petersburg was a distant third. These three areas together account for roughly three-quarters of traveler spending in Virginia. All other measures of travel impact reported by VTC exhibit similar patterns.

VTC also provides information on traveler spending and other travel impact categories for cities and counties in Virginia. For the sake of clarity, Hampton Roads is divided into four distinct areas: James City County, Williamsburg (comprising York County and Williamsburg); Peninsula (comprising Gloucester County, Hampton, Newport News and Poquoson); South Side (comprising Isle of Wight County, Mathews County, Chesapeake, Norfolk, Portsmouth and Suffolk); and, the City of Virginia Beach, which stands alone as Virginia Beach.

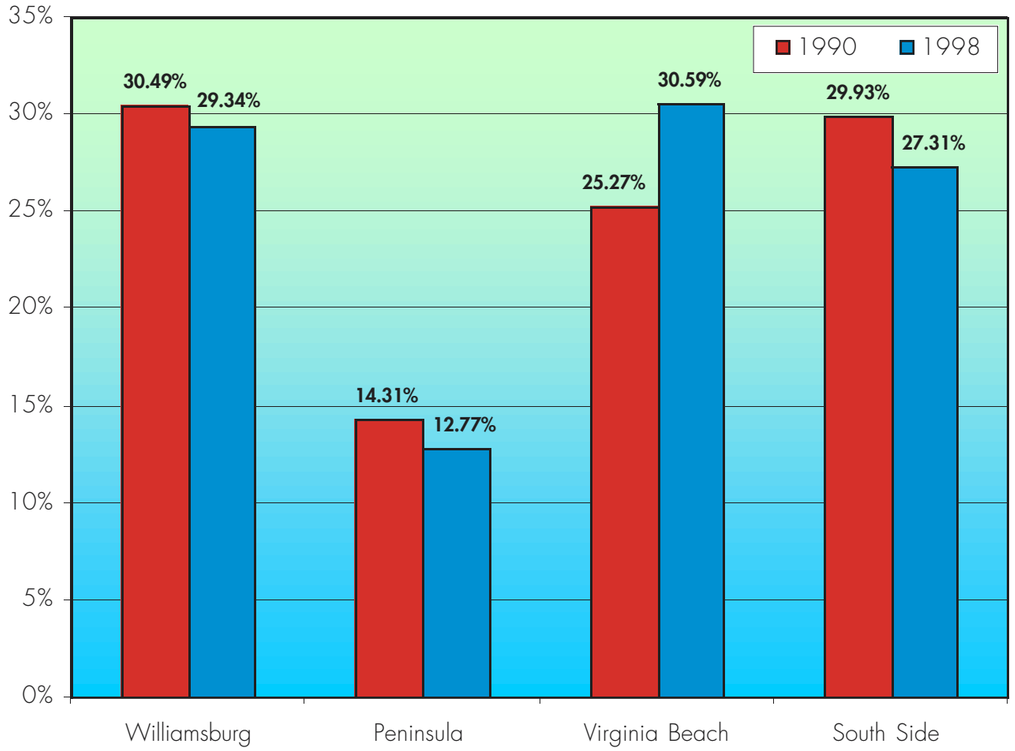
Within Hampton Roads, the two largest tourist destination markets are Virginia Beach and Williamsburg. These two areas together accounted for 60 percent of the region's traveler spending in 1998. Traveler spending in Virginia Beach increased from $374.9 million in 1990 to $689.6 million in 1998, or 83.9 percent. By contrast, in Williamsburg, traveler spending increased by only 46.2 percent in the same time period, from $452.2 million to $661.3 million. Hence, in 1990, Williamsburg tourism was larger than that of Virginia Beach by almost 21 percent. By 1998, however, things had reversed and traveler spending in Virginia Beach exceeded that in Williamsburg by 4.3 percent.

Graph 1 shows the percentage distribution of traveler spending by the four distinct areas of Hampton Roads. It is evident from this data that Virginia Beach's share of direct regional traveler spending increased from 25.3 percent in 1990 to 30.6 percent in 1998. The other three areas, particularly Williamsburg, have grown at a slower pace than Virginia Beach and their shares of traveler spending have declined. Similar trends exist with respect to direct travel payroll, direct travel employment and state travel taxes generated in Hampton Roads.

A 1998 survey of U.S. resident travelers, conducted by Travel Industry Association of America, revealed that 46 percent of travelers stay in a hotel or motel; 13 percent stay in campgrounds, cottages, condominiums and other places; 35 percent stay with friends and relatives; and another 13 percent take day trips and do not "stay over." Visitor surveys in Virginia Beach for 1998 and 1999 reveal similar patterns: about 56 percent of visitors stayed in hotels or motels; 9 percent stayed in campgrounds, cottages or condominiums; 20 percent stayed with friends and relatives; and about 15 percent were day trippers.

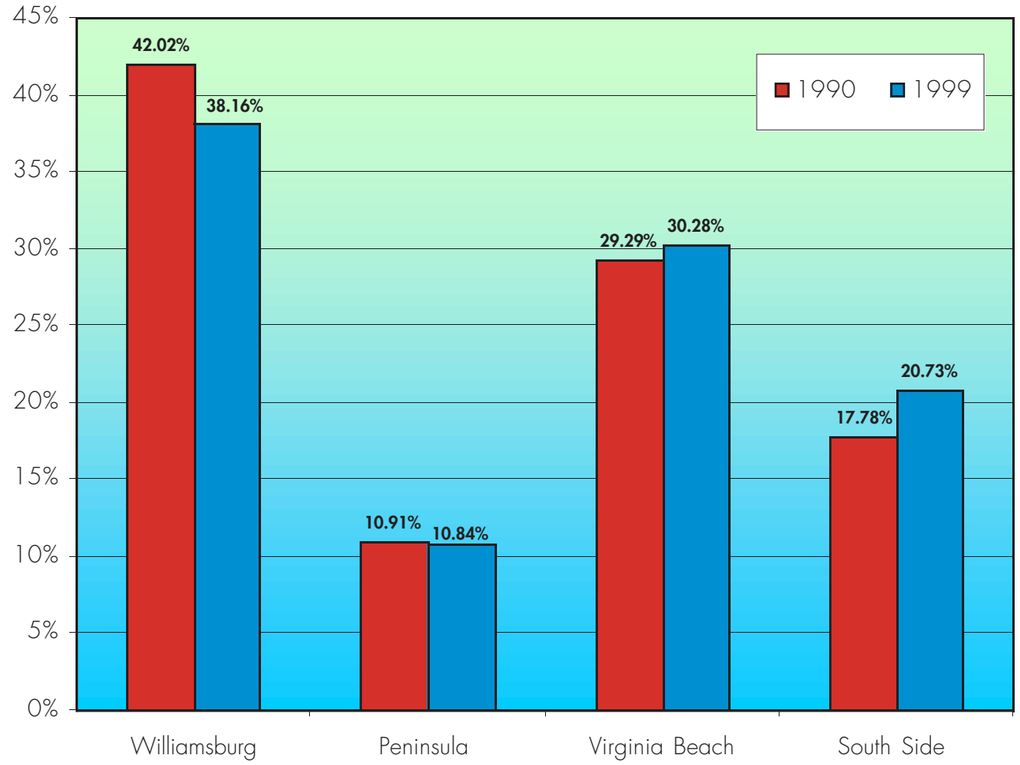
Lodging sales constitute a second measure of tourism activity in Hampton Roads. The Virginia Department of Taxation collects monthly information on lodging sales for various cities and counties in the Commonwealth. Lodging sales, for this analysis, represent retail sales in hotels/motels, campgrounds, bed and breakfast facilities, and the like. Note that lodging sales therefore include both room sales and nonroom sales, such as business at gift shops and restaurants located within tourist destination premises.

GRAPH 1
Percent Distribution of Travel Spending in Hampton Roads MSA, 1990 and 1998



Source: Virginia Tourism Corporation

GRAPH 2
Percent Distribution of Lodging Sales in Hampton Roads MSA, 1990 and 1998

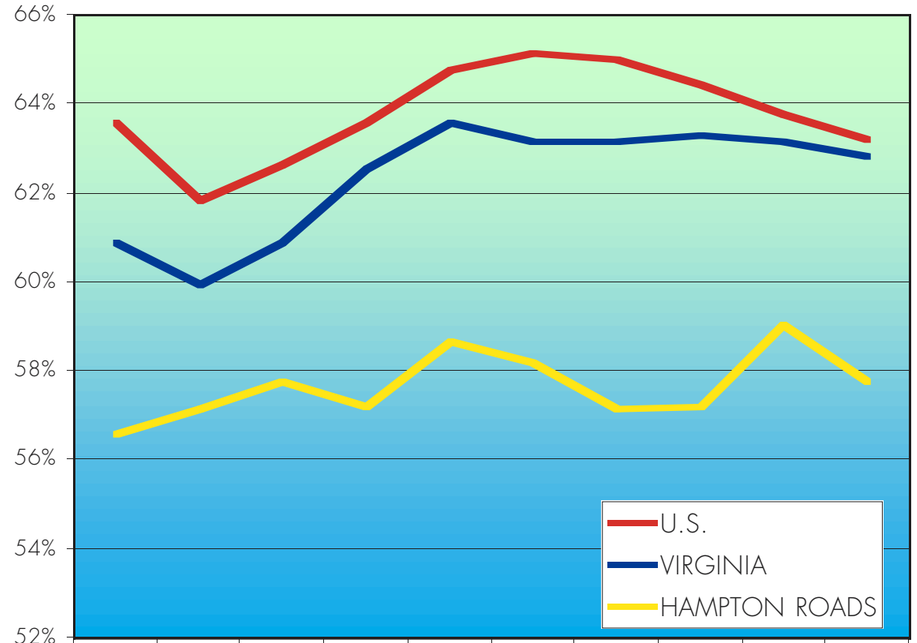


Source: Virginia Tourism Corporation

Lodging sales in Hampton Roads jumped from $407 million in 1990 to $584 million in 1999, a 43.5 percent increase. However, recent growth in lodging sales for the two destination markets in Hampton Roads has been quite uneven. Virginia Beach enjoyed a growth of 48.3 percent in its lodging sales, while Williamsburg increased by only 30.3 percent. The distribution of lodging sales in Hampton Roads by the four areas defined earlier is exhibited in Graph 2. Note that the share for Williamsburg declined from 42 percent in 1990 to 38.2 percent in 1999. This is in contrast to Virginia Beach and the South Side, where the shares of lodging sales have increased.

A third measure of tourism activity is hotels and motels, where about 50 percent of travelers stay during their visit. A look at the number of hotel and motel rooms available over the past decade demonstrates that the growth in Hampton Roads has been quite modest. The number of rooms in Hampton Roads increased only 6 percent from 1990-99, even though there was 15 percent growth in Virginia and 21 percent growth in the United States during the same time period.

GRAPH 3
Hotel Occupancy Rate, 1990-99

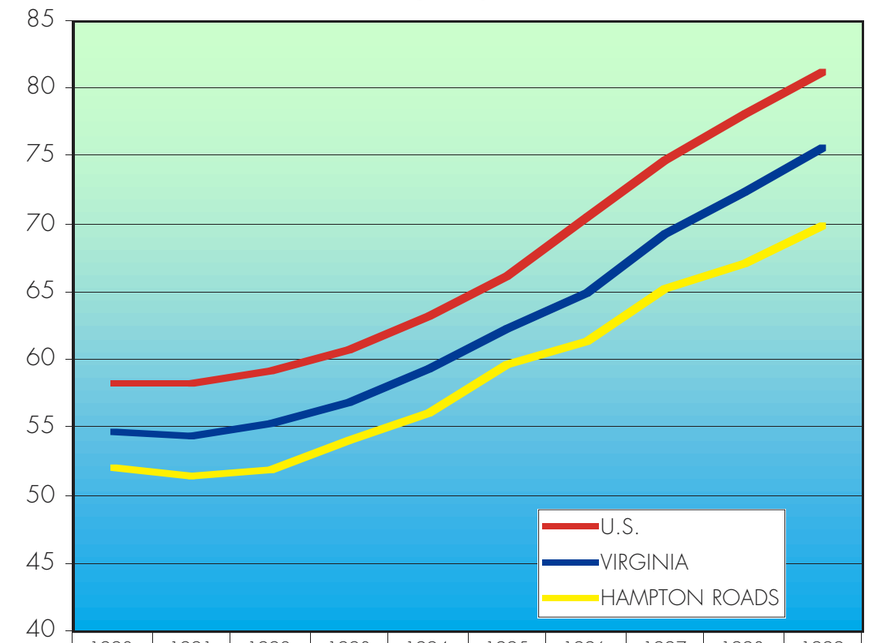


	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
U.S.	63.57%	61.85%	62.63%	63.56%	64.76%	65.13%	64.99%	64.46%	63.80%	63.22%
VIRGINIA	60.87%	59.93%	60.88%	62.53%	63.59%	63.16%	63.16%	63.30%	63.17%	62.84%
HAMPTON ROADS	56.58%	57.15%	57.79%	57.21%	58.66%	58.22%	57.17%	57.18%	59.04%	57.79%

Source: Smith Travel Research

Why did the number of available hotel and motel rooms expand so slowly in Hampton Roads? Presumably because of low room occupancy rates and low average daily room rates. These in turn reflect an apparent lack of profitability. **In simple terms, the supply of rooms has not increased more rapidly because it has not been profitable to build more hotels and motels. Tourism in Hampton Roads did expand during the '90s, but it was not especially profitable.** Graphs 3 and 4, respectively, illustrate the room occupancy and room rate phenomena. Throughout the '90s, room occupancy rates in Hampton Roads were much lower when compared to Virginia or the nation. Likewise, the average daily room rates in Hampton Roads, though they increased by about 34 percent during the decade, always have been lower than those in Virginia, or the rest of the country.

GRAPH 4
Average Daily Rate, 1990-99

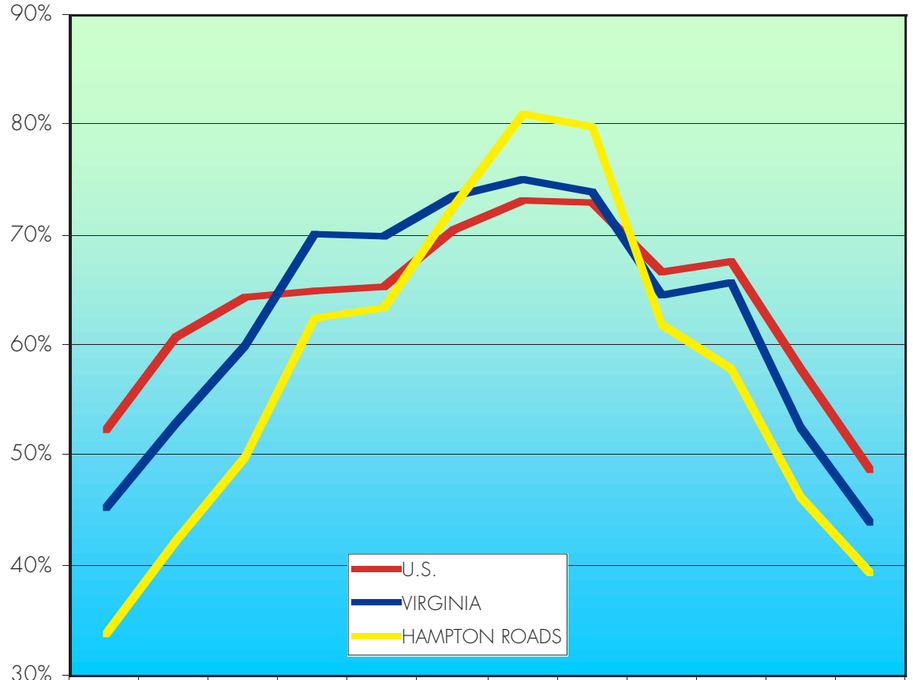


	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
U.S.	58.33	58.34	59.22	60.83	63.24	66.26	70.57	74.76	78.18	81.33
VIRGINIA	54.74	54.36	55.33	56.96	59.35	62.32	65.00	69.36	72.44	75.66
HAMPTON ROADS	52.14	51.50	52.00	54.19	56.10	59.69	61.48	65.22	67.19	69.92

Source: Smith Travel Research

Occupancy rates and daily room rates are subject to strong seasonal variations. Graphs 5 and 6 demonstrate this for Hampton Roads. Room occupancy rates as well as average daily room rates are the highest in Hampton Roads in July and August and exceed those in Virginia for those months. Patterns for the month of June in Hampton Roads are similar to those for Virginia and the entire country. Nonetheless, in every other month, both room occupancy and average daily room rates are significantly lower in Hampton Roads.

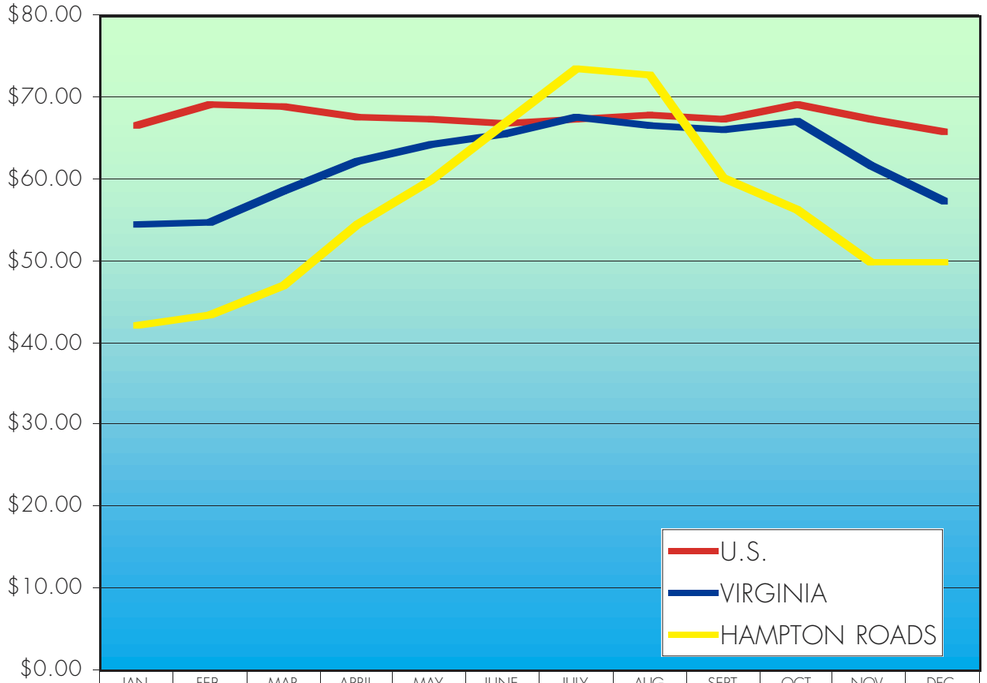
GRAPH 5
Monthly Average Occupancy Rates, 1990-99



	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEP	OCT	NOV	DEC
U.S.	52.31%	60.70%	64.47%	64.93%	65.43%	70.60%	73.10%	73.01%	66.65%	67.69%	57.98%	48.64%
VIRGINIA	45.23%	52.92%	60.07%	70.13%	70.02%	73.55%	75.11%	73.90%	64.65%	65.68%	52.63%	44.02%
HAMPTON ROADS	33.87%	42.25%	49.87%	62.52%	63.51%	72.61%	81.08%	79.84%	62.00%	57.96%	46.27%	39.30%

Source: Smith Travel Research

GRAPH 6
Monthly Average Daily Rate, 1990-99



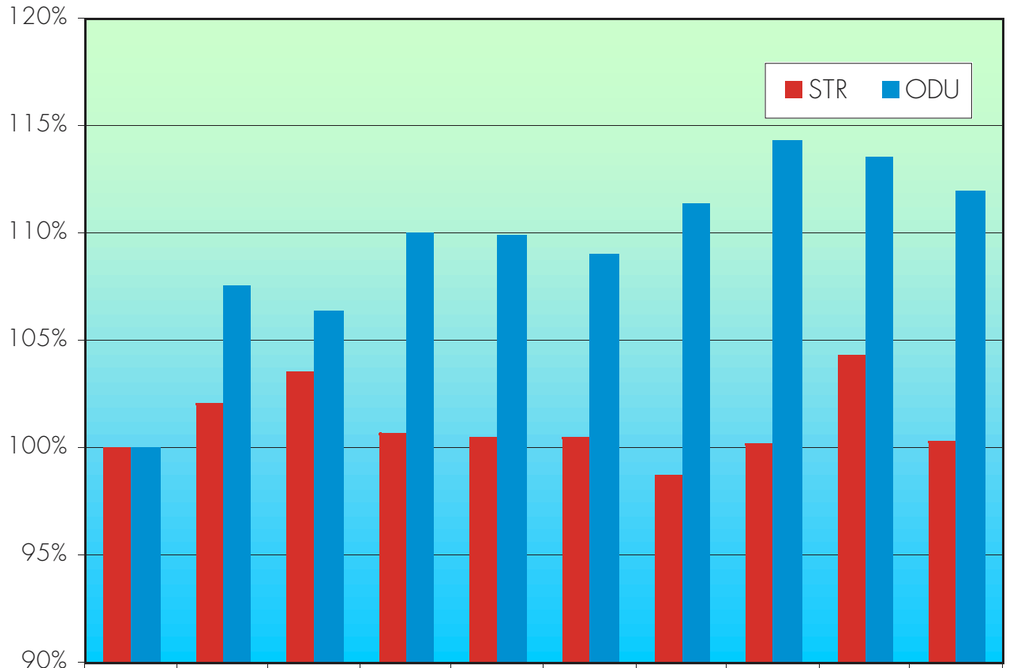
	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
U.S.	66.58	69.08	68.93	67.57	67.27	66.77	67.41	67.79	67.44	69.24	67.38	65.85
VIRGINIA	54.56	54.74	58.69	62.20	64.38	65.53	67.70	66.67	66.08	67.07	61.62	57.36
HAMPTON ROADS	42.27	43.55	47.16	54.59	59.90	66.85	73.60	72.69	60.29	56.42	49.93	49.93

Source: Smith Travel Research

A Closer Look at Virginia Beach

Research conducted by Old Dominion University using primary data, exhibited in Graph 7, shows that hotel room nights in Virginia Beach increased by about 12 percent between 1990 and 1999. Contrast this to the finding of Smith Travel Research that almost no increase occurred. What accounts for this difference? STR's data is generated from its statistical sampling of Virginia Beach hotels and motels. There are two problems associated with this approach. First, STR's sampling includes only about 70 percent of hotel and motel rooms in Virginia Beach. Second, STR's sampling focuses on franchise hotels and motels. Yet, 47 percent of Virginia Beach's hotel and motel rooms are nonfranchise and independently owned; only 18 percent of these hotel rooms are represented in the STR data.

GRAPH 7
Room Night Index for Virginia Beach, 1990-99



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
STR	100.00%	102.02%	103.53%	100.65%	100.46%	100.53%	98.75%	100.16%	104.28%	100.25%
ODU	100.00%	107.52%	106.32%	109.99%	109.90%	108.98%	111.37%	114.30%	113.57%	112.01%

Sources: Smith Travel Research and Summer 1999 Virginia Beach Overnight Visitor Profile (ODU)

The most reliable measure of tourism activity in Virginia Beach is the city's hotel and motel occupancy tax records. Hotels and motels have been required to pay a $1 tax since September 1, 1995, on each room occupied in their facilities. Therefore, Virginia Beach's occupancy tax receipts obviously are the most reliable measure of how many rooms have been occupied in the resort city. Indeed, these tax revenues rose from $1.93 million in 1996 to $2.02 million in 1999, a 5.1 percent increase.

Utilizing occupancy tax receipts and other data, it is apparent that Virginia Beach has experienced a significant increase in out-of-town visitors over the past decade. Thus, between 1994 and 1999, the number of overnight visitors rose from 1.69 million to 2.23 million (32.3 percent), and the total number of visitors (day and overnight) increased from 1.9 million in 1994 to 2.64 million in 1999, or almost 39 percent. Out-of-town visitor spending jumped from $471.1 million to $601 million, an increase of 27.6 percent. These visitors generated $32.6 million in direct city revenues in 1994 and the city's revenues increased to $46.1 million in 1999. On a net basis, after deducting the city's costs associated with tourism, Virginia Beach netted an estimated $13.5 million from tourism in 1994 and $18.2 million in 1999 (a 34.8 percent increase). Research conducted by Old Dominion University also shows that the tourism industry created 10,190 jobs in 1994 and 11,493 in 1999 (a 12.8 percent increase).

The bottom line is that Smith Travel Research data is a less reliable measure of tourism activity than actual room occupancy tax receipts. This is because the STR data represents primarily the franchise hotel industry. The truth is that tourism in Virginia Beach has been much more robust than STR data has suggested.

Tourism in Virginia Beach tends to be an upper-income activity, particularly where overnight guests are concerned. In 1992, the average household income of the city's visitors was $55,187; this increased to $66,482 by 1999. Visitor-party spending during the same time also increased, from $891 in 1992 to $1,229 in 1999. However, to use the language of economists, it also is true that the income elasticity of visitor spending is very low. That is, high-income visitors do not spend proportionally more than low-income visitors. For example, visitors earning $55,000 a year spent $1,215 during their visit to Virginia Beach in summer 1999. This spending rose only to $1,526 (a 25.6 percent increase) for those with incomes of $112,500, more than twice as high.

The Seasonal Problem

Except in the months of June, July and August, room occupancy rates in tourist-oriented Hampton Roads hotels and motels are quite low, and average daily room rates are comparably low. This is a classic "excess capacity" problem that to one extent or another also afflicts a variety of other industries, most obviously education, but also Christmas-oriented enterprises, baseball teams and even the stock market. In each of these cases, firms in the industry deal with seasonal or periodic demand, and therefore experience time periods when there is little or no demand for their product and their facilities stand idle. The classic solutions for excess capacity problems are either to shut down production facilities completely (which reduces costs, but does not eliminate them) or to find other uses for the facilities. Thus, universities offer summer school, continuing education programs and camps; Christmas-oriented firms begin to produce goods and services focused upon other times of the year; baseball stadiums host rock concerts; and the stock market extends trading into the evening and weekends.

The tourism industry in Hampton Roads needs to find ways to utilize its excess capacity during the nonpeak tourist times of the year. It is in the best interests of the Hampton Roads citizenry and its governmental units to encourage and assist the tourism industry in doing so, for the result will be more jobs and higher tax collections. Greater emphasis must be placed upon Hampton Roads hosting large regional and national conferences that might take place in November or February, for example. In order to do so, the region may need to develop larger and more attractive convention facilities in its major tourist venues of Williamsburg and Virginia Beach. Needless to say, this could cost multiple millions of dollars and it does not follow that it would be profitable for the region to utilize tax funds either to construct extremely large convention centers or to build large stadiums or arenas that

might serve convention purposes. **The region should be very hard-headed as it analyzes whether the construction of large public convention, stadium and arena facilities would be worth its while as a partial solution to the excess room capacity problem the tourist industry experiences. The solution conceivably could be more expensive than the problem.**

A related challenge for the tourism industry in Hampton Roads that also has strong seasonal overtones is the regional transportation system. Traffic congestion is an impediment to tourism. There are three major "choke" points with respect to tourism in Hampton Roads: (1) its water crossings, primarily the Hampton Roads Bridge Tunnel and the Monitor-Merrimac Bridge Tunnel; (2) the increasingly problematic two-lane configuration of I-64 between Newport News and Richmond; and, (3) interestingly, Route 168 in Chesapeake, whose fate is connected primarily to non-Hampton Roads tourism on the Outer Banks. Without question, a third tunnel crossing would reduce driver and tourist unhappiness and help attract more visitors to the region, and widening and improving I-64 and Route 168 would improve circumstances. Once again, however, it does not follow that expenditures of any magnitude are merited. Fortunately, in each of these cases, proposed improvements would have multiple uses throughout the year (not simply tourism) and conceivably are connected to national defense considerations as well.

Finally, as the data presented above demonstrate, overnight tourism in Hampton Roads is an activity that caters to higher income individuals. National evidence indicates that such people increasingly are interested in upscale hotels and motels, as well as pricey recreation and entertainment, including golf courses that may be destinations in their own right. Hilton Head, S.C., and sites too numerous to list in states such as Arizona, California, Florida, Hawaii and Texas, reflect this trend. Williamsburg is the only area of Hampton Roads that currently fills this bill and, somewhat perversely, its tourism performance over the past decade has been unimpressive.

If, indeed, overnight tourism is increasingly morphing into an upper-income activity, and Hampton Roads wishes to play seriously in this arena in the future, then it must devise a strategy that will put its best foot forward. This strategy might well include convention, stadium or arena facilities, destination golf courses and tennis complexes, improved transportation, and other enticements. It is not clear that such investments would be more productive than alternatives, such as greater expenditures for K-12 education to raise teachers' salaries and reduce class sizes, or investments in technology-oriented university research and development facilities, or investments in cultural and recreational enterprises ranging from the symphony and opera to OpSail. Hard policy choices will need to be made among competing alternatives, each of which has its own attractions and supporters. Making the right choices is ultimately why some regions grow more rapidly than others, and why some regions are considered better places to live than others. Hampton Roads should not shrink from such public policy considerations.

THE STATE OF GOVERNMENT

With – count them – nearly 100 governmental units in the cities and counties that comprise Hampton Roads, are our citizens being served efficiently and responsibly?

If you have the vague feeling that a large number of governmental units exists in Hampton Roads, and that some of these governmental units have overlapping responsibilities, then you have not been hallucinating. A minimum of 92 governmental units serve the 16 cities and counties conventionally considered to be a part of Hampton Roads. These include six county governments, 10 city governments, 15 dependent school systems, and at least 61 more governmental units or districts that deal with matters such as sanitation or jails.

An Overview of Hampton Roads Governmental Units

The 16 jurisdictions that comprise the Hampton Roads Planning District Commission (HRPDC) are the major local governments of Hampton Roads. HRPDC is a regional authority whose existence was established by the Virginia Area Development Act (or Regional Cooperation Act) of 1969 in order to "encourage and facilitate local government cooperation and state-local cooperation in addressing on a regional basis problems of greater than local significance." HRPDC itself was formed in 1990 with the merger of the Southeastern Virginia and Peninsula Planning District commissions. Selected information about each of the 16 major local governmental units is included in Table 1.

Each of the cities in Hampton Roads has a council-manager form of government and each county has a council-administrator (or board-administrator) plan. These structures separate policy-making from administration. Thus, the city council or board of supervisors establishes policies and appoints (or hires) a manager or administrator to handle day-to-day execution of those policies. Both forms of government are commonly used throughout the country, though the council-manager structure is typically employed in cities of 10,000 to 25,000 people, particularly in suburban areas.

All of the cities in Hampton Roads have "weak" mayors, even though all but three provide for direct election of the mayor by the citizens. In Norfolk, Suffolk and Williamsburg, the mayor is chosen by the council from among its members. (Although in November 2000, Norfolk will hold an advisory referendum on whether to directly elect future mayors.) The "weak" mayor arrangement means that the mayors act as executive figureheads, primarily for ceremonial purposes. They do not have veto or unilateral appointment powers.

Counties in Virginia often have incorporated towns within their borders. Southampton County has six such towns while Surry has three and Isle of Wight two. Gloucester, James City and York counties have no incorporated cities.

There are also a number of limited governments ("special districts" or "authorities") in Hampton Roads. These special-purpose governmental units are authorized by Virginia statute and deliver specific services to localities and regions of the state. Some are established directly by state government and others are sanctioned by the state but created by localities. In addition, some primarily serve a single city or county (for example, redevelopment and housing or industrial development authorities) while others typically provide regional services (for example, jail or airport authorities). Revenue is generated by fees charged for services, and there are various levels of support from state and, in rare circumstances, local funds. **Only sanitary districts have taxing authority but most other limited governments may issue bonds payable from fees charged for services.**

TABLE 1

Major Local Governments in Hampton Roads (Excluding Special Districts and School Districts)

City/County	Number on Council/Board of Supervisors	Number of Local Government Employees[a]	FY 1999/2000 Budget[b] (Millions)
Chesapeake	9 (elected mayor)	9,302	$497.8
Franklin	7 (elected mayor)	671	$38.1
Hampton	7 (elected mayor)	5,470	$269.8
Newport News	7 (elected mayor)	10,316	$276.0
Norfolk	7 (nonelected mayor)	15,946	$565.5
Poquoson	9 (elected mayor)	488	$18.6
Portsmouth	7 (elected mayor)	5,651	$369.0
Suffolk	7 (nonelected mayor)	2,731	$68.0
Virginia Beach	11 (elected mayor)	18,341	$1,069.7
Williamsburg	5 (nonelected mayor)	1,765	$31.8
Gloucester County	7	1,534	$68.9
Isle of Wight County	5	986	$53.0
James City County	5	728	$84.5
Southampton County	7	737	$34.7
Surry County	5	416	$20.4
York County	5	2,327	$69.2
Totals	**110**	**77,409**	**$3,535**

Notes: [a]**Number of local government employees as of March 1997. Source: U.S. Department of Commerce. Bureau of the Census. 1997 Census of Governments: Volume 3, Public Employment. "Compendium of Public Employment," GC97(3)-2, March 2000.**

Generally speaking, there are seven categories of limited governments available to localities. They are: community development (an illustration is the Norfolk Redevelopment and Housing Authority), transportation (Tidewater Transportation District Commission), economic development (Virginia Beach Industrial Authority), parks/recreational (Hampton Roads Sports Facility Authority), medical/health (Chesapeake Hospital Authority), environmental (Hampton Roads Sanitation District) and criminal justice (Western Tidewater Regional Jail). Miscellaneous special district governments in Hampton Roads include the Chesapeake Bay Bridge and Tunnel Commission and the Medical College of Hampton Roads (which has governing authority for Eastern Virginia Medical School).

Fiscal Condition of Governments in Hampton Roads

Revenues for localities can take the form of taxes (including property and consumption taxes, but not income tax), intergovernmental transfers (particularly from the state, but also from the federal government), and charges for services (such as records, courts and libraries) and use of local government facilities.

Operating expenditures of local governments include primary and secondary education, road maintenance, the provision of public goods (for example, policing) and administrative costs. The major capital expenditures are school construction and maintenance and road construction.

A September 1999 report by Barents Group, LLC for Virginia Forward (an interest group made up of business leaders from around the Commonwealth) projected combined local budget deficits of more than $950 million by 2005 if behavior did not change. Of course, as the Barents Group report noted, the fiscal health of localities and regions differs substantially throughout Virginia. Thus, while the aggregate projection foresees deficits, shortfalls are not imminent for all localities. In the end, the fiscal strength of a local government is based upon the relationship between the ability to raise revenue and expense needs.

Unfortunately, the "revenue effort" of Hampton Roads indicates severe fiscal stress. Revenue effort is related to "revenue capacity," which is a per capita calculation of the revenue which each locality would raise if statewide average tax rates or license fees were added to the locality's resource base. A jurisdiction's revenue effort, then, is calculated by dividing its total revenue by the absolute value of its revenue capacity. In 1996-97, the average city in Virginia had a revenue effort of 122.76 percent, and the average county's effort was 70.46 percent (with all jurisdictions averaging 85.95 percent). The Hampton Roads region had the highest average revenue effort in the state at 112.57 percent. That was due, in part, to Norfolk's value of 157.46 percent, also the highest in the state. Table 2 illustrates how each city rated.

TABLE 2
Revenue Effort by Locality, 1996-97

City/County	Revenue Effort	Statewide Rank	Relative Stress Score
Chesapeake	1.1769	24	60.46
Franklin	1.1590	27	60.15
Hampton	1.3597	11	63.60
Newport News	1.3965	8	64.23
Norfolk	1.5746	1	67.29
Poquoson	0.8437	58	54.73
Portsmouth	1.4443	5	65.05
Suffolk	0.9845	44	57.15
Virginia Beach	1.1173	33	59.43
Williamsburg	1.2093	20	61.01
Gloucester County	0.7504	71	53.12
Isle of Wight County	0.9350	46	56.30
James City County	0.9314	47	56.24
Southampton County	0.7195	74	52.59
Surry County	0.6919	83	52.12
York County	0.9087	52	55.85

Source: Commission on Local Government, Report on the Comparative Revenue Capacity, Revenue Effort, and Fiscal Stress of Virginia's Counties and Cities: 1996-97.

When "fiscal stress" (see Table 3) is calculated (based upon revenue capacity, revenue effort and the median adjusted gross income of a jurisdiction), Norfolk has the highest fiscal stress level in the state at 186.73 (compared to the average of 173.25 for cities and 165.00 for all jurisdictions). Hampton Roads' fiscal stress value is 170.07, second only to Southwestern Virginia's 170.31.

Major Issues Confronting the Governments of Hampton Roads

Virginia's tax structure limits the ability of local governments to raise revenue. Because it is a "Dillon Rule" state, cities and counties are dependent on the state to grant the authority to collect taxes and fees (though localities may set property tax rates). At present, localities cannot tax incomes and, as a result, the bulk of their local revenues comes from property taxes. In fact, in FY 1998, 41 percent of all local revenue in Virginia was raised in the form of real estate property tax; in Hampton Roads, it accounted for 22.3 percent of total local revenue.

TABLE 3
Fiscal Stress Index Scores by Locality, 1996-97

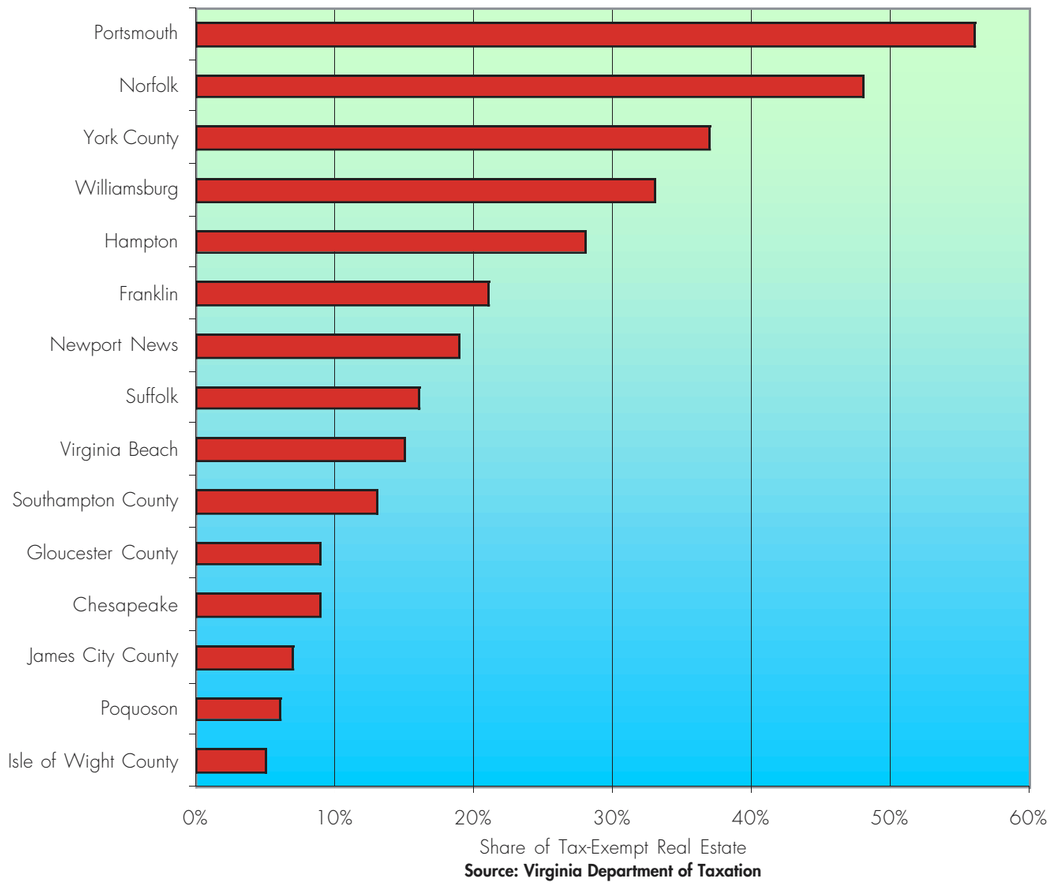
City/County	Fiscal Stress Index Score	Statewide Rank	Stress Classification
Chesapeake	167.07	51	Above Average Stress
Franklin	176.22	20	High Stress
Hampton	177.56	15	High Stress
Newport News	179.41	11	High Stress
Norfolk	186.73	1	High Stress
Poquoson	154.47	120	Low Stress
Portsmouth	183.84	4	High Stress
Suffolk	169.51	41	Above Average Stress
Virginia Beach	169.10	43	Above Average Stress
Williamsburg	172.24	33.5	Above Average Stress
Gloucester County	162.61	86	Below Average Stress
Isle of Wight County	163.86	76	Below Average Stress
James City County	155.99	113	Below Average Stress
Southampton County	166.40	59	Above Average Stress
Surry County	142.52	133	Low Stress
York County	158.54	105.5	Below Average Stress

Source: Commission on Local Government, Report on the Comparative Revenue Capacity, Revenue Effort, and Fiscal Stress of Virginia's Counties and Cities: 1996-97.

Part of the predicament Hampton Roads finds itself in stems from the unusually high level of tax-exempt property in the area. Tax-exempt property is that property owned by the federal (such as military bases) or state governments and nonprofit groups like churches. **Nearly $20 billion worth of property in Hampton Roads is nontaxable, of which $6 billion is in Norfolk and constitutes 47 percent of the value of real estate in that city.** In neighboring Portsmouth, roughly 55 percent of the real estate cannot be taxed. Graph 1 shows how the localities compare.

Despite the lack of tax revenue, local services must be provided to these properties. This places an extraordinary burden on local governments.

GRAPH 1
Percentage of Tax-Exempt Real Estate in Hampton Roads, Fiscal Year 1998



Source: Virginia Department of Taxation

In addition, business equipment is considered taxable property. However, there has been a shift in the types of businesses operating in Hampton Roads. Whereas manufacturing and agriculture had been leading businesses in years past, consulting and service-based businesses, as well as retail outfits, have begun to dominate the area. Of course, the former utilize the type of equipment that generates considerable property tax revenue while the latter do not. This transformation has contributed to the region's fiscal difficulties.

Furthermore, the value of various tax bases has also shifted in recent years. Real estate values have not kept pace with inflation in recent years, while incomes and retail sales have increased dramatically. Given that 100 percent of property taxes goes to localities while 100 percent of income taxes and 74 percent of sales taxes go to the state, the trends in tax-base values have a significant effect on cities and counties.

Urban areas are particularly affected by this situation. **As suburban (and, to some extent, rural) areas have continued to experience rapid growth, urban areas have been hit with declining levels of wealth and, in some cases, declining property values. They have also been left to provide expensive social services for many of those who remain in their jurisdictions.** To be sure, suburbs also face significant demands for services, but the ability to tax comparatively high real estate values compensates for the increasing cost of services. Urban areas, on the other hand, face an incentive to increase property taxes to address their budget demands; of course, increasing tax rates may drive more businesses and residents out of the cities, making it even more difficult to raise revenues.

Finally, direct state aid has been declining in recent years. By 1997, less than 28 percent of local government revenue in Virginia came from the state. That number is beginning to rise, however, as a result of the state's replacement payments for the loss of personal property tax (the "car tax") revenue. Nevertheless, in 1996 Virginia ranked 36th in the percentage of total local government revenue from state aid, according to the Hampton Roads Planning District Commission.

Clearly, there exists an imbalance in the tax burdens carried by the state government and local governments in Virginia. As of 1996, Virginia raised $56 of state taxes per $1,000 of personal income. That compares to a national average of $69 and an average of $71 among a set of mid-Atlantic and southeastern states. Yet, Virginia local governments collect more taxes per $1,000 than those comparison states. Virginia local governments collect an average of $42 per $1,000, while the average in comparison states is $35. **In combined state and local taxes, Virginia collects $98 per $1,000 compared to the U.S. average of $113 and a comparison state average of $106.**

TABLE 4

Distribution of Revenue by Source (State and Local Government Combined)

	Property Tax	General Sales Tax	Individual Income Tax	Corporate Income Tax	Other Taxes
Virginia	32%	16%	28%	2%	22%
U.S. Average	30%	25%	21%	4%	19%
Comparison State Avg.	25%	27%	22%	4%	23%

Source: Barents Group LLC, "Virginia's State and Local Tax Structure: Recent Performance and Restructuring Options," Washington, D.C., December 1999: 11.

Another way of assessing the tax structure in Virginia is to examine the sources of revenue for government in Virginia. Table 4 shows the percentage of total revenue raised by various taxes in Virginia for 1996 and shows averages for the United States and comparison states. Clearly, Virginia relies more heavily on property taxes – a local revenue source – than do most other states, particularly among the comparison group states.

On the other hand, Virginia also gets much of its revenue from the individual income tax, which is assessed at the state level. But the Commonwealth is less reliant on the sales tax and gets a somewhat smaller portion of its revenue from the corporate income tax than other states. In terms of the state and local effective tax rate, 9.8 percent of the personal income of Virginians goes to nonfederal taxes, while the national average is 11.3 percent. Indeed, the Hampton Roads Planning District Commission reported that just three states have lower effective tax rates than Virginia (including only Tennessee among the comparison states).

Potential Solutions

The state has not completely ignored the situation of the localities, particularly with regard to the cities. In 1998, the Commission on the Condition and Future of Virginia's Cities (also known as the Moss Commission) was established to study the problems facing cities and recommend solutions. Among the recommendations proffered by the Moss Commission is one suggesting that Virginia develop a comprehensive urban policy to deal with the unique circumstances of its urban areas.

The following year, the General Assembly created the Commission to Study Virginia's State and Local Tax Structure. Indeed, the most bold reform options available pertain to fiscal policy in Virginia. All of them have as a goal an increase in revenue for localities. For example, the most sweeping change would be to authorize local governments to raise revenue with a limited income tax on either individual or corporate incomes. Short of that, the state could increase the amount of aid it gives directly to localities. Given state budget surpluses, this could be done without, or with only minimal, additional revenue. **Of course, the combination of increased aid and the state's commitment to replace the localities' lost "car tax" revenue would undoubtedly eat away at most, if not all, of the surplus. Indeed, the estimated eventual cost of the car tax replacement is $1 billion a year, equaling the recent budget surplus.**

Thus, preserving budget surpluses while increasing aid to localities would require the state to increase significantly the amount of revenue it receives. Though increasing the individual income tax rate would be one option, it seems unlikely given the fact that such taxes are already relied on quite heavily. Thus, the state might turn to an increase in either corporate income taxes or the sales tax. One recommendation the Moss Commission forwarded to the Tax Structure Study Commission for consideration is that regional sales taxes be authorized where interjurisdictional services are provided. Because the sales tax is regressive, however, it may not be a politically acceptable revenue solution for many Virginians. It seems quite unlikely that any increase in the sales tax would be implemented on the heels of the sales tax reduction for groceries enacted in the most recent General Assembly session.

There does not seem to be much political will to make any changes in Virginia's tax structure. This is due, in part, to the state's current political culture, which has been described by the interest group Virginia 21 as "free-lunch populist politics." In other words, politicians of both parties have found it advantageous to offer expanded services (for education, transportation, etc.) at virtually no cost to the taxpayers. But the political environment is also largely shaped by the constitutional limit of one gubernatorial term. This means that a different governor's agenda is imposed every four years. It also means that campaign promises are offered at regular intervals by those seeking the open gubernatorial seat. **Because conventional wisdom holds that such promises must conform to the "no new taxes" environment, few plans for major overhaul of the tax structure will be developed and hard choices will not be confronted even though the overall level of taxation might not change.**

Localities may be left to find solutions on their own. One option is for localities to share a variety of services. The state has indicated its support for regional cooperation with the passage of the Regional Competitiveness Act of 1996. Of course, there are significant road blocks here as well. Among them is that there is more incentive for some localities to share services than for others to do so. For instance, localities with greater need for particular services, such as policing or environmental protection, might seek partners in those adjacent localities with less need but available resources; the latter cities and counties, however, might find little benefit in paying for services they hardly use.

Business relocation also presents complicated incentives and disincentives. Localities often offer businesses tax breaks to locate within their jurisdiction. But the benefits of welcoming new business cannot usually be confined to that jurisdiction. For example, residents of surrounding localities might take many of the new jobs and, in the process, will take the incomes back to their home cities/counties to spend on housing and retail. Yet those cities/counties are unlikely to compensate the neighboring localities which, while attracting new businesses, have nonetheless experienced a loss of revenue.

Finally, it is not always clear which services can or should be shared among localities. When there are not legal prohibitions, there may be reservations among the public. **If elected officials are unaware of how the public would react to sharing services with neighboring localities, they are unlikely to initiate any such plans.**

Reapportionment and Redistricting After the 2000 Census

Government in Hampton Roads will be profoundly affected by the reapportionment and legislative redistricting that occurs after the 2000 census. An immediate concern is whether the state redistricting committees will use population figures that result from the actual census enumeration or rely upon adjusted figures based on statistical sampling. The actual enumeration tends to undercount hard-to-reach populations such as the poor, many of whom are African American. A study by the National Committee for an Effective Congress examined the 1990 undercount in Virginia state legislative districts. The results indicate that six out of the top 10 most undercounted House of Delegates districts are in Hampton Roads, including the two most undercounted districts (89 in Norfolk and Chesapeake, and 95 in Hampton and Newport News). In State Senate districts, five of the top 10 were in Hampton Roads, including once again the top two most undercounted districts (five in Norfolk and Chesapeake, and two in Hampton and Newport News).

Those hoping to use statistical sampling data were dealt a setback, however, in the most recent Virginia General Assembly session. A new law (and perhaps the U.S. Constitution) prohibits the use of population data based on sampling for the purpose of drawing district boundaries. A number of Democratic legislators have filed a lawsuit to block that law (based on protections afforded by the Voting Rights Act), but the outcome is far from certain at this point. Nevertheless, redistricting promises once again to be contentious as a number of communities and their cities stand to lose representation after reapportionment.

From a regional perspective, however, Hampton Roads is unlikely to lose seats. According to estimates by the Census Bureau, cities and counties in Hampton Roads gained nearly 150,000 people and lost just over 51,000 from 1990-98. Growth was particularly strong in Chesapeake (+47,582), Virginia Beach (+39,291), York County (+16,355) and Suffolk (+10,560). Only Norfolk (-46,035), Portsmouth (-4,974) and Southampton County (-100) had decreases in population over the last decade. Thus, Norfolk could lose two seats in the House of Delegates and perhaps one seat in the Senate, while Portsmouth could lose seats as well. These seats would move to cities such as Chesapeake and Virginia Beach.

Potential shifts in seats among Hampton Roads cities will have at least three visible effects. First, shifts likely will cause political turmoil and result in legal action. Such fireworks might be reduced if the Commonwealth relied upon redistricting/reapportionment commissions, as do a number of states. Members of such commissions are appointed and may or may not be elected officials. Their use can (but does not always) reduce overt partisan politics in the redistricting process.

A second effect of redistricting will be a shift in political power from the City of Norfolk to cities such as Chesapeake and Virginia Beach, which together will dominate South Hampton Roads legislative delegations during the next decade. Changes on the Peninsula will be less dramatic, though population has been moving north over the past decade.

A third effect of redistricting relates to the political power and representation of the region's African-American population. Republicans, who will control this redistricting process, could choose to place several African-American Democratic legislators within the same districts on the Peninsula and in South Hampton Roads. Barring adverse court action, this would force these individuals to run against each other and might diminish Democratic representation. Alternatively, Republicans could opt to maximize the number of African-American legislative districts, and thereby improve the chances of Republican domination of the remaining districts. This strategy (which has been described as "more African Americans, but fewer Democrats") is one that Republicans have pursued with some success in other states.

For more than a century, Democrats have drawn the boundaries of legislative districts, sometimes over Republican protests. It seems likely that the direction of protests will be reversed this time.

THE STATE OF TECHNOLOGY

What will it take for us to compete in the high-tech arena?

Joseph Schumpeter, the renowned Harvard economist, saw a normal, healthy economy as not one in equilibrium, but one that is constantly being disrupted by technological innovation. It is Schumpeter who scenically talked of the "perennial waves of creative destruction" that sweep the American economy – new technologies and innovations continually pushing out and supplanting older ones in an ongoing and irreversible process. In Schumpeter's time, railroads, electricity and automobiles were among the new technologies that swept the world and changed the lives of all. More recently, the ubiquitous spread of the microcomputer, rise of the Internet and the decoding of the human genome bode to be ranked of equal or greater importance.

While Schumpeter's process of "creative destruction" referred to the dynamism of early 20th century America, his observations remain relevant today in Hampton Roads. The region's economic growth is critically dependent upon innovation and upgrading the technological base established during the last years of the 20th century. Indeed, the future prosperity of Hampton Roads depends jointly upon: (1) spurring the production of engineering and scientific innovations by private firms; (2) building a strong university research and development infrastructure; and, (3) vastly accelerating the process of technology transfer and commercialization to and from federal laboratories and installations in the region. The latter two points are critical.

Hampton Roads does not yet have the strong university research and development infrastructure that characterizes virtually every other economically vibrant area in the United States. It is not by accident that areas such as Boston, Austin, the Silicon Valley, Salt Lake City and Seattle are located in the midst of powerful university-based research, development, commercialization and entrepreneurial enterprises. Hampton Roads has the budding beginnings of such a university complex, but it has not yet come to fruition. Equally important, however, is the fact that Hampton Roads, while technologically rich in terms of the large size of its federally owned engineering and scientific infrastructure, has not yet found the ways and means to transfer the impact of those federal activities to its private sector. Hampton Roads ranks among the top four regions nationally in terms of the proportion of its population trained as scientists and engineers. The problem – but also the opportunity – is that most of these scientists and engineers are employed in federal laboratories and installations, and often their activities are only tangentially related to the dynamic, private-sector entrepreneurial process that generates new firms, patents, technology transfer and commercialization of ideas. That is, these scientists and engineers are doing many interesting things of great technical sophistication, but the spinoffs to private-sector activity have been disappointingly small, and even when they have occurred, they often have been exported to other cities and regions.

A Realistic View of Where the Region Stands

It is quite unlikely that Hampton Roads will soon become another Silicon Valley, as some of the more aggressive advocates of the region dream. A realistic assessment reveals that conditions in Hampton Roads are much different from those in Silicon Valley. For example, one-third of all the generated venture capital in the country goes to Silicon Valley. In the first quarter of 2000, a total of $17.2 billion was invested nationally, with $6.1 billion in support of Silicon Valley enterprises. Here in Hampton Roads, the availability of venture capital, whether from local or outside sources, is comparatively in an embryonic stage. Further, Hampton Roads does not boast the likes of a Stanford University or a Massachusetts Institute of Technology with their long histories of launching high-tech firms. True, this past year Old Dominion University recorded more than $55 million in research grants and contracts, not an inconsiderable sum, and the College of William and Mary, the Virginia Institute of Marine Science and Eastern Virginia Medical School together approximately duplicated that sum. Nonetheless, even these amounts combined would not place Hampton Roads' higher education institutions among the top 50 nationally.

What's Required for a Technologically Vibrant Region?

For a region to be successful technologically it requires a combination of factors so ably summarized in *Forbes* magazine: "The best places to do business are technology hubs where entrepreneurs can feed off top knowledge institutions and where business costs are low." An infrastructure supportive of innovation is required and its elements include:

- recognized research facilities whether university, federal or industry based;
- a large university known for its comprehensive and advanced research and development programs;
- a trained workforce on both the professional and technician level;
- sources of venture capital to support entrepreneurial start-up companies as well as technological expansion of established companies;
- a culture that encourages risk and innovation;
- low business costs (though not necessarily the lowest taxes);
- encouragement of government-industry-academic partnerships to develop high-tech incubators;
- physical infrastructure to nurture technology companies, especially those deploying broadband telecommunications systems;
- good transportation links, preferably including a hub airport; and
- lifelong learning to adjust skill sets.

Research Facilities

The major research facilities in Hampton Roads consist of: (1) NASA Langley Research Center; (2) the Jefferson Laboratory; (3) the Joint Training, Analysis and Simulation Center; (4) NASA's Wallops Island site (though technically it is not located in Hampton Roads); (5) Newport News Shipbuilding; (5) Eastern Virginia Medical School; and, (6) university-based laboratories, primarily at Old Dominion University and the College of William and Mary. Together, these agencies employ approximately 8,000 full-time engineers and scientists and undertake at least $500 million in research and development expenditures annually. **If all of these facilities were merged, and if they were pursuing common goals, and if they were focused upon private-sector innovation and commercialization, then they would constitute a "top 10" research and development establishment nationally.** Alas, there are too many "ifs" here. These facilities are not merged, do not pursue common research and development agendas, and often are not focused on private-sector innovative and entrepreneurial activities.

NASA LANGLEY RESEARCH CENTER

Of these facilities, NASA Langley Research Center easily is the largest and, despite NASA budget reductions, still maintains a large and impressive research and development program. Its importance — and its vulnerability — merit focused attention. NASA Langley employs approximately 3,800 scientific and technical staff and has an annual of some $600 million. As such, it is a bulwark of the economic development of Hampton Roads. Were NASA Langley to disappear, it would plunge the region into a near depression.

Recently, a significant change in Langley funding occurred, resulting in the phasing out (in fiscal year 2000) of the high-speed research and advanced subsonic technology programs. This is not good news, for it potentially removes Hampton Roads from the aeronautics process that will refine existing large passenger airliners and produce the next generation of airliners. Thus far, the number of scientific and technical staff has been only modestly impacted. However, NASA Langley's funding (for fiscal year 2001) is again under attack in Washington. **Although the overall proposed cuts are relatively small compared to last year's (see Table 1), they will nevertheless, if sustained, undermine basic aeronautics research and development programs that could be vital to Langley's long-term future.**

TABLE 1

Funding and Staffing at NASA Langley and Jefferson Laboratory

	1998	1999	2000	2001
	Funding ($ millions)			
NASA Langley	686.0	632.0	567.0	646.0
Jefferson Laboratory	71.7	74.6	95.5	116.4
TOTAL	**794.4**	**706.6**	**662.5**	**762.4**
	Workforce			
NASA Langley				
Civil Service	2,241	2,328	2,382	2,387
(50 percent Scientists & Eng.)				
Contractors	1,576	1,482	1,420	1,420
Jefferson Laboratory				
Scientists	98	107	107	107
Engineers	64	80	80	80
Technicians	198	216	216	216
TOTALS	**4,177**	**4,213**	**4,213**	**4,210**

Source: NASA Langley Research Center and the Jefferson Laboratory

Unquestionably, NASA Langley is critical to the growth of technology in Hampton Roads, even though the number of private-sector spinoffs has never been as large as many would have liked. Accordingly, it must have grassroot support throughout the year, not just when a crisis develops during a budget cycle. One group that has been steadfast in its efforts to focus attention in Washington (and nationwide) on the state of aeronautics funding at NASA is the NASA Aeronautics Support Team. This community-based communication and lobbying organization has been stressing the vulnerabilities of funding at Langley and the importance to the region of maintaining a stable or increasing research and development financial base.

JEFFERSON LABORATORY

The Jefferson Laboratory is a significant, and as of yet substantially untapped, source of private-sector engineering and scientific vitality for the Hampton Roads region. The very nature of the Jefferson Laboratory is difficult for most people to understand, because its primary focus is high-level, fundamental nuclear physics research that is concerned with the nature of matter itself. Yet, the Laboratory, which functions as an arm of the U.S. Department of Energy, has tremendous potential for private-sector spinoffs and entrepreneurial activities. The Laboratory's powerful, tunable free-electron laser, the newest of its facilities, could generate a plethora of commercial applications that range from making metals stronger and more corrosion-resistant to destroying cancer cells. Eight universities and 12 corporations, including DuPont and 3M, have begun research programs to develop products and processes that could result in significant technology transfer, commercialization and private-sector expansion.

Although the Jefferson Laboratory's technical staff and funding are not expected to increase significantly over the next few years (see Table 1), its potential, particularly as a significant research laboratory for the region, has never been brighter. The Laboratory's budget is expected to exceed $116 million in 2001, by itself a significant economic stimulus to the region. The salient question, however, is whether this research activity will spawn university-based spinoffs and private-sector commercialization.

JTASC

Also worthy of mention is the Joint Training, Analysis and Simulation Center (JTASC) in Suffolk. Little known to some, JTASC probably is the single most sophisticated modeling and simulation center in the world. It is here that the Department of Defense, and the U.S. Navy in particular, stage extremely large-scale simulations of military and political events. More than 1,000 people may participate in a single game or simulation. The level of analysis is quite high and the engineering and computer science skills called upon are considerable.

The relevant JTASC technology question insofar as Hampton Roads is concerned is this: Can this knowledge and these tools be exported to the private sector and commercialized as salable products, perhaps that appear in shrink-wrapped software packages? Attempting to do this is Old Dominion University's Virginia Modeling, Analysis and Simulation Center (VMASC). VMASC has accumulated $18 million in contracts and has attracted more than two dozen sponsors from the private sector. VMASC's activities include modeling the Port of Hampton Roads and improving the routing of school buses. **It is too early to tell if a modeling and simulation industry as such will spring up in Suffolk around I-664. What can be said is that the potential is tremendous and, in contrast to many other technology initiatives, there are only a few serious competitors nationally.**

VASCIC

With shipbuilding in Newport News dating back to the late 19th century, it is only fitting that the development of the nation's next generation of aircraft carriers be centered at Newport News Shipbuilding. Beginning with the CVN77, which is expected to be completed in 2008, aircraft carriers must incorporate the latest technological advances in a timely and cost-effective manner. Providing a foundation for the research and development directed at this goal will be the Virginia Advanced Shipbuilding and Carrier Integration Center (VASCIC). A joint venture of the Commonwealth of Virginia, the City of Newport News and Newport News Shipbuilding, VASCIC is responsible for ensuring that the Navy's future aircraft carriers will be able to respond to changing combat and cost requirements. Virginia has committed $98 million to VASCIC, $58 million of which is earmarked for construction and up to $40 million for operations. Operations that are to begin in mid-2001 will include, but not be limited to, the administration, management, testing, training and research as required to integrate advanced shipboard systems. **The goal of VASCIC is to create 600 full-time high-tech, engineering-related jobs in the shipbuilding industry, primarily in Hampton Roads.** This build-up will begin in mid-2001 and continue at a steady rate until 2005 when the addition of personnel will level off.

This latest example of high-tech growth in Hampton Roads should bring benefits in the form of an improved employment market for technologists and a focal point for attracting new technology firms. There is no question that the presence of VASCIC must be viewed as a major development, one having a significant long-run impact on the region in general, and on Newport News in particular.

THE UNIVERSITIES

The recently formed University Research and Development Consortium consists of the region's eight institutions of higher learning and two of the federal laboratories (NASA Langley and the Jefferson Laboratory). Its mission is to consolidate efforts to increase the research and development capacity of the universities and laboratories that will result in attracting more technology-related businesses. The eight universities (including EVMS) account for about $125 million of research contracts and grants on an annual basis. This is a considerable and impressive sum; however, it is uncoordinated and remarkably lacking in focus. Since each of these university entities is independent, each pursues its own priorities. Indeed, an immediate challenge is to better understand the nature and extent of research currently being performed throughout the region. Regardless, despite the $125 million research total, the region usually fails to achieve what knowledgeable researchers conceive of as being "critical mass" in its research efforts because these efforts are spread across so many different topics and institutions. There is little or no coordination of effort and startlingly little communication among engineers and scientists at the various institutions. This may suit the individual institutions, but it is sub-optimal insofar as the Hampton Roads region is concerned.

That said, there does exist one shining example of research collaboration among institutions of higher education. It is the Applied Research Center (ARC) in Newport News, which is connected to the Jefferson Laboratory. ARC is an example of a consortium of universities engaged in research and development for advanced materials and laser technology, as well as collaborating on projects with industry partners. Common research topics often are pursued and a common location encour-

ages cross-fertilization of ideas and communication. The two largest participants in ARC are Old Dominion University and the College of William and Mary, but other institutions, notably Christopher Newport University, Norfolk State University and Hampton University, also participate. This is an instructive example, for ARC would not have appeared except for the encouragement and resources provided by the Jefferson Laboratory. Universities, like most other technology entities, pay attention to resources and appropriate incentives stimulate them to reorder their research priorities. This is a lesson that should not be lost when the region considers how it will accomplish similar ends in the future.

Making an impact in the technology community is Virginia's Center for Innovative Technology (CIT). In 1999 alone, it provided leadership for the initiation of 23 projects in Hampton Roads with more than $1.5 million in total funding. Most projects are university-connected.

A Closer Look at University Technology Facilities and Activities

None of the region's four-year colleges or universities undertakes sufficient externally funded research and development activity to place it in the top 100 nationally, although Old Dominion University recorded more than $55 million in external research and contracts in 1999-2000. This total places Old Dominion among the top 175 universities nationally, and its rank has been rising rapidly. Nonetheless, it is a paltry sum compared to the more than $1 billion of research activity annually done by Johns Hopkins University, which leads the pack nationally. Unquestionably, Hampton Roads needs a vital, first-class, nationally recognized research complex that can attract students of an entrepreneurial bent, train them and launch them into the Hampton Roads workforce. The goal must be to form the nuclei of the needed high-tech innovative enterprises that can induce venture capitalists and others to increase their investments in the region. Other significant technology activities include:

- **The Virginia Institute of Marine Science at the College of William and Mary** – one of the largest coastal and estuarine science institutions in the world. State-of-the art laboratories, a fleet of research vessels and a first-class marine library support the highly regarded research programs in coastal management, fisheries, estuarine science and environmental science.

- **Old Dominion University's Multidisciplinary Parallel-Vector Computer Center** – home to a Sun Microsystems HPC 10000 supercomputer. This is a highly significant regional tool for research and must be available to industry and research centers for solving large-scale, complex equations and problems. The HPC 10000 is the most powerful computer at a Virginia university and is among the 350 most powerful supercomputers in the world. Old Dominion gradually has built an electrical engineering, computer science, physics and chemistry faculty who are experts in high-speed computing and computation. Such individuals are the building blocks for future entrepreneurial spinoffs.

- **The Enterprise Centers at Old Dominion University** – coupled with the Bank of America Entrepreneurial Center. These centers form partnerships with industry, giving the university's faculty and students the opportunity to work on "real-world" problems. For example, Old Dominion's College of Engineering and Technology operates the high-speed wind tunnel at NASA Langley and will soon be sending commercial satellites into space at Wallops Island.

- **Old Dominion University's ITPro** – the largest university producer of Microsoft Certified Systems Engineers in Virginia. The school's Information Technology Professional Program (ITPro) offers certificates in database management and Web development in Virginia Beach, Hampton and Northern Virginia.

- **Eastern Virginia Medical Schoo**l – research programs through the Jones Institute for Reproductive Medicine, the Leonard R. Strelitz Diabetes Institutes and the Center for Pediatric Research. EVMS typically attracts $25-30 million in extramural research funding annually and recently received a prestigious $25 million grant from the Gates Foundation.

- **Virginia Electronic Commerce Technology Center (VECTEC) at Christopher Newport University** – a partnership with Virginia's Center for Innovative Technology, Newport News Shipbuilding and Bell Atlantic. VECTEC advances the uses of electronic commerce technologies in the region's small businesses and governmental organizations. With projected sales of more than $28 billion in 2000, e-commerce is an area of burgeoning importance regionally and nationally and, in fitting with Gov. Jim Gilmore's goals for the Commonwealth, Old Dominion University has initiated both bachelor's and master's degree programs in the discipline.

- **Hampton Roads Smart Region Initiative** – an electronic platform featuring a state-of-the-art Web site as well as Internet tools that facilitate communication and collaboration among educational, business and governmental communities. The Hampton Roads Partnership has responsibility for this endeavor, which could be a significant factor in upgrading the "entrepreneurial culture" in the region.

A Closer Look at Private-Sector Technology

Transferring the products of NASA research to the private sector is the goal of the Hampton Roads Technology Incubator, which was created in 1998 as an operating division of the Hampton Roads Technology Council (HRTC). By mid-2000, the Incubator had accumulated 12 client companies with 32 full-time employees. The number of companies is expected to increase to 15 by 2001. HRTC has plans for the creation of three or more additional incubators to be located in South Hampton Roads and Williamsburg. For several years, the City of Norfolk has promoted a biotech incubator intended to house early-stage biotech start-up companies. The BioVenture Forum is also active in the promotion of biotech innovation.

TABLE 2

Private Technology Companies in Hampton Roads

	1996	1998	Percent of all firms 1996/1998
Number of Technology Firms	346	552	1.1/2.0
Technical Employment	47,093	54,788	7.5/8.0
Earnings of Technology (Direct)	$1.6B	$1.91	11.0 / 11.0

Source: Center for Regional Analysis, George Mason University

In the private sector, large firms direct their research and development efforts toward computer hardware, information services and nuclear systems, whereas the small to medium companies tend to focus their efforts toward manufacturing, engineering services, defense and aerospace software engineering, and electronics and simulation/training. In Hampton Roads, (see Table 2) the majority of companies – over 80 percent – have fewer than 100 employees, but companies with more than 1,000 employees – a mere 1 percent of the total – account for more than 60 percent of the total technology employment.

Venture capital is necessary to accelerate the growth of innovative companies. The greatest amount of venture capital nationally has been invested in software, telecommunication and networking, and associated equipment. The areas receiving significantly less attention are industrial, biotechnology and semi-conductors. Hence, to capture a larger share of the venture capital funds available, the region needs to promote research and development in those areas most likely to attract venture capital. The Virginia Venture Capital Forum, a four-year-old organization, brings together investors, bankers, venture capitalists and entrepreneurs. **Currently, there are more than five venture capital firms active in Hampton Roads. It is estimated that their total investment in regional technology companies was $3-5 million in 1999 and will be about $5-10 million in 2000.** Capital venture companies like Envest not only invest capital in fledgling companies, but partner with them to help manage their growth. The addition of venture capital and incubators to the region is a strategic element to encourage entrepreneurs to innovate and take risks.

What Remains to Be Done?

Most of the support pieces required to make Hampton Roads a respectable national technology hub currently exist or could be created. True, the region's federal laboratories and installations heretofore have not exhibited a strong interest either in technology commercialization or in supporting and cultivating technology development in Hampton Roads, per se. Nonetheless, the potential is there and threats of federal budget cuts may cause these laboratories to place a higher value on their relationships with regional universities, firms and technology organizations. Similarly, it is true that the region lacks a single, large research university, though all of the institutions combined would merit designation in the top 100. The problem is convincing these institutions to coordinate their efforts, and thereby create critical mass, on research and development topics that clearly would benefit the region. And, it goes without saying that the regional legislative delegation should place a very high priority on increased funding for technology-based research and development activity at the region's public universities. The payoff to such investments will not come immediately, but the experience of other regions strongly suggests that it is the surest way to change a region's relative prosperity over a decade or more.

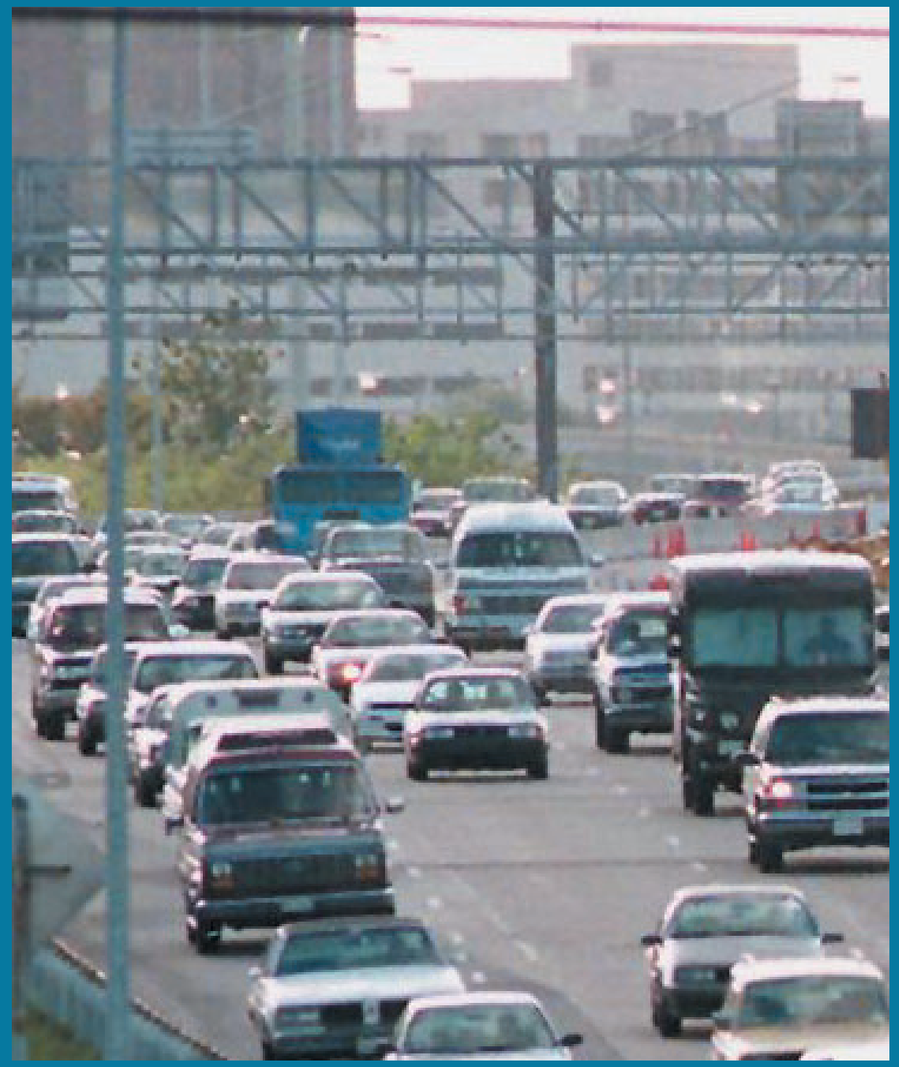
Candor requires the observation that what conceivably could be accomplished, however, has not been accomplished in the technology arena in Hampton Roads. As often is the case, technology policies in Hampton Roads have suffered from lack of unity and lack of prioritization. The time-honored bromide "United we stand and divided we fall" is a valid statement for the future of technology in Hampton Roads. A plethora of organizations and agencies exists in the region, and each provides some service to the technology community. One need only look at the "Technology ScoreCard" to know this is true. This compilation by the Hampton Roads Technology Council (HRTC) in 1998 lists 33 organizations focusing on some aspect of the region's technological base. The sheer number of organizations creates confusion.

The Hampton Roads Partnership comes as close as any organization in legitimately representing the interests of the entire Hampton Roads region. The Partnership completed a region-wide planning process in 1999 that resulted in the adoption of a Technology Strategic Plan that, if followed, would lead to a more rational and consolidated/coordinated regional technology approach. The Partnership has commissioned HRTC to implement this plan to the extent possible. Of course, HRTC neither can force federal laboratories to focus more attention on commercialization and technology transfer nor can it force universities to adopt common research agendas that make sense for Hampton Roads. And, it goes without saying that HRTC cannot force the regional legislative delegation to make sharp increases in the research and development funding of the area's colleges and universities. Nonetheless, it can promote discussion, rational interchange, sharing, cooperation and prioritization, and it has the ability to do so without reference to city labels and loyalties that too often in the past have prevented the region from uniting behind sensible initiatives that emerge from a particular city. What is good for Newport News in technology ultimately will be good for Norfolk, and vice versa. The region must think and act regionally if it is to succeed in the technology arena of the 21st century.

A prime example is the aforementioned University Research and Development Consortium, whose development has been stimulated by the Hampton Roads Partnership. It is an initiative with great merit and should be championed. It should develop a common research agenda for Hampton Roads universities in order to develop critical research mass. Natural points of common interest might include research topics related to the Applied Research Center; modeling and simulation topics related to the Virginia Modeling, Analysis and Simulation Center; and, topics related to the ocean and environment. In addition, the Consortium should find ways for all of the institutions to utilize unique research assets, such as Old Dominion University's supercomputer.

Another necessary element leading to the technological success of the region is the willingness of the Commonwealth and local governments to provide, through partnerships, taxes and other incentives, a business climate that will facilitate innovation and entrepreneurial risk-taking.

The continued addition of technology incubators throughout the region will help provide the culture that encourages innovation and risk. **Further, if Hampton Roads is to become a significant high-tech competitor and a nationally reputable technology star, it must find ways to increase the venture capital flowing into the region. Incubators and venture capital work hand-in-hand in promoting an entrepreneurial culture.** These efforts must be supported by the universities, government and private industry if they are to make a significant impact. These are not challenges for the region to undertake lightly and will require a great deal of cooperation and trust by all parties.



THE STATE OF TRANSPORTATION

What road do we take – literally and figuratively – to help solve our traffic congestion woes?

Rare is the resident of Hampton Roads who has not been frustrated by a traffic jam. Like many metropolitan regions, Hampton Roads relies heavily on its highway system for the transportation of individuals and freight. However, its growing population and burgeoning ports are straining that system. Highway congestion in particular has increased significantly in recent years and has generated proposals for new and expanded highways and preliminary consideration of alternative modes of transportation.

However, in contrast to many other regions, the response of Hampton Roads to this situation has been what experts term a "pavement" solution – build more roads. The epitome of this approach to the world is the nation's interstate highway system, which was designed to provide high-speed, efficient automobile transportation to the country. And, it did so, with great success. Nonetheless, as Bob Douglas, Maryland's chief highway design engineer put it, "the interstate era is over." Nearly all experts agree that the solution to the long-term transportation needs of the region cannot rely primarily on "pavement" and must include mass transportation and a variety of rail-oriented solutions, including light rail. Yet, discussions inside Hampton Roads continue to focus on the construction of more and better roads. Further, these discussions bog down when the "T Word" (taxes) is mentioned. Without a significant increase in revenues devoted to transportation, it will be impossible even to build the highways necessary to cope with increased congestion, much less construct mass transportation alternatives.

In addition, there is a "stealth" transportation issue on the horizon, namely, the possible construction of a "superport" airport south of the James River in Isle of Wight County. Such a facility might well require the closing of airports in Newport News and Norfolk, and the economic, locational and distributional impacts of such closings have largely been ignored.

The first step to understanding the transportation challenges facing Hampton Roads is to acquire accurate knowledge concerning where we are currently. Subsequently, this report sketches some of the alternatives available to the region and speculates about the future.

Highway Transportation

Among planning districts in the Commonwealth of Virginia, Hampton Roads has the greatest number of highway miles (see Table 1). Passenger vehicle and heavy-duty truck registrations in Hampton Roads reached 1,006,324 and 100,508, respectively, by 1997, an increase of 8.3 percent and 13.4 percent from 1993. These registrations are projected to increase by 200,000 by the end of 2000 (though only 19.9 percent for automobiles and an amazing 59.7 percent for trucks). Total daily vehicle miles traveled in the region are projected to increase 22 percent by 2018, from 30.2 million in 2000 to 36.9 million. Daily vehicle miles traveled by heavy-duty trucks in 1994 were 2.72 million; by 2018, this mileage is expected to increase 34.6 percent to 3.68 million miles.

Approximately 25 percent of all daily trips in Hampton Roads are work trips, generally occurring during rush hours, therefore contributing to highway congestion and the need for greater highway capacity. Nearly 90 percent of work trips are passenger vehicle trips (as opposed to walking and transit work trips); more than half occur within the boundaries of one jurisdiction; one of every six work trips involves car pooling; and the average vehicle occupancy is 1.1 persons per vehicle.

TABLE 1

Highway Miles for the Five Top-ranked Virginia Planning Districts, 1998

Planning District	Inter-State[a]	Primary[b]	Secondary[c]	Urban[d]	Other[e]	Total
Hampton Roads	129.80	415.33	2,116.10	4,504.46	27,667	7,193.35
Northern Virginia	92.69	413.55	4,071.09	614.65	40.09	5,232.07
West Piedmont	——	464.63	3,788.36	416.98	12.83	4,682.80
Richmond Regional	161.78	570.58	2,998.21	864.34	20.49	4,615.40
Mount Rogers	149.65	553.61	3,340.95	369.03	49.15	4,462.39

Source: Weldon Cooper Center for Public Service, Virginia Statistical Abstract, 1999-2000 Edition, 1999.

[a]Four-lane, divided highways, built largely with federal funds, that meet certain construction specifications, such as limited access and no traffic lights.

[b]Roads designed to connect major population centers with intercity and intercounty traffic.

[c]Roads intended to serve local traffic.

[d]Highway mileage belonging to towns within counties.

[e]For example, roads running parallel and connected to an interstate highway.92

Already by 1995, more than 300 highway miles in Hampton Roads experienced severe congestion, that is, traffic flow conditions in which travel speeds are low, traffic volumes exceed capacity and drivers experience stop-and-go conditions. **In the absence of new and improved highway, bridge and tunnel connections, travel in key corridors in Hampton Roads will become even more problematic by 2015, with 800 miles of roads qualifying as severely congested.** On the Peninsula, 25 percent of vehicle miles traveled during peak hours will experience severe congestion, compared to 6 percent in 1995. Southside numbers will be even higher at 29 percent, compared with 12 percent in 1995.

Proposed Building Projects

The Hampton Roads Metropolitan Planning Organization (HRMPO) is updating its Regional Transportation Plan (RTP) for 2020. The plan must include projects that meet air quality standards, and must address specific financial strategies to ensure the implementation of projects. Seven major projects have been studied and found to be technically feasible for the 2020 RTP.

Proposed Projects Regional Transportation Plan for 2020

- Hampton Roads Crossing
- Peninsula I-64
- Midtown Tunnel
- Route 460
- Southeastern Parkway and Greenbelt
- Norfolk-Virginia Beach Light Rail
- CSX Corridor Peninsula Light Rail

Although these projects have been designated as technically feasible by HRMPO, there are no true estimates on when they will be completed. If completed, the Hampton Roads Planning District Commission expects the projects will eliminate 54 percent of the region's severely congested highway miles.

At a projected cost of $2.4 billion, the Hampton Roads Crossing project ("the third crossing") would provide another bridge-tunnel connection between the Peninsula and the Southside. Possible alternatives include running parallel to the existing Monitor-Merrimac Memorial Bridge Tunnel (MMMBT), connecting I-564 to the

existing MMMBT, a new highway connection to the proposed Craney Island Marine Terminal and improvements to I-664. The crossing might reduce I-64 Hampton Roads Bridge Tunnel traffic by 26 percent.

The Peninsula I-64 project would provide interchange improvements, high-occupancy vehicle (HOV) lanes, and a fourth lane in each direction on I-64 between Jefferson Avenue and Route 199 at Busch Gardens. According to a study by the DCM Group, the project is expected to cost $1.3 billion and reduce travel time between Hampton and Richmond by 35 minutes.

The Midtown Tunnel project calls for a second tube to extend the Martin Luther King Freeway to I-264 at a cost of $650 million, allowing for traffic diversion between the Midtown and Downtown tunnels when one of them is congested.

The Route 460 project would provide a new interstate-type highway facility that runs parallel to the existing Route 460, from Suffolk to I-295 near Petersburg, as well as improvements to Route 58 between Bowers Hill and Suffolk. The project is expected to cost $1 billion, provide an alternative corridor to that of I-64 between Richmond and Hampton Roads, and reduce travel time along the Route 460 corridor by 18 percent.

The Southeastern Parkway and Greenbelt project would add a new highway between I-264 in Virginia Beach and the Oak Grove Connector in Chesapeake at a cost of $425 million, reducing traffic volume by 10 percent on I-64 near Greenbrier and by 15 percent on I-264.

The Norfolk-Virginia Beach Light Rail project would provide light (or streetcar) rail transit service along the existing Norfolk Southern railroad right-of-way between the Virginia Beach oceanfront and Norfolk, with a connection to the Norfolk Naval Base, at a cost of $975 million and projected daily ridership of 25,000 passengers. In separate referenda, Virginia Beach voters opposed light rail, while Chesapeake citizens supported it.

The CSX Corridor Peninsula Light Rail project would provide light rail transit service along the existing CSX railroad right-of-way between Hampton and Williamsburg at a cost of $600 million and projected daily ridership of 12,000 passengers.

The projected total cost of the seven projects is $7.4 billion; $3.2 billion would be borne by the region. The HRMPO is considering the following revenue sources to finance the latter: (1) an average toll of $1.50 on the Hampton Roads Crossing, the Hampton Roads Bridge Tunnel, the MMMBT and the Southeastern Parkway; (2) an average increase of 12 cents per gallon in the regional gas tax; and, (3) a toll of $1 on the new Route 460. The forecasted 20-year revenues from these sources are $1.5 billion, $1.5 billion and $200 million, respectively.

Congestion Management Systems

Federal regulations require that metropolitan areas with populations over 200,000 have Congestion Management Systems (CMSs) for reducing highway congestion and improving mobility and air quality. The Hampton Roads CMS is promoting these goals through highway expansion, an Intelligent Transportation System (ITS), the TRAFFIX program and the HOV system.

Federal funding sources for ITS programs include the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and the 1998 Transportation Equity Act for the 21st Century (TEA-21).

The regional TRAFFIX program offers transportation alternatives such as ridesharing, shuttle parking and van pool leasing programs to area commuters. In 1997, the TRAFFIX program was funded in part by $1.1 million from the region's Surface Transportation Program. HOV lanes are located on the Southside along I-64, I-264 and I-564 and are under construction on the Peninsula along I-64. The reversible HOV lanes of I-64 on the Southside carry 24 percent and 22 percent of corridor commuters in the morning and afternoon rush hours.

All of the previous efforts will improve automobile transportation in Hampton Roads and are worthy of support. However, taken together, they are "pavement"-oriented solutions that are unlikely to provide long-term solutions for Hampton Roads' transportation problems. In fact, the region must find the ways and means to move people out of their cars and off roads, rather than simply build more roads. Highway building often generates an "If you build it, they will come" effect. If we build more highways, or even make them more efficient, more people will choose to drive and use those highways. **All great urban areas ultimately come to rely upon mass transportation when they find that they simply cannot construct enough highway lanes to serve the needs of prospective drivers. It does not yet appear that Hampton Roads has arrived at this point of understanding.**

Intelligent Transportation System Programs

- traffic signal systems, computerized systems for timing traffic signals
- variable message signs, computerized signs along highways to promote driver awareness of current conditions
- the smart travel center, a regional traffic management center (operating 24 hours a day) that controls video cameras, embedded highway sensors and message signs to monitor traffic, inform motorists of highway conditions and assist in highway emergencies
- the video vehicle detection system, video devices installed at highly traveled intersections for use in improving traffic flow
- smart tag, an automated toll system on the Coleman Bridge

For-Hire Passenger Transportation

For many years, public transit services on the Southside and the Peninsula were provided by two separate agencies – the Tidewater Transportation District Commission, operating as Tidewater Regional Transit (TRT), and the Peninsula District Transportation Commission, operating as Pentran. On October 1, 1999, the two agencies merged into the Transportation District Commission of Hampton Roads, operating as Hampton Roads Transit (HRT). In the short run, HRT will consist of two operating districts – the Southside District (the former TRT service area) and the Peninsula District (the former Pentran service area).

As Table 2 indicates, from 1995-99, the number of bus and trolley passengers increased 28.6 percent and 119.4 percent, respectively, whereas ferry ridership decreased by 25.3 percent. Ridership of the Peninsula District bus transit service increased by 5.7 percent. In addition to HRT, James City County Transit also provides bus transit service in the region. Its ridership declined 13.2 percent over the same period.

In 1998, HRT, under contract with James City County Transit, began visitor shuttle service during the summer months in the James City County area. In late 1998, Hampton-Norfolk Fast Ferry began ferry service between the downtown areas of Hampton and Norfolk.

TABLE 2

Hampton Roads Transit Passengers

	HRT-Southside District			HRT-Peninsula District	James City County Transit
Fiscal Year	Bus	Trolley	Ferry	Bus	Bus
1995	7,049,380	469,300	485,700	6,169,818	80,955
1996	7,397,385	577,483	428,150	6,286,667	62,568
1997	8,101,368	771,344	431,817	6,267,017	71,470
1998	8,655,204	926,385	425,653	6,432,486	62,568
1999	9,065,062	1,029,662	362,867	6,523,258	70,259

Source: Statistics provided by Hampton Roads Transit and James City County Transit.

HRT's Southside District also provides three paratransit services: elderly/handicap, maxi ride and van pool. For the 1995-99 period, ridership for the three services increased 16.5 percent, decreased .5 percent and increased 6.3 percent, respectively. Ridership for all three services peaked in 1997 (see Table 3). The Peninsula District provides one paratransit service, handi-ride, which caters to the disabled; its ridership increased 10.3 percent during 1995-99. James City County Transit also provides a paratransit service catering to the disabled; its ridership, however, decreased 30.8 percent over the same time period.

ACCESSIBILITY PROPOSALS

HRT has proposed increasing passenger accessibility to public transportation in Hampton Roads through route deviation, HOV/express bus, intercity commuter shuttle and improved commuter access services. Route deviation service is a hybrid of transit and paratransit services, where vehicles deviate from fixed routes to pick up or deliver passengers and then return to their fixed routes. New HOV/express bus services are planned between: Virginia Beach/Chesapeake and the Norfolk Naval Station, Virginia Beach and Old Dominion University, and Chesapeake/Newport News Shipyard and Norfolk. Intercity commuter shuttle service is slated to be implemented between Williamsburg and Norfolk. Improved commuter access service increases the frequency of service on certain transit routes during rush hours. With the implementation of new services, HRT will also install new technologies in its transit vehicles: (1) automated vehicle locator systems that use global positioning satellites for detecting vehicle location; (2) a new radio system to provide real-time dispatching; and, (3) a new fare box system that uses smart card technology (where the fare is automatically deducted). The total cost of the HRT proposal is $21.7 million, $15.9 million in capital costs (80 percent funded by the federal government with a 20 percent state match) and $5.7 million in operating costs.

TABLE 3

Hampton Roads Paratransit Passengers*

	HRT-Southside District			HRT-Peninsula District	James City County Transit
Fiscal Year	Elderly/ Handicap	Maxi Ride	Van Pool	Handi-Ride	ADA**
1995	167,367	84,480	109,200	77,184	7,087
1996	172,664	77,648	77,070	84,254	6,162
1997	221,307	90,052	199,711	77,338	6,462
1998	205,939	88,305	89,586	77,230	5,652
1999	194,990	84,099	116,046	85,162	4,902

Source: Statistics provided by Hampton Roads Transit and James City County Transit.

***Passenger statistics for taxi (a paratransit) service for the region are unavailable.**

****Americans with Disabilities Act.**

INTERCITY RAIL

The region has access to Amtrak, intercity rail passenger service, in the cities of Newport News, Norfolk, Virginia Beach and Williamsburg. The service is provided over the CSX rail line. For 1995-99, the number of Amtrak passengers (total boardings and alightings) at Newport News increased from 119,710 to 156,281, at Norfolk from 259 to 15,813, at Virginia Beach from 153 to 10,781, and at Williamsburg from 39,576 to 48,324.

Several alternatives for improving intercity rail passenger service in the region have been analyzed. The locally preferred alternative consists of: improving the CSX rail corridor so passenger trains can attain maximum speeds of 110 miles per hour; increasing the number of passenger trains from two to six per day; constructing a second track with upgrades to the existing track; and providing rail stations with feeder bus service and enhanced parking facilities. The estimated cost of the proposal for the Richmond/Hampton Roads corridor (including new rail stations at Richmond International Airport, Providence Forge and Newport News/Williamsburg Airport) is $245.2 million.

AIRPORTS

Hampton Roads has two commercial airports – Norfolk International Airport (NI) and Newport News/Williamsburg International Airport (NNWI). For 1995-99, the number of scheduled airline passengers (arrivals and departures) at NI increased 11.7 percent, from 2,684,715 to 2,999,420 passengers, and the number at NNWI increased 20.5 percent, from 362,000 to 436,249. By comparison, more than 61 million passengers in 1998 traveled through the top-ranked U.S. airport, Hartsfield Atlanta International Airport. Passenger counts at NI and NNWI for the first quarter of 2000 exceed those for the first quarter of 1999 by .65 percent and 3.22 percent, respectively. Based upon airport master plans through 2015, capital expenditures for the 1998-2020 period for NI and NNWI are projected to reach $429 million and $240 million, respectively. The majority of the expenditures will be spent on runways, taxiways, off-airport roadways, terminal buildings and terminal parking.

The major long-term uncertainty on the airport horizon is the possibility that a new "superport" airport might be constructed south of the James River, perhaps in Isle of Wight County. Thus far, planning by the Commonwealth of Virginia has assumed that both the NNWI and NI airports would shut down if a superport were constructed. **While all residents of Hampton Roads would like to have access to more direct flights to major U.S. and foreign cities, the economic impact of closing down both the NNWI and NI airports would be large, perhaps devastating, on the communities they currently serve.** For example, it is not clear whether firms would be anxious to move to or expand in cities such as Newport News, Norfolk and Virginia Beach if they were located 70 miles and more than an hour away from the nearest significant airport. This is an issue that largely has slipped under the proverbial radar screens of Hampton Roads citizens.

Freight Transportation

Freight transportation in Hampton Roads consists of: (1) foreign water-borne freight movements, freight leaving the region and the U.S. by water for a foreign country (exports) and freight arriving in the region and the U.S. by water from a foreign country (imports); (2) interregional freight movements (between Hampton Roads and other U.S. regions); and, (3) intraregional freight movements (within Hampton Roads).

The Port of Hampton Roads consists of general-cargo, dry-bulk and liquid-bulk marine terminals with 30 piers. The three largest general-cargo marine terminals, Norfolk International Terminal, Portsmouth Marine Terminal and Newport News Marine Terminal, are owned by the Commonwealth of Virginia, managed by the Virginia Port Authority (VPA) and operated by Virginia International Terminals (VIT). Among U.S. East Coast ports, the Port of Hampton Roads is ranked second in general-cargo throughput to the Port of New York/New Jersey and slightly ahead of third-ranked Port of Charleston. It has 30 miles of on-dock rail trackage, serviced by Norfolk Southern and CSX railroads, and is located just 18 miles from the open sea with a 50-foot-deep channel, one of the deepest on the East Coast.

The foreign water-borne freight throughput of the port for 1994-98 increased 10.5 percent, from 50.4 to 55.7 million short tons. The greatest increase occurred in general-cargo throughput, an increase of 40.3 percent at VPA marine terminals, from 8 to 11.2 million short tons. **Containerized general-cargo throughput is projected to increase by more than 200 percent by 2010.** In 1998, coal was the top-ranked export, accounting for 82.2 percent of total export tonnage, whereas petroleum products were the top-ranked import, accounting for 27.8 percent of total import tonnage.

Four construction projects have been identified by the Hampton Roads Maritime Association for accommodating the projected growth in port throughput and maintaining the port's competitive advantage: (1) a 50-foot inbound segment of the authorized 55-foot channel project; (2) the Craney Island Marine Terminal, a fourth VPA general cargo/container terminal; (3) a third bridge-tunnel crossing connecting with the Craney Island Marine Terminal; and, (4) a new intermodal interlining area, a four-square mile area linking Norfolk International Terminal, I-64, airport operations at Naval Station Norfolk and Norfolk Southern rail service. The 2000 Virginia General Assembly addressed these projects in part by allocating $17.7 million for dredging and $2.35 million for a Craney Island study. VPA also plans to spend $419 million over the 2000-20 period for maintenance and improvements in its existing terminals.

Hampton Roads interregional freight movements are provided by rail, truck, water (primarily barge) and air transportation. Truck transportation is the predominant transportation mode for these movements, except for coal. Specifically, when coal is excluded, truck transportation accounts for 68 and 63 percent of inbound and outbound freight (in short tons) in the region, and rail transportation accounts for 24 and 19 percent. Water transportation accounts for 8 and 19 percent, and air transportation accounts for a mere .006 and .016 percent of inbound and outbound freight.

The major threat to interregional truck freight movements is trucker access to the Port of Hampton Roads. In the absence of new and improved highway, bridge and tunnel connections to better link Hampton Roads with other regions, Hampton Roads will become less and less time-accessible (thanks to increasing trip travel times) to container-truck traffic. If so, the loss in interregional container-truck traffic to other regions will have a dampening effect on the Port of Hampton Roads in particular, and the local economy in general.

The Future

Unless dramatic changes occur, Hampton Roads will experience future traffic problems that will dwarf anything seen thus far. Significant future growth in passenger-vehicle and heavy-duty truck traffic will occur. By 2020, the region will have 400 miles of severely congested highways even if the planned HRMPO (highway, bridge, tunnel and light rail) projects are completed. However, that is the "good news" scenario because the availability of funding for all of the HRMPO projects is unlikely. Further, the implementation of the proposed new HRT services is unlikely to significantly reduce this congestion. One problem is that heavy-duty truck traffic is projected to grow at a much greater rate than passenger-vehicle traffic. Hence, among planned HRMPO projects, priority should be given to construction of the Hampton Roads Crossing and Route 460 projects, the former to reduce highway congestion attributed to truck traffic and the latter to provide an alternative truck gateway to the I-64 Newport News gateway, which now accounts for almost half of the region's interregional truck traffic.

Knowledgeable observers believe that Hampton Roads' transportation future is clouded by two factors. First, political leaders typically have been reluctant to consider transportation projects that might require tax increases. Second, the citizenry of Hampton Roads has evidenced a disdain for mass transportation, including light rail, that is shortsighted if one is charitable, and almost suicidal for the region if one is pessimistic. **It appears that transportation inside the region will have to become truly dysfunctional, and involve massive congestion and delays, before citizens will give serious consideration to mass transit alternatives. It appears that this will occur in the 2010 to 2020 time frame. The cost of dealing with such a situation will be immense.**

Finally, there is the matter of the region's land transportation connections to the outside world. It has been said that Hampton Roads is located at the end of the longest cul-de-sac in the world. While this is no doubt an exaggeration, this acerbic observation underlines the salient fact that the region is off the beaten track in terms of major road and rail transportation systems. The region has mediocre road connections directly to the west and especially to the south, and there is the distinct possibility that a new East Coast high-speed rail system might travel down the I-95 corridor and leave Hampton Roads out in the cold. It appears that the most powerful card the region has to play in order to alter this outcome is the significant role of the military services in the region. For example, it does not make good sense to isolate the largest navy base in the world. Without such pressure being brought to bear, however, it seems likely that Hampton Roads would not be included in any East Coast rapid-transit scheme.

All things considered, the transportation outlook for Hampton Roads is not favorable. An honest assessment of the situation reveals that the region appears to be walking slowly and somewhat unknowledgeably down a lengthy path that, despite much road construction, will result in tremendous additional road congestion, mediocre mass transportation, the absence of a rapid transit connection to the I-95 corridor and the rest of the East Coast, and potential reliance upon a questionable "superport" airport located outside the region's boundaries. Alas, because transportation is so important, the end result likely will be comparative economic stagnation, lower than necessary inflation-adjusted incomes and a reduced quality of life.

THE STATE OF THE WORKFORCE

Is the workforce as good (or as bad) as they say?

Countries such as Japan and Luxembourg are not large, do not boast plentiful natural resources and must cope with high levels of population density. Nonetheless, both rank among the top 10 nations of the world in terms of per capita income and similarly are among the world's best with regard to other indicators of social health and prosperity, such as low rates of infant mortality and unemployment. What sets Japan and Luxembourg apart from other countries whose performances are much less impressive? A series of empirical studies suggests it is the quality of the Japanese and Luxembourger workforces that accounts for one of the most critical differences. Of course other factors, such as location and culture, also are important. Nonetheless, workforce quality is without question an extremely critical variable that differentiates nations – and regions – from one another.

It is not by accident that the composition and quality of the workforce in Hampton Roads has drawn major attention in recent years. Fortunately, a region's workforce is not an immutable constant. A region can change and improve its workforce through conscious policies, investments, incentives and penalties. This is important to bear in mind because the workforce of Hampton Roads, while praiseworthy in certain respects, is lacking in others. And, even if the workforce were precisely what the region needs today, changes might well be advised for next year, or even the following decade.

Some of the policy alternatives facing Hampton Roads will be discussed later in this section. First, however, it is appropriate to present some background information on the current Hampton Roads workforce, which is a starting point for any serious analysis of policy alternatives.

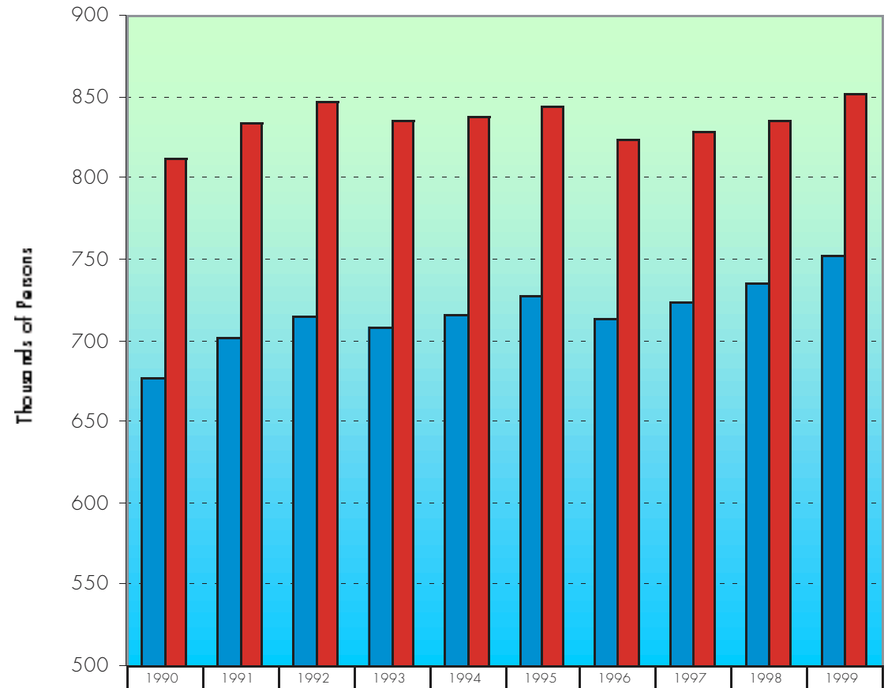
Size of the Hampton Roads Workforce

With a population approaching 1.6 million, Hampton Roads is the 27th largest metropolitan area in the United States. The region's population grew by 6.3 percent between 1990 and 1999 and lagged the U.S.growth rate of 9.3 percent by about a third.

As displayed in Graph 1, in 1999 the Hampton Roads labor force numbered more than 850,000 workers, or about 54 percent of the region's population. During the 1990s the aggregate labor force, including active-duty military personnel, grew by 5 percent, a rate slightly less than the population growth rate. Alternatively, the region's civilian labor force, which numbered roughly 750,000 workers in 1999, grew by 11.1 percent during the '90s, easily outstripping the country's 9.7 percent civilian labor force increase. The growth in the region's civilian workforce is a result of the considerable growth over the decade in the non-defense portion of the Hampton Roads economy, a trend many have overlooked. In fact, in 1990, active-duty military personnel accounted for 19.9 percent of the region's labor force, whereas in 1999 they comprised only 11.7 percent.

Given the dramatic decline in the military's portion of regional economic activity, one of the more remarkable characteristics of the Hampton Roads workforce over the past decade has been the continuous decline in the unemployment rate since 1992.

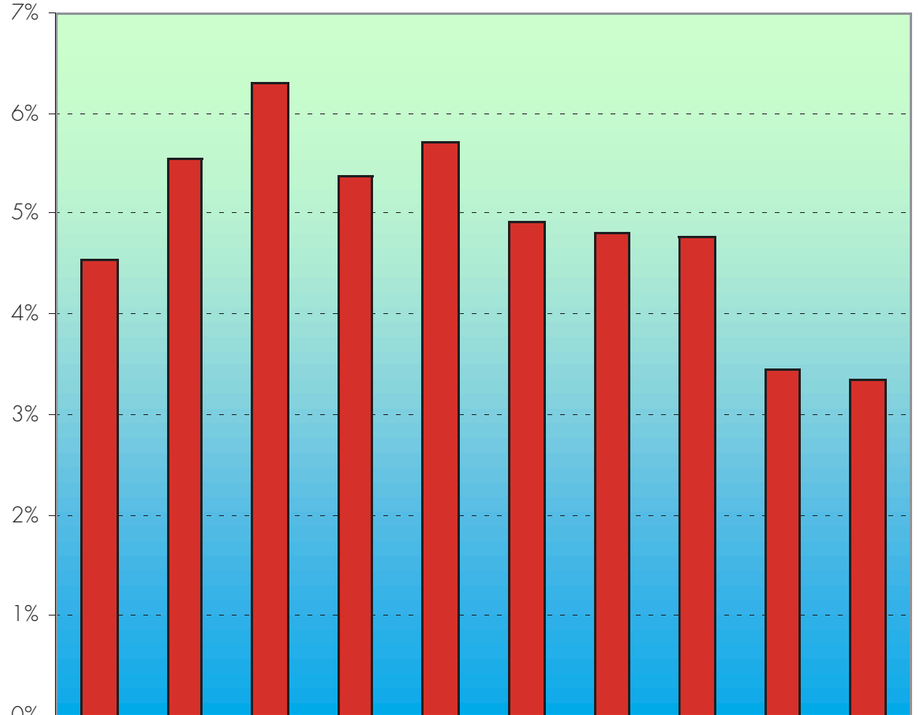
GRAPH 1
Hampton Roads Labor Force
1990-99



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
CIVILIAN LABOR FORCE (THOUSANDS)	677.17	701.70	715.08	708.49	716.81	728.37	713.06	724.03	735.01	752.52
LABOR FORCE INCLUDING ACTIVE-DUTY MILITARY (THOUSANDS)	811.82	834.14	847.29	835.53	837.70	843.96	823.52	829.15	834.72	851.72

Source: Old Dominion University Forecasting Project, U.S. Department of Labor, and U.S. Department of Commerce

GRAPH 2
Hampton Roads Unemployment Rate
1990-99

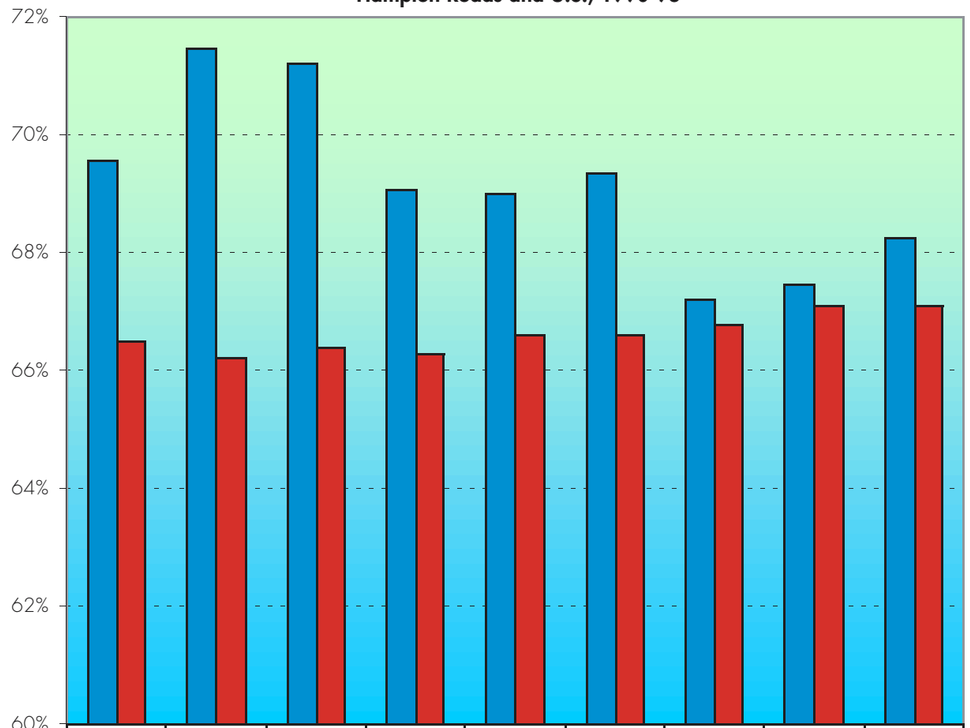


	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
UNEMPLOYMENT RATE	4.54%	5.54%	6.31%	5.39%	5.72%	4.94%	4.83%	4.79%	3.45%	3.35%

Source: U.S. Department of Labor

Graph 2 reports regional unemployment rates in the '90s. Contrary to the beliefs of some, and despite the considerable difficulty encountered by the region's economy in digesting defense cuts during the 1990s, Hampton Roads' unemployment rate was below that of the nation in every year of the decade. Its yearly average was about eight-tenths of a percent below that of the U.S. rate. For example, in 1999, the nation's unemployment rate was 4.2 percent, compared to 3.35 percent for the region.

GRAPH 3
Civilian Labor Force Participation — Rate Population 16 Years or Older
Hampton Roads and U.S., 1990-98



	1990	1991	1992	1993	1994	1995	1996	1997	1998
HAMPTON ROADS	69.6%	71.4%	71.2%	69.1%	69.0%	69.4%	67.2%	67.5%	68.3%
U.S.	66.5%	66.2%	66.4%	66.3%	66.6%	66.6%	66.8%	67.1%	67.1%

Sources: Old Dominion University Forecasting Project, U.S. Department of Labor and U.S. Bureau of Census

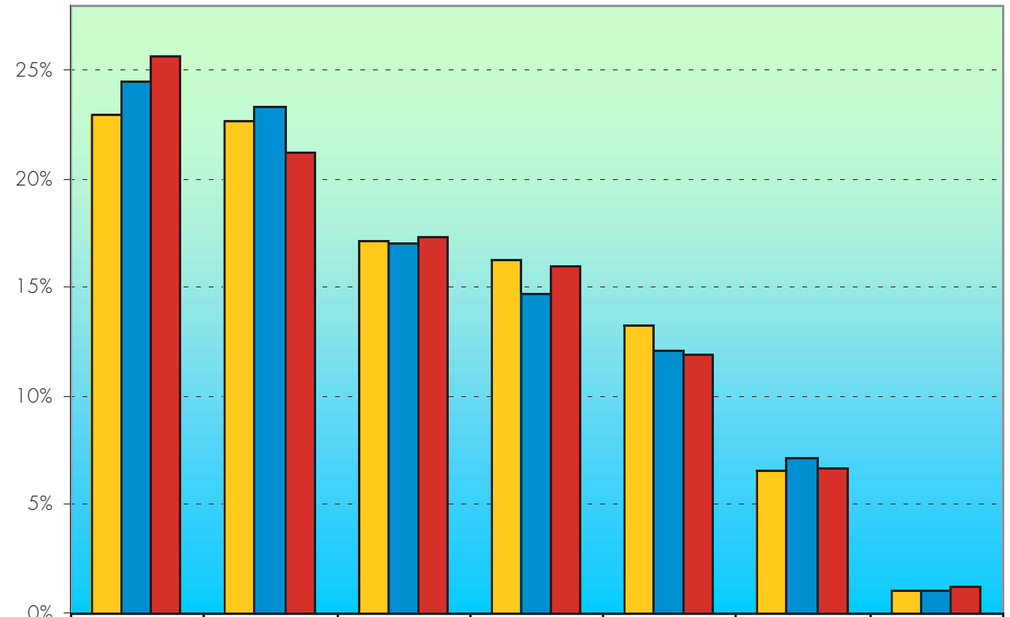
Hampton Roads' civilian labor force participation rate (LFPR), the proportion of people age 16 and over who actually are in the labor force, declined over the decade of the 1990s, while that of the nation rose slightly during the same period. As seen in Graph 3, the regional LFPR declined during most of the '90s, but still exceeded that of the nation during most years. It seems likely that a significant number of military personnel who prematurely retired because of defense downsizing spent some time retooling their labor market skills before entering the civilian workforce. Whatever the reasons for the downturn in the region's LFPR, this decline negatively affected the economic growth rate of the region. At least some portion of the decline in the region's per capita income (nominal or price deflated) from the early 1990s levels can be traced to the behavior of the region's LFPR.

The Virginia Employment Commission projects that the population of 15-64-year-old Hampton Roads residents will rise by 11.7 percent from 2000 to 2010. Given recent and projected patterns in the regional LFPR, this implies an increase in the Hampton Roads labor force of about 80,000 workers.

Occupational Characteristics

The occupational structure of Hampton Roads civilian workers is fairly similar to that of both Virginia and the United States, as seen in Graph 4. Hampton Roads employment is slightly more concentrated in the service- and sales-related occupations and less concentrated in production, construction and operating occupations, when compared to the distributions for Virginia or the United States. On the other hand, Hampton Roads has a greater concentration of professional, paraprofessional and technical workers. In particular, estimates by the Old Dominion University Forecasting Project, based on occupational data from the U.S. Department of Labor and "high-tech" job definitions from the U.S. Office of Technology Assessment and the National Science Foundation, indicate that Hampton Roads ranks in the top 11 percent of U.S. metropolitan areas for high-tech employment.

GRAPH 4
Distribution of Civilian Occupational Employment
Hampton Roads, Virginia and U.S., 1998



	Production, Construction, Operating	Professional, Paraprofessional, Technical	Clerical and Administrative Support Occupations	Service Occupations	Sales and Related Occupations	Managerial and Administrative Occupations	Agricultural, Forestry, Fishing
HAMPTON ROADS	22.97%	22.68%	17.19%	16.25%	13.29%	6.59%	1.02%
VIRGINIA	24.47%	23.34%	17.05%	14.73%	12.11%	7.21%	1.09%
U.S.	25.63%	21.24%	17.37%	15.95%	11.88%	6.67%	1.26%

Source: U.S. Department of Labor

Upon learning this, many observers wonder why the region's economic growth has not been higher. After all, isn't technology one of the keys to growth? The answer is, Yes, technology is a key. However, a considerable proportion of technology employment in Hampton Roads is federal and, as noted in other sections of this "State of the Region" report, technology transfer and privatization of innovations from federal installations has been disappointingly lacking. There has been little in the way of technology transfer from federal laboratories such as NASA Langley Research Center and the Joint Training, Analysis and Simulation Center in Suffolk, for example, and hence spinoff effects have been minimal.

Wages and Productivity

In 1998, Hampton Roads average nominal wages (unadjusted for price differences between geographical areas) for all occupations, including military and federal jobs, were 90.2 percent of the national average. U.S. Department of Labor nominal wage data, for both full- and part-time private industry and state and local government workers (excluding military and federal workers), indicates that Hampton Roads wages were 85 percent of the U.S. average that year.

TABLE 1
Average Nominal Wages of Full- and Part-time Workers, Private Industry, and State and Local Government by Selected U.S. Census Divisions as a Proportion of Average U.S. Wages
1997

Census Division	Wage Proportion
South Atlantic (Va., N.C., Md., S.C., Fla., W.Va., Ga. and Washington, D.C., CMSA)	90.1%
East South Central (Ala., Tenn., Ky., Miss.)	78.7%
Middle Atlantic (N.J., N.Y., and Pa.)	115.7%
New England (N.H., Maine, Mass., Conn., Vt., and R.I.)	112.4%

Source: U.S. Department of Labor

One factor associated with this difference in wages is geography. Displayed in Table 1 are average nominal wages in eastern U.S. Census Divisions as a proportion of the national average.

As a proportion of average U.S. wages, wages in the North significantly exceed those in the South. The Middle Atlantic Census Division reported the highest wage ratio of any census division in the nation. The current wage differential between the North and South in the eastern United States reflects long-standing historical and economic differences between the regions. Of course, there are also cost-of-living differences between the regions, and these are discussed below.

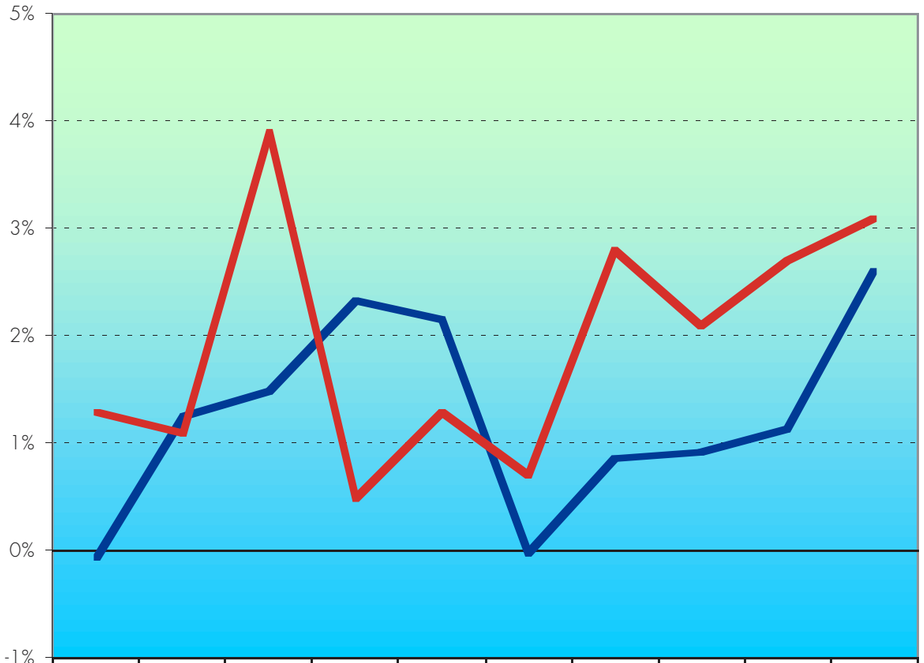
Given that large differences in income exist between the nation's regions, shouldn't the free movement of labor between regions neutralize these discrepancies over time? **There are at least three potential reasons why the South, including Hampton Roads, is likely to continue into the foreseeable future to have incomes that trail other regions.** First, labor unions are not as powerful in Hampton Roads as they are elsewhere. Like other areas in the South, Hampton Roads' workforce is far less unionized than that of the Northeast. A worker is roughly three times less likely to be a union member in Hampton Roads as in the Middle Atlantic Census Division. The lack of a substantive union presence probably has little effect on professional and technical occupations in Hampton Roads, where wages are close to the national mean. However, it may play an important role in the existence of wage differences in semi-skilled employees such as truck drivers, for whom wages in Hampton Roads are only 73 percent of the national average, or food service workers, whose wages are 81.7 percent of the national average. Workers in nonprofessional occupations with a relatively stronger union presence in Hampton Roads, including machine operators, assemblers and inspectors, earn wages 2 percent above the national average for this occupational group.

Second, there are cost-of-living differences between regions. The Old Dominion University Forecasting Project, using U.S. Chamber of Commerce price data, estimates that prices in the combined northern census divisions, as displayed in Table 1, were about 13.9 percent above the U.S. average in 1998, while prices in the combined southern census divisions were 1.7 percent below the national average. This means that the interregional wage gap, once adjusted for price differences, is much

smaller than that suggested by the nominal wage data. As is the case with unions, Hampton Roads is comparable to the overall southern census region with respect to prices. Specifically, in 1998 Hampton Roads' price level was 2.3 percentage points below the national average. As a result, adjusted for prices, the area's average real-wage level for all occupations was roughly eight percentage points less than the real-wage level of the northern census regions and very similar to the national average for price-adjusted wages.

The third potential reason for wage differences between regions has to do with labor force productivity. In particular, changes in productivity over time are critical to changes in the size of the interregional wage gap. Year-to-year changes in civilian labor force productivity for Hampton Roads and the nation over the 1990s are shown in Graph 5.

GRAPH 5
Year-to-Year Change in Civilian Labor Force Productivity
Output Per Hour, Hampton Roads and U.S., 1990-99



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
HAMPTON ROADS	-0.1%	1.3%	1.5%	2.3%	2.2%	0.0%	0.9%	0.9%	1.1%	2.6%
U.S.	1.3%	1.1%	3.9%	0.5%	1.3%	0.7%	2.8%	2.1%	2.7%	3.1%

Sources: Old Dominion University Forecasting Project and U.S. Department of Labor

Hampton Roads' average year-to-year change in workforce productivity was 1.11 percent per year in the '90s, compared to 1.95 percent for the entire country. During that decade, Hampton Roads' productivity increases exceeded those of the United States in only three years: 1991, 1993 and 1994. One possible explanation for this less than sterling performance is that during the reduction in defense expenditures within the region, employers, especially shipyards, were hesitant to eliminate workers, believing that it might be hard to rehire them later. As a result, workforce productivity, especially from 1994-98, may have been adversely affected. The sharp rise in the region's labor force productivity in 1999, by which time most of the effects of defense-spending cuts had been absorbed by local firms, lends support to this hypothesis. A less benign reason for the drop in productivity is the possibility that the quality of the region's workforce declined over the last five years of the decade.

Workforce Quality: Opinions of Employers

When queried publicly, employers typically have good things to say about the quality of the Hampton Roads workforce. In a survey commissioned by the Peninsula Alliance for Economic Development (completed in October 1999), the region's employers revealed that:

- There is good availability of workers in most skills;
- They have success in recruiting managers and professionals from outside the region;
- They experience low employee turnover and absenteeism; and
- Employee productivity is high and the typical employee work ethic is good.

These findings, however, are not consistent with two other data sources. First, many employers complain privately that they cannot attract and retain a sufficient number of qualified employees, particularly in positions that emphasize technical and information technology skills. **Despite the positive test performance of Hampton Roads students on the Literacy Proficiency Test, some employers deplore the quality of the high school students and new graduates they must employ, asserting that a significant number of them cannot read well enough to follow written directions, cannot write coherently and are incapable of applying low-level math skills, including making change at a cash register.** Further, many employers privately complain that new entrants into the labor force (typically high school students or recent graduates) often lack sound work habits, exhibit low levels of loyalty to their employer and frequently do not get to work on time, or even appear at all.

No doubt some of these complaints reflect the significant tightening of labor markets, both nationally and regionally. Relatively speaking, new "marginal" workers in the labor force are less likely to be as talented, consistent and motivated as more experienced workers, especially those with families and military experience.

Second, employers' public praise of the quality of the Hampton Roads workforce is belied by data that report the performances of Hampton Roads students on externally validated examinations such as the Commonwealth's Standards of Learning (SOL) and the Scholastic Aptitude Test (SAT). While many individuals acknowledge concerns about the SOL and SAT, they do function as rough measures of the quality of a student's academic background and preparation, though not necessarily as measures of his/her ultimate potential with cultivation.

In virtually every city except Chesapeake and Virginia Beach, Hampton Roads K-12 students fall below Virginia averages in terms of their percentile rankings on the SOL exams. The final and most critical tale, however, is told by the high school end-of-course SOL assessments. This (see Table 2) is not a happy result because it suggests that the labor market talents of Hampton Roads high schoolers are below average for Virginia and that these students are relatively less prepared for postsecondary education than others in the state. These are harsh facts, but important ones to keep in mind as the quality of the Hampton Roads workforce is discussed.

TABLE 2

SOL Test Results for Hampton Roads Schools, Fall 1999

Grade 4		Percentile Rank			
School Division	**% Students Taking Test**	**Total Reading**	**Total Math**	**Language**	**Partial Battery**
Virginia	96	52	57	57	56
Chesapeake	96	53	59	63	58
Hampton	95	42	52	47	48
Newport News	96	41	45	43	44
Norfolk	95	38	45	47	44
Portsmouth	95	33	32	43	37
Suffolk	95	39	46	49	45
Virginia Beach	98	49	59	58	55
Grade 6					
School Division	**% Students Taking Test**	**Total Reading**	**Total Math**	**Language**	**Partial Battery**
Virginia	95	59	62	53	60
Chesapeake	95	57	59	54	58
Hampton	97	49	54	45	51
Newport News	96	50	54	44	52
Norfolk	89	44	48	36	46
Portsmouth	94	39	34	39	39
Suffolk	94	49	57	49	53
Virginia Beach	98	59	61	52	59
Grade 9					
School Division	**% Students Taking Test**	**Total Reading**	**Total Math**	**Language**	**Partial Battery**
Virginia	92	60	65	50	56
Chesapeake	91	59	51	51	54
Hampton	92	57	48	48	52
Newport News	94	51	44	40	47
Norfolk	73	42	33	34	38
Portsmouth	87	43	36	37	41
Suffolk	87	42	35	32	39
Virginia Beach	95	60	55	49	56

Source: Based on data from the Virginia State Assessment Program, 1999 Detail Report, Table B, Stanford 9, Fall 1999 Division Results – National Percentile Ratings, Virginia Department of Education. Available on the World Wide Web: http://www.pen.k12.va.us/VDOE/Assessment/VSAPreport/1999/

As Table 3 reveals, SAT scores in Hampton Roads generally are below both Commonwealth and national averages. Indeed, not one of the seven largest cities in Hampton Roads has high school students who, on average, score more than 1,000 on the SAT. Since the Virginia average is 1,007 and the national average 1,016, this suggests that the complaints of some Hampton Roads employers about the region's high school graduates have some validity. To the extent that one believes the SAT measures legitimate aspects of academic preparation, Hampton Roads is likely to encounter problems with the quality of its workforce, or at least its employers are more likely to be forced to engage in more significant training and monitoring of new employees than might be true elsewhere in Virginia or the nation.

TABLE 3

SAT Scores for Hampton Roads, 1999

School System	Verbal	Math
Chesapeake	485	472
Hampton	474	457
Newport News	n.a.	n.a.
Norfolk	446	436
Portsmouth	n.a.	n.a.
Suffolk	455	419
Virginia Beach	504	493
State Average	508	499
National Average	505	511

Sources: The Virginian-Pilot, "Average SAT scores for Virginia students show little change," September 1, 1999, p. A3.
"Hampton SAT Scores on the rise." Retrieved July 4, 2000, from the World Wide Web: http://www.sbo.hampton.k12.va.us/Whywerethe1stChoice/ontherise.htm
Virginia Beach information based on data from Tables 2.19 and 2.20 "Scholastic Assessment Test (SAT I)," Office of Accountability, Virginia Beach City Public Schools. Retrieved from the World Wide Web: http://www.vbcps.k12.va.us/satschoo.pdf

Workforce Quality: Education

Eighty-one percent of the Hampton Roads adult population has attained at least 12 years of education. According to the most recent reliable data, the 1990 U.S. Census recorded the average level of education in Hampton Roads at 13.1 years and the proportion of workers with a college education or greater at 25.2 percent. These figures are comparable to other U.S. metropolitan areas.

As seen in Table 4, Hampton Roads public universities and four-year colleges graduate about 7,000 students at all degree levels annually. Between 1995 and 1999, the total number of graduates (bachelor's, master's and doctoral degrees) from these Hampton Roads institutions rose by 3.5 percent, while in Virginia total graduates from public institutions rose by a comparable 2.8 percent.

TABLE 4

Degree Production of Hampton Roads Public Universities and Colleges by Degree Type 1994-99

Degree	1994-95	1995-96	1996-97	1997-98	1998-99
Bachelor's	4742	4796	4594	4698	4906
Master's	1797	1994	1940	1983	1999
Doctoral	119	123	112	130	126
TOTAL	6658	6913	6646	6811	7031

Source: Virginia State Council of Higher Education

Competition among the various school districts in the region for K-12 teachers, driven by the growth in the emerging workforce, has driven the districts to use incentives and a signing bonus to attract scarce teachers.

Regional school districts vary widely in their use of information technology (IT) to support curriculua. Contrary to often expressed views, IT courses do not necessarily need to be added to the curriculum. Rather, IT needs to be better integrated into existing curricula for all students, regardless of the course of study, to more accurately reflect the way IT is integrated into the operations of the modern workforce. Interestingly, studies have shown that the single most important determinant of the role technology plays in individual schools is the commitment of the principal, and not, as many argue, funding, location or demographics. The IT Commission appointed by the governor of Virginia recommended,

among other things, that Virginia's public higher education institutions should agree on a graduation requirement of a common set of competencies which includes fundamental understanding of digital technologies (hardware, software, communications, networking, etc.).

In Virginia, the community colleges have been singled out for a special role in workforce preparation. However, unlike the majority of our competitor states, Virginia did not begin funding noncredit workforce training until 1998, and the Commonwealth still provides very limited financial support in that regard for the Virginia Community College System. Training programs are required to be essentially self-supporting.

Workforce Issues

UPDATING THE CURRENT WORKFORCE

Rapidly changing technology is rapidly changing the skill requirements for almost all specialties, and industry expects training and teaching organizations to adapt just as quickly. In an information-oriented economy, workers have to learn and update specific job knowledge and skills on a continuous basis, including problem-solving and teamwork skills. Workers are no longer guaranteed long-term employment and must be more aggressive in keeping skills updated. Community colleges are especially ideal places for workers to update their skills, as are certification programs in areas such as information technology, court reporting, teacher training and so forth.

SKILLS VERSUS EXPERIENCE

It is said that experience is the best teacher. Insofar as Hampton Roads is concerned, this may be advantageous because of the large number of military veterans who live in the region. However, information technology (IT) has become so embedded in some manufacturing and service occupations that approximately 80 percent of national output now relies on significant amounts of these technologies. Unfortunately, IT employers assert that new entrants to the IT field are acceptable for only 20-25 percent of their vacant jobs. Thus, the acquisition of experience is essential. One way to gain experience is through internships and cooperative experiences. Industry, as well as educational institutions and other training providers, tends to underemphasize technical internships. A notable exception is Old Dominion University, which boasts of being the only doctoral university in the country to guarantee every undergraduate student an internship or cooperative education experience. More educational institutions would do well to follow this example.

While there is considerable federal employment in Hampton Roads, federal contractors often have difficulty finding workers who meet unrealistic federal education and experience requirements. Even when such workers are available, federal compensation is limited by wage-scale ceilings that often are 25-50 percent lower than private scales.

NEED FOR PLANNING AND COORDINATION

The Hampton Roads Partnership completed a strategic planning process in mid-1999, which, among other things, examined the value of a concerted regional effort to support the Virginia Spaceport at Wallops Island. Combined with the region's ports, transportation capacity and information technology resources, success in such an endeavor could move the region forward in the quest for higher-paying technology-related jobs. However, the strategic plan also recognized that Hampton Roads has no region-wide workforce development system. **In an information age when networking of systems, businesses, individuals and organizations is the watchword, the entities within the region, for the most part, still demonstrate a "silo" mentality.**

The Virginia Peninsula subregion has been involved for the past nine years in a series of efforts to coordinate workforce development efforts in North Hampton Roads. The Peninsula Alliance for Economic Development in 1999 funded a position to coordinate Peninsula workforce development efforts. West Hampton Roads has been involved in a two-year effort, under the leadership of Paul D. Camp Community College, to develop a strategic plan and coordinate local efforts. South Hampton Roads has had little coordinated effort regarding workforce development.

The Federal Workforce Development Act of 1998 established a structural framework for coordinating these efforts. The state is charged with establishing a workforce investment council, or board, to provide statewide oversight and direction, including a five-year strategic plan. One-stop centers for service delivery are mandated, requiring the silo-oriented local, state and private service agencies and providers to coordinate seamless delivery to the workforce. Local workforce delivery service areas are being identified statewide in response to the Act, and local workforce investment boards were to be established by June 30, 2000. It is not yet clear whether these administrative actions will be matched by behavior that increases or improves the supply of workers.

It is not unusual for a worker living in North Carolina or South Hampton Roads to commute to the Virginia Peninsula for work with large employers like Newport New Shipbuilding, Canon, Lucas Industries and others. Nonetheless, the Peninsula is establishing its own workforce development board, and the Hampton Roads Partnership and Hampton Roads Chamber of Commerce are coordinating the formation of a separate workforce development council representing West and South Hampton Roads. The charter of these boards and councils is to develop a workforce development system that meets the employer's need for trained and qualified workers, and the worker's need to acquire the skills necessary to effectively compete for jobs. It remains to be seen if these efforts result in concrete advances that expand or improve the workforce.

Several important workforce improvement opportunities exist. Hampton Roads, of course, is the home of the largest naval base in the world, and a variety of other military installations are also located here. Each year, thousands of people from these installations leave military service. They constitute a potential workforce that most employers, presumably, would fall over themselves to attract. However, many of these individuals choose to leave Hampton Roads without ever having been approached by the region's employers. Both the U.S. Navy and regional employers would benefit from mechanisms which would enable "soon to be" military veterans to learn about workforce opportunities within the region. Where such programs exist, they have been quite successful (for example, Old Dominion University's Military Career Transition Program has graduated more than 1,200 new teachers, a majority of whom remain in Hampton Roads).

Military personnel leaving active duty are generally well-trained and highly motivated. Most already have the security clearances in demand by federal contractors. In a time of record low unemployment, in a region seeking more high-technology jobs, it would appear unwise to permit this exodus to continue. At the very least, the region would benefit from knowing why military veterans choose to leave and what it would take to entice them to remain. It seems that getting a handle on this situation should become a priority of Workforce Investment Act initiatives.

Finally, until the workforce development planning efforts within the Hampton Roads MSA are coordinated on a truly regional level, extra expense, duplication of bureaucracy and intraregional one-upmanship are likely to continue.

Future Challenges

The Hampton Roads workforce is exceedingly diverse. It is neither as good as some regional boosters claim, nor as bad as some disappointed employers assert. The workforce includes not only the highly trained engineers and scientists who toil at federal laboratories and universities, and tens of thousands of military veterans who as a group are productive, experienced, loyal and dependable, but also a substantial number of individuals whose labor market talents are minimal and whose work habits are undeveloped. Comparatively low rates of student success on the Commonwealth's SOL exams and lower than average SAT scores roughly measure certain aspects of this phenomenon.

The challenges for the future are:

(1) finding ways to attract and retain military personnel who leave active duty;

(2) developing ways to improve the labor market skills of graduating high school students and dropouts;

(3) training a sufficient number of information technology personnel to fill the burgeoning needs of Hampton Roads employers;

(4) retaining as many as possible of the more than 7,000 students (particularly those in engineering and the sciences) who graduate each year from the region's institutions of higher education;

(5) attracting and retaining high-quality K-12 teachers;

(6) improving the quality of the educational experiences received by Hampton Roads K-12 students and bringing their achievements to national average levels; and,

(7) placing greater reliance on the region's three community colleges to retrain and upgrade the regional workforce, and to provide an open door for an increasingly large proportion of the region's high school graduates.

THE STATE OF HEALTH

Are we (really) healthy?

As a region, Hampton Roads has worked hard to increase the number and quality of its medical facilities. The merger of Sentara and Tidewater Health Care sealed Sentara's position as the region's largest health care provider and forced it to rise to the challenge of offering excellent, efficient medical care. It has proven itself by attaining a ranking of 6th among all of the health networks in the nation, its third consecutive year in the top 10. Only two other health care systems have been named to the top 10 list for this many years. In addition, Sentara Norfolk General Hospital was the only medical facility in southeastern Virginia or northeastern North Carolina to earn a spot in the *U.S. News & World Report* rankings of America's best hospitals. It was particularly noted for its excellence in cardiology and rheumatology. In addition to Sentara, Hampton Roads is home to 13 not-for-profit hospitals. Specializing in everything from oncology and orthopedics to pediatrics and sports medicine, they offer residents expert care in all areas of medicine, at all hours of the day.

New facilities and renovations also are in the works. In Suffolk, Obici Hospital has plans for a $74.6 million facility to expand its medical units and accommodate a greater number of patients. A $14 million Bon Secours Health Center also opened in the city to provide more comprehensive outpatient services, including an ambulatory surgery center, diagnostic center and physician's offices. One of the largest hospital projects is the $330 million replacement hospital for the federally owned Portsmouth Naval Hospital. As the largest Navy medical facility in the world, the hospital currently includes more than 330 beds, 700 outpatient-examining rooms, new equipment and other new buildings. While these are just a few examples, it is apparent that Hampton Roads has been highly responsive to the demands for improved medical care.

But how are we doing as individuals? Just how healthy are the citizens of Hampton Roads? In fairly good health, actually, though the answer truly depends on which indicators of health one focuses. Because there is not unanimous agreement on which measures of health are most important, assessments of health status are somewhat of a subjective matter. Traditional indicators include birth and death rates, life expectancy and leading causes of death. However, these indicators often do not reflect phenomena such as behavior, injury, violence and accessibility to health care, which clearly impact health status outcomes. Hence, this section is based on the findings of Healthy People 2010, a report that addresses the major health concerns of the nation decade by decade and serves as a health agenda for the United States, and its "Leading Health Indicators," a set of key health issues identified by the Office of Public Health and Sciences, U.S. Public Health Service agencies and the U.S. Department of Health and Human Services which takes into account both traditional indicators and an assessment of behavioral and social factors.

The indicators address consensus major public health concerns in the United States, as well as individual behaviors and health system issues that often affect the health of individuals and communities. When we measure a state or a region against these indicators, we can gain an understanding of the health of that state or region, and in the process generate interest in public and private measures that might improve public health.

Now, let's proceed with our checkup for Hampton Roads.

Physical Activity

Physical fitness is an important health indicator because it can help one maintain a healthy body and prevent premature death. Regular physical activity lowers the adult death rate by decreasing the risk of heart disease. In the United States, total cardiovascular disease mortality ranks as the leading cause of death. Eighty-four percent of heart disease deaths occur in people 65 and older, making it the number-one killer among the elderly. This trend also is apparent at both the state and regional level. In 1998, heart diseases were responsible for 15,820 lives in Virginia, a rate of 234.1 deaths per 100,000 people. This rate is higher than that of the Hampton Roads region, which had 3,324 heart disease-related deaths in 1998, or a rate of 210.4 per 100,000. Data for the individual cities and counties of Hampton Roads are depicted in Table 1.

Mathews County had by far the highest rate of heart disease at 575.5, followed by the City of Williamsburg, which showed a rate of 396.4 deaths per 100,000 people. Without question, a number of these deaths could have been prevented. Medical research has consistently shown that routine physical activity can increase muscle and bone strength and heighten the amount of lean muscle in the body. In addition, exercise can foster the likelihood of weight control. All of these factors combined can promote the longevity of life. The mortality rate for people with a low level of physical fitness is twice that for those who have even a moderate regimen of exercise.

TABLE 1

Heart Disease Rate of Hampton Roads, 1998

	Diseases of Heart	Heart Disease Rate (Per 100000)
State (Va.)	15,820	234.1
Gloucester	102	273.4
Isle of Wight	66	224.3
James City	97	228.4
Mathews	50	575.5
York	81	168.3
Chesapeake	345	189.8
Hampton	344	244.9
Newport News	428	234.9
Norfolk	621	241.5
Poquoson	29	231.7
Portsmouth	323	313.2
Suffolk	183	315.3
Virginia Beach	606	130.1
Williamsburg	49	396.4
Hampton Roads Total	3,324	210.4

Source: Virginia Health Statistics, Virginia Department of Health, Center for Health Statistics, 1998, http://www.vdh.state.va.us/stats

Obesity

There are increasing calls for a comprehensive national effort to curb the epidemic of obesity in this country. An individual is considered to be obese when his/her weight is a minimum of 20 percent above the "normal" body weight recommended on standard weight charts. Obesity is a leading indicator of health because it has the potential to raise the risk of high blood pressure, stroke, gallbladder disease, diabetes, breathing problems and cancer. Indeed, the problem is particularly critical with respect to "Type Two" diabetes, which exploded from 4.9 percent of the American population to 6.5 percent in the 1990s. A stunning 70 percent increase occurred among Americans ages 30-39.

Obesity rates have continued to soar over the years. In 1991, only 12 percent of the American population was considered obese; by 1998, it was 20 percent. Maryland, Virginia, Florida and Georgia showed the greatest increase of obesity – a startling 67 percent – during this period. Georgia, at 103 percent, had the largest percentage increase of all states, followed by New Mexico at 88 percent and Virginia at 80 percent. In Virginia, the percentage of obese adults increased from 10.1 percent to 18.2 percent between 1991 and 1998. The percentages of obese adults for all states are shown in Table 2.

The data are even worse for Hampton Roads. A 1997 study revealed that this region had the second-highest rate of obesity among all metropolitan areas in the country, 33.94 percent. Hampton Roads was second only to New Orleans, which had a rate of almost 38 percent. Since obesity is connected to a host of collateral health problems, including diabetes and heart attacks, this does not bode well for the typical resident of Hampton Roads.

TABLE 2

Percentage of Obese Adults by State	1991	1998	% Change in Affected Population
Georgia	9.2	18.7	103.3
New Mexico	7.8	14.7	88.5
Virginia	10.1	18.2	80.2
Washington	9.9	17.6	77.8
Maryland	11.2	19.8	76.8
Utah	8.7	15.3	75.9
Florida	10.1	17.4	72.3
California	10.0	16.8	68.0
Colorado	8.4	14.0	66.7
Missouri	12.0	19.8	65.0
Oregon	11.2	17.8	58.9
Alaska	13.1	20.7	58.0
Alabama	13.2	20.7	56.8
Massachusetts	8.8	13.8	56.8
New Jersey	9.7	15.2	56.7
Kentucky	12.7	19.9	56.7
Texas	12.7	19.9	56.7
Montana	9.4	14.7	56.4
Tennessee	12.1	18.5	52.9
West Virginia	15.2	22.9	50.7
Minnesota	10.6	15.7	48.1
Hawaii	10.4	15.3	47.1
South Carolina	13.8	20.2	46.4
North Carolina	13.0	19.0	46.2
North Dakota	12.9	18.7	45.0
Oklahoma	12.9	18.7	45.0
Vermont	10.0	14.4	44.0
New Hampshire	10.4	14.7	41.3
Illinois	12.7	17.9	40.9
Wisconsin	12.7	17.9	40.9
Maine	12.1	17.0	40.5
Mississippi	15.7	22.0	40.1
Nebraska	12.5	17.5	40.0
Idaho	11.7	16.0	36.8
Michigan	15.2	20.7	36.2
Connecticut	10.9	14.7	34.9
Iowa	14.4	19.3	34.0
Pennsylvania	14.4	19.0	31.9
Indiana	14.8	19.5	31.8
Ohio	14.9	19.5	30.9
Louisiana	16.7	21.3	27.5
New York	12.8	15.9	24.2
South Dakota	12.8	15.4	20.3
Arizona	11.0	12.7	15.5
Delaware	14.9	16.6	11.4

Source: USA Today, March 5, 1997, "New Orleans tops scales for obesity."

Tobacco Use

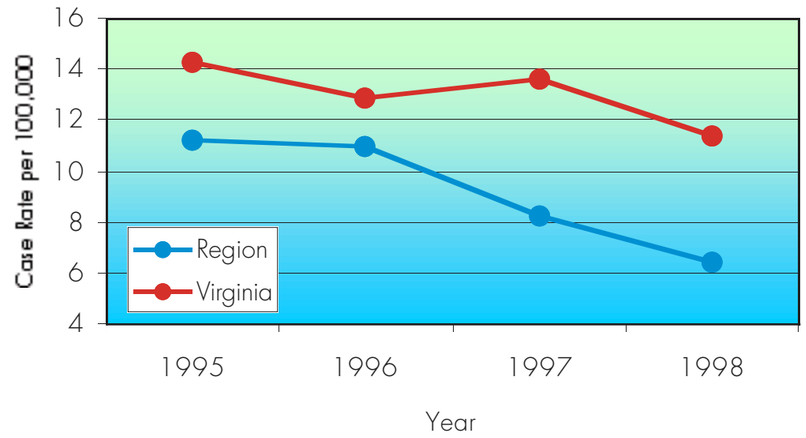
The use of tobacco is also a leading health indicator because research has proven that smokers are 10 times more likely to die as nonsmokers. Smoking doubles the risk of heart disease and is a primary cause of setbacks, such as bronchitis and emphysema. It accounts for 19 percent of all deaths in the United States. Tobacco-related deaths exceed 430,000 annually in this nation, costing 5 million years of potential life and $50 billion in direct medical costs.

Recent judicial actions and initiatives by the federal government are designed to cut youth smoking and thereby reduce smoking-related deaths by 46 percent in Virginia alone by 2004. In theory, between the years 2000 and 2004, 90,800 of Virginia's youth would be kept from smoking, and 29,100 spared a premature tobacco-related death. For Hampton Roads, the numbers would be 25,000 and 9,000, respectively.

Substance Abuse

The inappropriate use of alcohol and drugs is associated with many social health problems, such as sexually transmitted diseases, unwanted pregnancy and suicide, making substance abuse a leading health indicator. In fact, 5 percent of all deaths in the United States each year are attributed to alcohol alone. However, there is encouraging news in this arena for Hampton Roads. Although substance abuse is becoming a problem among youth on the national level, the number and rate of hospital discharges due to substance abuse has declined steadily since 1996 for children 18 and under in Hampton Roads. The rate was 11 discharges per 100,000 children in 1996, 8.2 in 1997 and 6.4 in 1998. This rate has also decreased for the state, but less rapidly. The rate of discharges due to substance abuse among children was 12.8 per 100,000 for the state of Virginia in 1996, 13.6 in 1997 and 11.4 in 1998. This trend is more clearly depicted in Graph 1.

GRAPH 1
Substance Abuse, Hospital Discharge Rate per 100,000
Children Age 0-18, 1995-98



Source: The Consortium for Infant and Child Health (CINCH), Report on the Health of Children in Hampton Roads, 2000.
http://www.pediatricresearch.org/cinch

Sexual Behavior

Irresponsible, unprotected sexual behavior is the major cause of unintended pregnancies and sexually transmitted diseases, including AIDS and HIV infection. However, greater reliance on abstinence and contraception has resulted in a steady decline in teenage pregnancy rates in the United States for the past seven years. The adolescent birth rate dropped to a record low of 30 births per 1,000 girls (ages 15-17) in 1998, showing a steady decrease from the rate of 39 births per 1,000 in 1991. This descending trend is also apparent at both the state and regional level. Teenage birth rates have declined almost 20 percent in Virginia since 1991. In 1998, total teenage pregnancies for all girls (ages 10-19) equaled 15,663, or a rate of 34.1 pregnancies per 1,000 girls. This rate has gone down every year since 1989, when the state's rate of teenage pregnancy was 47.4 per 1,000 girls. Concentrating exclusively on girls ages 15-17, the teen pregnancy rate was 41.8 per 1,000 girls in 1998, which is much higher than that for the entire country.

TABLE 3

Teen Pregnancy per City and County in Hampton Roads, 1998

	# Teenage Pregnancies	Female Pop. Age 10-19	Preg. Rate, per 1,000 Age 10-19
State (Va.)	**15,663**	**459,326**	**34.1**
Gloucester	71	2,873	24.7
Isle of Wight	58	1,977	29.3
James City	45	2,769	16.3
Mathews	13	505	25.7
York	68	3,936	17.3
Chesapeake	519	13,930	37.3
Hampton	70	10,507	6.7
Newport News	678	13,646	49.7
Norfolk	1,081	17,404	62.1
Poquoson	8	938	8.5
Portsmouth	436	7,261	60.0
Suffolk	197	4,192	47.0
Virginia Beach	1,052	35,984	29.2
Williamsburg	45	1,407	32.0
Hampton Roads Total	**4,341**	**117,329**	**37.0**

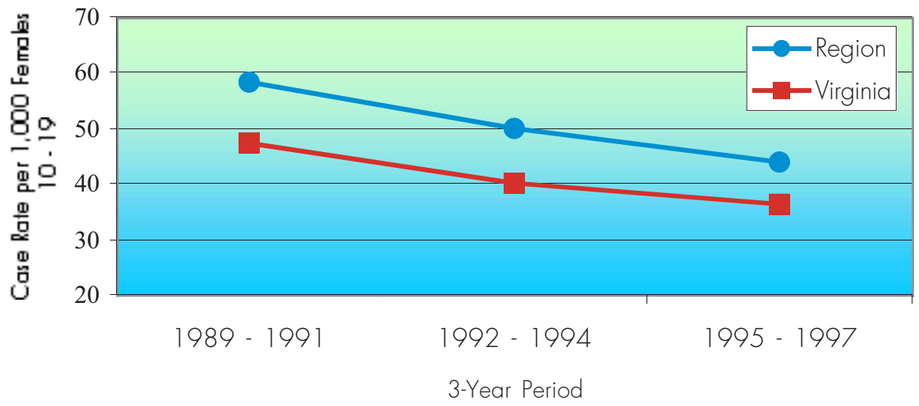
Source: Virginia Health Statistics, Virginia Department of Health Statistics, 1997-98, http://www.vdh.state.va.us/stats

On a regional level, the number of teenage pregnancies in Hampton Roads reached 4,431 in 1998, or 37 per 1,000 girls. While this rate has shown improvement since 1989, when the pregnancy rate was 58.4, Hampton Roads still appears worse than the state in regard to teen pregnancy. This trend is more clearly shown in Graph 2. A list of data for all the cities and counties in the region is also exhibited in Table 3.

Teenage pregnancy often has a negative impact on the infant mortality rate because young mothers frequently give birth to low-birth-weight infants. The 1998 infant mortality rate of 7.2 deaths per 1,000 live births remained the same as the previous year for the United States. This national rate is only slightly better than Virginia's 7.4 rate. However, the Commonwealth's mortality rate has been falling constantly since 1989 ,when it was recorded at 10 deaths per 1,000 infants. Unfortunately, the infant mortality rate in Hampton Roads remains higher than that of both the state and the nation, and this trend is easily seen in Graph 3.

GRAPH 2

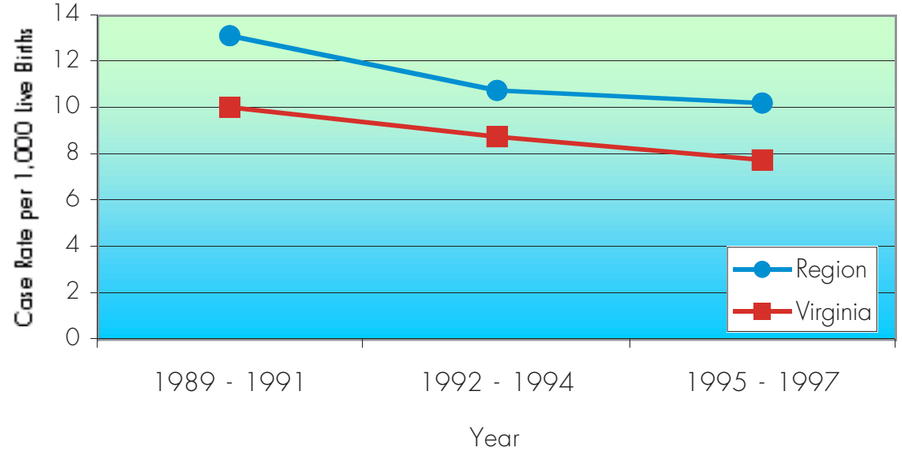
Teenage Pregnancy Rate per 1,000 Females Ages 10-19, 1989-97



Source: The Consortium for Infant and Child Health (CINCH), Report on the Health of Children in Hampton Roads, 2000. http://www.pediatricresearch.org/cinch

GRAPH 3

Infant Mortality Rate per 1,000 Live Births, 1989-97



Source: The Consortium for Infant and Child Health (CINCH), Report on the Health of Children in Hampton Roads, 2000. http://www.pediatricresearch.org/cinch

While the regional rate has diminished over the years, at 10.6 (see Table 4), it is still very high. The decrease, though, cannot be attributed to improved birth weights because those rates have remained essentially unchanged at 9 percent over the years. Again, this regional rate of low-birth-weight infants (less than 5.5 pounds) is still higher than both the national rate of 7.6 percent and Virginia's rate of 7.9 percent. Based on these figures, it is clear that more strategies and educational programs should be implemented in an effort to control the rates for unwanted pregnancy, infant mortality and low-birth-weight babies.

Sexually transmitted diseases are the other result of irresponsible sexual behavior. HIV infection and AIDS continue to claim many lives in the United States every year. Virginia ranks 15th in the nation in the number of AIDS cases with 1,000 new cases turning up each year. Within the state, Norfolk ranks the highest of all cities with 325 new cases each year. Nationally, Norfolk ranks 34th among all U.S. cities for the incidence of AIDS cases. This is nearly twice the number of cases found in Richmond, and more than all of Northern Virginia combined. For this reason, the Hampton Roads region must make greater efforts to curb unprotected sexual behavior and decrease the rate of HIV/AIDS infection.

Unfortunately, HIV/AIDS has also afflicted the children and youth of Hampton Roads at an alarming rate in the past decade. The hospital discharge rate of children 18 and under, due to HIV and AIDS, skyrocketed to 13.4 per 100,000 children in 1997, from 2.9 per 100,000 in 1995. Thankfully, this rate fell to 5.9 in 1998 as a result of increased education and information. In fact, vertical transmission (mother to baby) rates have decreased to 2 percent in Hampton Roads due to increased prenatal care and preventive therapy. While this shows some improvement, the region's discharge rate is still much worse than the state's 1998 rate of 2.6 per 100,000 children. These trends are depicted in Graph 4.

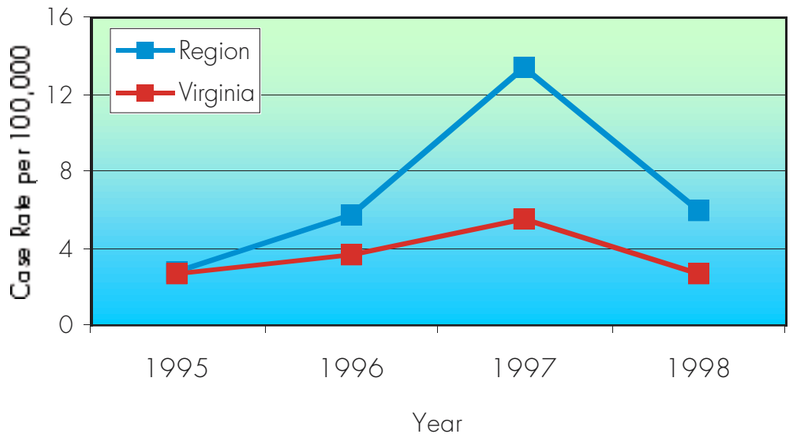
TABLE 4

Infant Mortality Rates of Cities and Counties of Hampton Roads, 1998

	Total Infant Deaths	Total Live Births	Death Rate per 1000 Births
State (Va.)	**695**	**94,114**	**7.4**
Gloucester	2	386	5.2
Isle of Wight	1	358	2.8
James City	2	423	4.7
Mathews	1	74	13.5
York	7	547	12.8
Chesapeake	30	2,818	10.6
Hampton	17	2,038	8.3
Newport News	44	3,124	14.1
Norfolk	49	4,018	12.2
Poquoson	1	101	9.9
Portsmouth	24	1,644	14.6
Suffolk	7	884	7.9
Virginia Beach	57	6,363	9.0
Williamsburg	2	144	13.9
Hampton Roads Total	**244**	**22,922**	**10.6**

Source: Virginia Health Statistics, Virginia Department of Health Statistics, 1997-98, http://www.vdh.state.va.us/stats

GRAPH 4
HIV and AIDS Hospital Discharge Rate per 100,000 Children Ages 0-18, 1995-98



Source: The Consortium for Infant and Child Health (CINCH), Report on the Health of Children in Hampton Roads, 2000. http://www.pediatricresearch.org/cinch

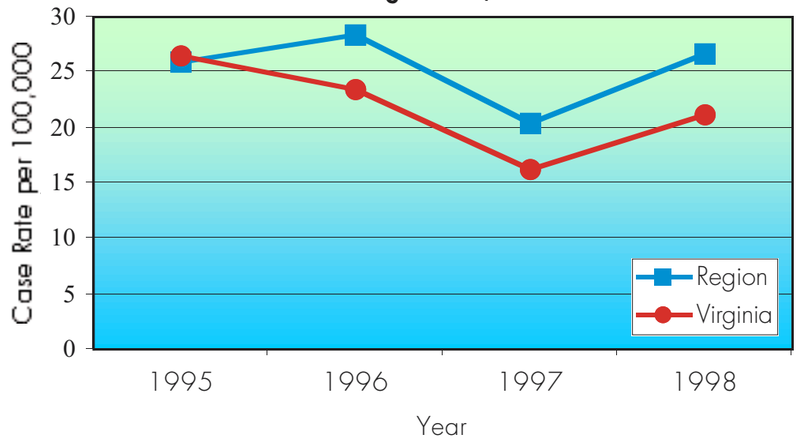
Mental Health

Mental illnesses affect roughly 20 percent of the U.S. population each year. It is the nation's younger and elderly populations that are the most affected. In fact, in Virginia, the greatest hospitalization costs for children and youth are associated with mental health conditions. Statewide and regionally, the number and rate of mental health hospitalizations increased slightly from 1995 to 1998. The rate of hospital discharges for Hampton Roads children 18 and under, as a result of mental health cases, was 481.2 per 100,000 children. This was much lower than the state rate of 516.1 cases.

Mood disorders constitute the most frequent reason for mental health-related hospitalizations among children and youth. While Hampton Roads had a rate of 326 hospitalizations per 100,000 children for mood disorders, the state of Virginia reported a rate of 351.2 per 100,000 children. Hospitalizations for behavioral and psychotic disorders have also increased among children over the years. In 1998, when the region showed a discharge rate of 50.3 per 100,000 children for behavior disorders, the state had a rate of only 37.2. The number of visits for psychotic disorders among children also increased substantially from 1995 to 1998. However, these visits comprised only 1 percent of all outpatient visits. Nonetheless, Hampton Roads' discharge rate of 43 cases per 100,000 children was much higher than Virginia's rate of 35.8 in 1998. Compared to the state, Hampton Roads had a lower rate of hospitalizations for mood disorders, and a higher rate of hospitalizations for both behavior and psychotic disorders.

The number and rates of hospital discharges of children due to developmental disorders has also increased substantially on both the state and national level since 1996. In 1998, Virginia had a higher rate of discharges due to developmental disorders (3.1 per 100,000 children) than did Hampton Roads, which had a rate of 2.5 discharges per 100,000. **The diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) has especially increased for the children of Hampton Roads over the last decade.** This trend is displayed more clearly in Graph 5. In 1998, the rate of hospital discharges due to ADHD was 26.6 per 100,000 children for Hampton Roads. This was much higher than the state's rate of 21.1.

GRAPH 5
ADHD Hospital Discharge Rate per 100,000 Children Ages 0-18, 1995-98



Source: The Consortium for Infant and Child Health (CINCH), Report on the Health of Children in Hampton Roads, 2000. http://www.pediatricresearch.org/cinch

Depression is by far the most common mental disorder among all people in the United States, affecting 19 million adults each year. This disease is also the cause of two-thirds of all suicides, the most serious outcome of mental health conditions. In 1998, Virginia experienced 827 suicides, for a rate of 12.2 suicides per 100,000 people, compared to the Hampton Roads rate of 9.4. The number and rate of suicides among children has also decreased steadily in Hampton Roads, but it increased slightly for the entire state from 1990-97. In 1997, the suicide rate was 2.6 per 100,000 children for the region, and 3.1 for Virginia. Both the state and the region must take extra precautions to modify outpatient delivery systems and develop prevention services in order to curb the occurrence of mental disorders, depression and suicide.

Injury and Violence

Every day, more than 400 Americans die from unintentional injuries associated with such factors as motor vehicle crashes, firearms and drownings. Unintentional injury is the number-one cause of morbidity and mortality in children and youth. For Hampton Roads, hospital discharge rates of children due to injury have remained fairly steady since 1995. The regional rate of hospital discharges of children has also been consistently below the rate for Virginia. In 1998, the rate for Hampton Roads was 303.2 per 100,000 children, and for Virginia it was 367.9. However, within Hampton Roads, the cities of Virginia Beach, Norfolk, Chesapeake, Newport News and Portsmouth together account for 72 percent of total hospitalizations for unintentional injury. It is apparent that interventions to reduce injury should be especially focused on these areas.

After falling steadily since 1995, the number and rate of hospitalizations of children due to self-inflicted injuries increased in 1998, both for the region and the state. However, the regional rate was much lower when compared to the state's hospital discharge rate of children for self-inflicted injuries. While the rate for Hampton Roads was 19.8 per 100,000 children, it was 30.2 for Virginia.

Violent crime also continued to decrease over the last decade. This was especially true for violent crimes committed by young people. In 1998, the national offending rate for youth was 27 crimes per 1,000 adolescents ages 12-17. This rate dropped by more than half from the 1993 high, and was the lowest recorded since data was first collected in 1973. This trend has helped to greatly decrease the number and rate of deaths among children and youth as a result of unintentional injuries, homicides and suicides since 1990. In 1997, the death rate for the state, 23.1 per 100,000 children, exceeded that of the region, 22.2 per 100,000 children.

The rate per thousand of founded cases of child abuse has been relatively stable over recent years throughout both the region and state. However, Hampton Roads appears worse than Virginia in regard to child abuse and neglect case rates. In 1998, the abuse rate in Hampton Roads was 7.1 per 1,000 children, while the state's rate was six cases per 1,000 children.

Immunizations

Vaccines are a leading health indicator because they greatly reduce health risks from preventable diseases and control the spread of infection. The rates for preschool immunization for the nation, state and region have improved overall. In the United States, the childhood immunization rate has steadily improved, with 79 percent of children ages 19-35 months receiving a combination vaccination series in 1998, up from 76 percent in 1997 and 69 percent in 1994. The 1993 Childhood Immunization Initiative may be one factor attributing to this improvement. In Virginia in 1998, 96 percent of 2-year-olds received vaccines for diphtheria, tetanus and pertussis; 91 percent received the vaccine for polio; 90 percent were vaccinated for measles; and 94 percent received vaccines for haemophilus influenza type b, the major cause of meningitis. Preschool immunizations have also improved greatly in Hampton Roads, but the rates for every immunization are lower than for the state. In 1997, Hampton Roads' immunization rate for children at 24 months was 70 percent, lower than the state's 77 percent. This means that in the region, 30 percent of all 2-year-old children are not adequately immunized. In Virginia, roughly 23 percent of all 2-year-olds remain inadequately immunized.

The percentage of children receiving immunizations from the private sector was much higher than the percentage of those obtaining it from the public sector. In fact, on the national level, while the percentage of children without health insurance remained steady at 15 percent, the percentage with private insurance increased to 68 percent in 1998. This tendency may have resulted from the fact that many children have several health care providers, which makes it difficult for a particular provider to know a child's immunization needs. Thus, the implementation of a computerized immunization information system would improve immunization delivery by giving providers access to complete records. This might also help to increase the number of children receiving immunizations overall.

Access to Care

Strong indicators of access to health care include having health insurance, a steady income and a primary health care provider or a source of ongoing care. Health insurance provides access to health care, yet more than 44.3 million people (16.3 percent of the population) in the United States had no health insurance or usual source of health care in 1998. In Virginia, 14.1 percent of the population was without health insurance in 1998. This was an increase from the 12.5 percent of the uninsured population in 1996 and 1997. Children are the population most likely to suffer as a result of not having access to medical care. In 1996, approximately one in seven children in this country had no health coverage. This means that an estimated 11.1 million children, or 15 percent of the child population, went without health insurance.

Although some efforts are being made to increase medical care, a large uninsured population continues to exist. In 1997, the Clinton administration passed the federal Child Health Insurance Program (CHIP) to provide the means for uninsured children to have routine access to needed medical care. As the largest single investment in health care for children since 1965, CHIP allocated an unprecedented $24 billion over five years to cover as many as 5 million children in the nation. The plan did succeed in allowing 2 million children nationwide to be granted health care coverage, including 16,895 in Virginia.

Conclusion

The development of programs in response to any of the health indicators mentioned in this report may have a profound effect on enhancing the quality of life and overcoming health disparities. Whereas Hampton Roads has made significant improvement in areas such as teen pregnancy, childhood immunization and mental disorders, it lags behind the Commonwealth in the areas of infant mortality, child abuse and neglect, and obesity. It is hoped that the region will continue to strive for new and improved medical coverage for its citizens.