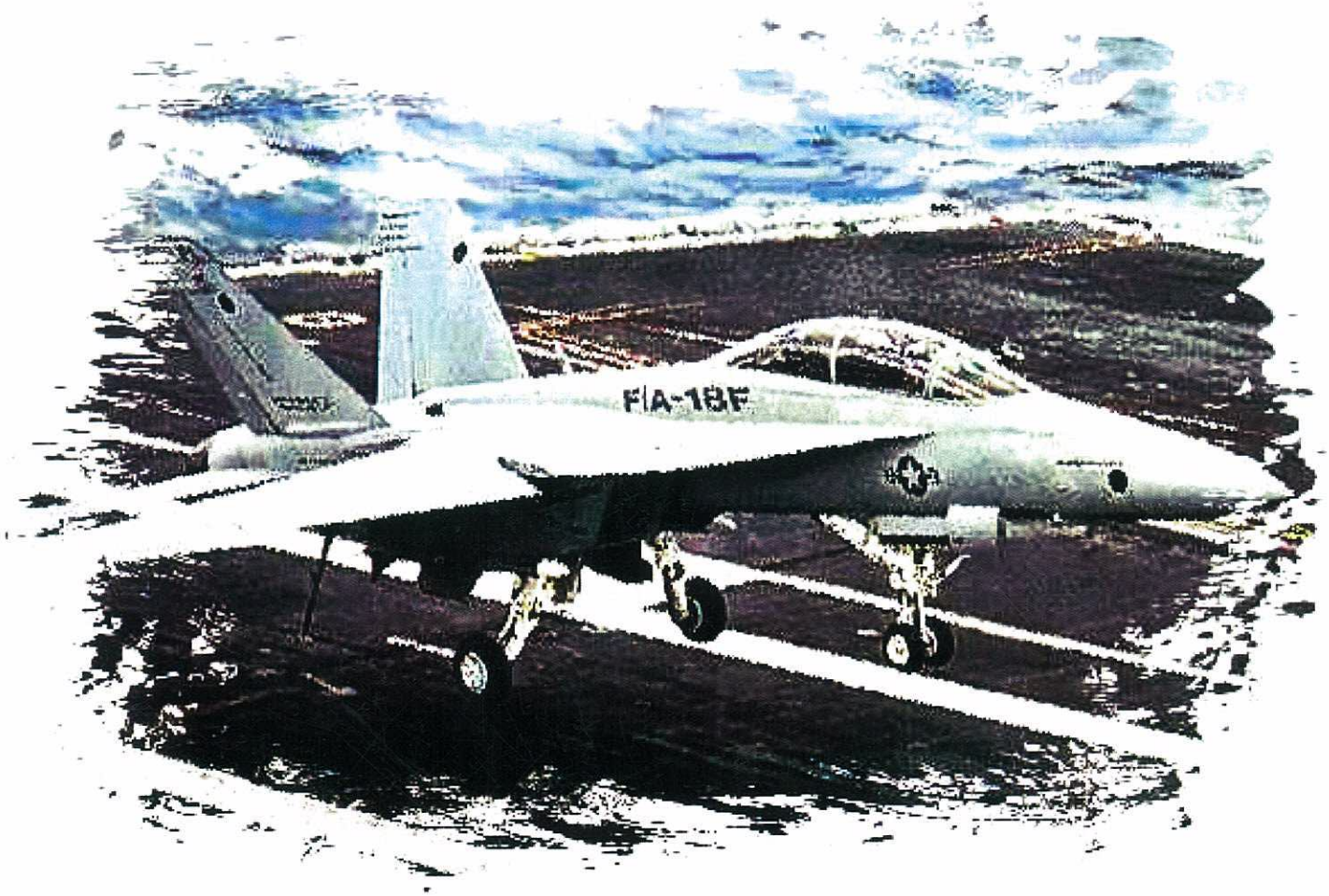
The Economic Impacts of the Super Hornets



HAMPTON ROADS
PLANNING DISTRICT COMMISSION

APRIL 2001

E 01-01

The Future Economic Impact of NAS Oceana[1]

Introduction

The Norfolk-Virginia Beach-Newport News MSA, known as Hampton Roads, is an urban area of over 1.5 million people located in southeastern Virginia at the mouth of the Chesapeake Bay. The region is best known for its historic sites in Williamsburg, its oceanfront resort in Virginia Beach, its port, and the presence of the nation's largest concentration of military personnel stationed at bases which are widely distributed throughout the area.

One of those bases is NAS Oceana. Oceana, as it is known locally, was originally carved out of 328 acres of swampland in 1940 in what is today the City of Virginia Beach. The base added personnel and aircraft throughout World War II and was designated a Naval Air Station in 1952. Later, in 1957, the base was designated a Master Jet Base.[2] The base has now grown to contain some six thousand acres and provide employment to over eleven thousand uniformed personnel along with over two thousand civilians. The base had a total payroll of 625 million dollars in 2000 making it the largest employer in the City of Virginia Beach. Oceana serves as home to the Navy's jet aircraft which are assigned to the Atlantic Fleet.

Today, Oceana faces several challenges, one of which is the role which the base will play in hosting future aircraft given the changing composition of aircraft in the fleet. For some years now, the Navy has relied heavily upon the use of the F-14 Tomcat and the F/A-18 C/D Hornet to carry out its missions. Because the Tomcat has been in service for many years, the Navy plans to phase out the older Tomcat in favor of a new aircraft with more capability. This new aircraft is the F/A-18 E/F, commonly known as the Super Hornet, which will begin to enter the Atlantic fleet in 2003.

---

[1] The data on which this report is based was provided by the U.S. Navy in late 2000. Although the data in the Environmental Impact Statement to be released in 2002 will likely be different, we do not expect the differences to materially effect the conclusion of this report.

[2] In order for a facility to be designated as a Master Jet Base, it must be a permanent base, serve as home for aircraft assigned to aircraft carriers homeported nearby, and have one or more auxiliary landing fields.

Oceana currently serves as home to the Navy's Tomcats and east coast Hornets. However, with the Tomcats leaving the fleet and the phase out of older versions of the Hornet, Oceana will soon begin to see a significant reduction in the number of aircraft stationed there. This will have the effect of reducing the number of persons who are employed at the base along with the economic impact that Oceana has in the community. However, at the same time, the new Super Hornet will soon begin to enter the east coast fleet and, should the decision be made to assign them to Oceana, those aircraft would, to a large extent, offset the scheduled retirement of the Tomcats and older Hornets. Since the decision has not yet been made as to where the Super Hornets will be assigned, considerable uncertainty exists as to the number of aircraft which will operate at the base in the future and ultimately the economic impact of the base on the community. Finally, since Congress is currently considering the creation of a new Base Realignment and Closure Commission (BRAC), the base's very existence may soon come under scrutiny.

Methodology

This investigation projected the future economic impact of Oceana from 2000 to 2010 upon the regional economy using the REMI model. The REMI model is a hybrid model which contains both econometric and input-output features and was designed some two decades ago to perform subnational economic impact and policy analysis. The model is supplied to users by Regional Economic Models, Inc. in Amherst, Massachusetts, and is calibrated to reflect local economic and demographic relationships. The model has been used and improved over the years and is widely utilized by colleges, universities, private consultants, federal, state, and regional agencies, as well as units of local government. The version of REMI used to conduct this investigation contained two subregions so that impacts could be estimated for Virginia Beach as well as the remaining 15 communities of Hampton Roads.[3]

As suggested above, several very different futures can be envisioned for Oceana. These futures were described in three

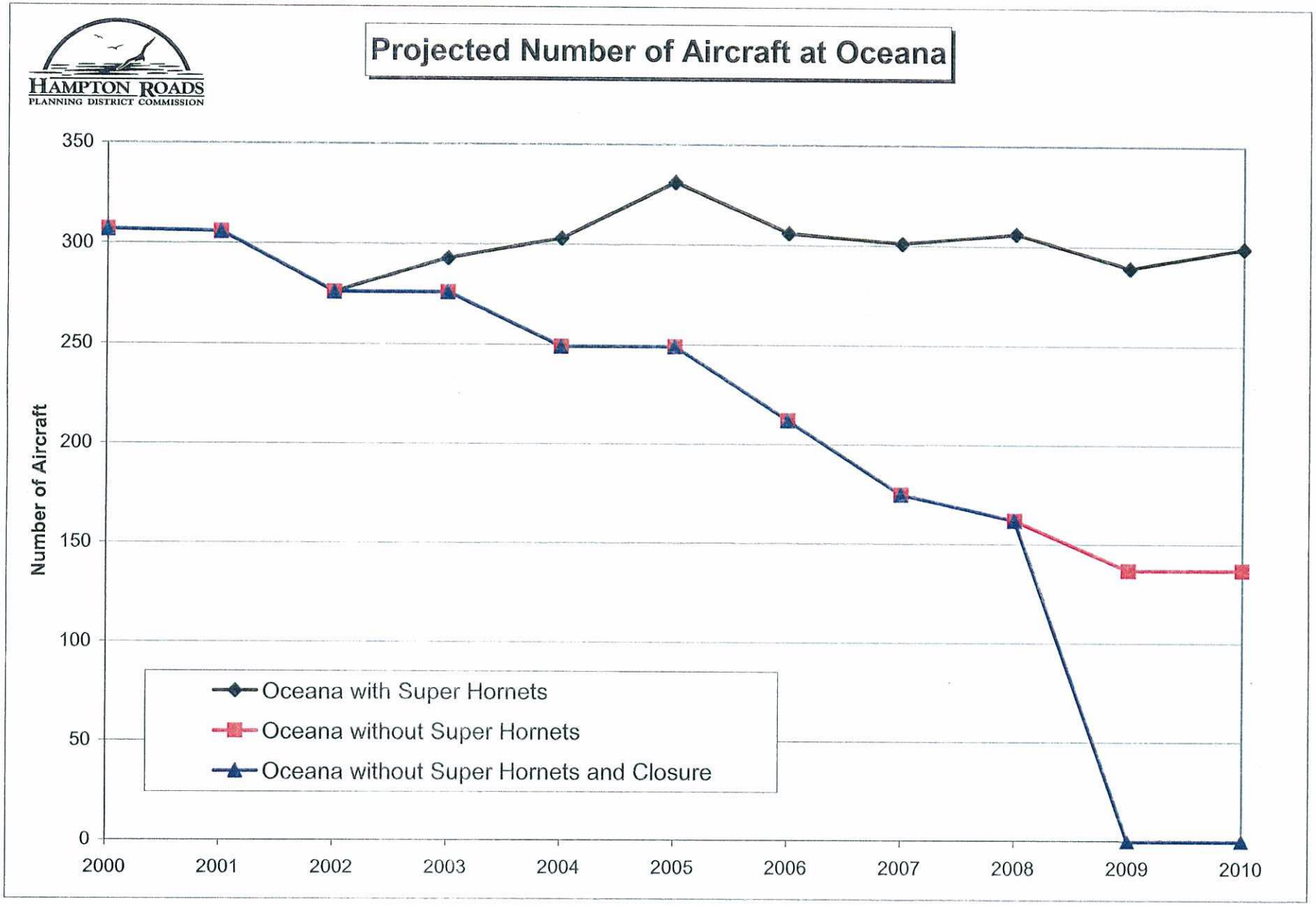
[3] These communities are Chesapeake, Gloucester Co., Franklin, Hampton, Isle of Wight Co., James City Co., Newport News, Norfolk, Poquoson, Portsmouth, Southampton Co., Suffolk, Surry Co., Williamsburg, and York Co.

scenarios each of which was evaluated through the use of the REMI model. The first scenario assumed that Oceana will be selected as the home for all of the east coast Super Hornets. More precisely, according to projections supplied by Navy officials, the number of aircraft assigned to the base would decline from 307 in 2000 to 299 in 2010 for a loss of 8 aircraft if the Super Hornets are stationed at Oceana. In other words, the arrival of the Super Hornets would not be sufficient to fully offset the loss of the Tomcats and the older Hornets.

On the other hand, a second, quite different scenario can be constructed from the fact that should the decision be made to locate the Super Hornets elsewhere, the number aircraft is projected by the Navy to decline to just 137 in 2010 so that the base will experience a loss of 170 airplanes or a more than 55 percent reduction in aircraft.

A final scenario is an extension of the second. It suggests that should Oceana not get the Super Hornets and have no more than 137 aircraft by 2010 and should a new Base Realignment and Closure Commission be created by Congress, the base will likely become a candidate for closure. At present, Oceana has a rated capacity of approximately 400 aircraft. Should the Super Hornets be assigned elsewhere, the base's utilization rate can be expected to fall to just 34 percent from 77 percent currently. Since bases with low utilization factors are considered to be candidates for closure, Oceana's projected rate of utilization without the Super Hornets might make it a target for a future base closing commission. The third scenario bundles these concepts by assuming that the Super Hornets are not assigned to Oceana so that the number of aircraft at the base declines from 307 in 2000 to 162 in 2008 as prescribed by the second scenario and then that number drops to zero when the facility is closed in 2009. In effect, the second and third scenarios describe the same future outcome for the base through 2008. However, in the third scenario, the base is selected for closure by 2009 while in the second scenario the base remains open and operates with just 137 aircraft in both 2009 and 2010. These three scenarios, shown in Figure 1, are felt to encompass the most likely future outcomes for activity levels at Oceana.

Figure 1


HAMPTON ROADS
PLANNING DISTRICT COMMISSION
Projected Number of Aircraft at Oceana
Number of Aircraft
350
300
250
200
150
100
50
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Oceana with Super Hornets
Oceana without Super Hornets
Oceana without Super Hornets and Closure

The Direct Impact

While changes in the number of aircraft will not directly impact upon the local economy, changes in spending which result from changes in the number of aircraft will. This analysis developed regional economic impacts which can be expected to result from changes in area spending.

Changes in three types of spending were projected as part of the investigation. These are changes in military and federal civilian payroll expenditures, changes in local purchasing by the base, and changes in spending by visitors coming to the base on business as well as spending by persons visiting the households of Oceana employees. Each of these three types of expenditures in the local economy were projected for each year from 2000 to 2010 based upon the number of aircraft expected to operate at the base. These estimates were made for each of the three scenarios described earlier.

Payroll Impact

The first and most important effect of changes in activity at Oceana is the change in base employment along with the resulting change in payroll expenditures in the local economy. The change in base employment was estimated by assuming that the projected number of aircraft assigned to the base in future years will have the same number of civilian and military personnel per aircraft as in 2000. This assumption made it possible to produce a projection of base employment under each of the scenarios.[4] A projection of payroll for each scenario was then developed by adjusting the REMI model for the difference between the average pay at Oceana and average military and federal civilian pay contained in the REMI model.

[4] This analysis ignores the fact that employment at Oceana can be separated into persons whose work is base dependent and those whose work is aircraft dependent. It can be expected that the number of persons whose work is base dependent will not change with changes in the number of aircraft operating at the base while the number of persons whose work is aircraft dependent will change with changes in the number of aircraft at the base. However, because base officials were unable to estimate the number of employees in each category, for this analysis it was assumed that all employment was aircraft dependent.

Purchasing Impact

Projections of changes in base purchasing in the local economy were developed from projections of aircraft assigned to Oceana along with information on the current pattern of purchasing. According to information supplied by the base, in 2000, Oceana purchased $345.8 million of goods and services. The majority of these funds or $274.1 million were spent for aircraft parts and supplies. Since Hampton Roads does not produce aircraft components, those expenditures were assumed to leave the region and not to impact on the regional economy. They were therefore ignored in this analysis. However, the remainder or $71.7 million was spent locally on construction; building and equipment repair and maintenance; cleaning; food preparation; utilities; and public services including sewer, water, and trash collection. Of those expenditures, one half or $35.9 million was assumed to change in response to changes in activity levels at the base. By contrast, the remaining $35.9 million was assumed to reflect a fixed cost of operating the base and would occur regardless of changes in activity levels at the base. This fixed cost was assumed not to decline in the first and second scenarios and assumed to drop to zero in the third scenario with the closing of the base. Additionally, it was assumed that half of all of these expenditures were made with businesses located in the City of Virginia Beach while the rest was spent with businesses in the rest of the region. Finally, it was assumed that the pattern of these local expenditures mirrored the pattern of local purchasing in 2000. Base purchasing across the three scenarios was made to reflect changes in activity levels at the base.

Visitor Impact

Finally, assumptions were made about visitor spending in Hampton Roads which is generated by the presence of Oceana. In an effort to develop this estimate, it was assumed that travel spending in Virginia localities is a function of a community's population, employment by place of work, and the presence of local tourist attractions and interstate highway interchanges. These four factors were assumed to be the principal drivers behind the level of travel expenditures experienced in the jurisdictions of Virginia.

To estimate visitor expenditures generated by Oceana, data was collected from the state's tourism agency on travel expenditures made in each of Virginia's cities and counties. These communities were then screened to eliminate all of those which possessed significant tourist attractions or interstate highway interchanges. This screening eliminated localities whose travel expenditures reflect, in part, spending attributable to recreational and highway-oriented travel. A further screening was done to eliminate communities which had population to employment ratios which differed significantly from that known to exist for Oceana. This screening eliminated communities whose visitor spending reflected the influence of the population and employment drivers which was different from the population and employment drivers for Oceana. The remaining cities and counties, 21 in all, were felt to experience travel expenditures reflecting visitations to a community's local businesses and residents and not expenditures associated with local attractions or large, commercially developed highway interchanges. In other words, the level of travel spending in the 21 communities was felt to reflect the same forces driving visitations to Oceana, i.e., business and personal visits as opposed to recreational and highway-oriented visits.

After completing the screenings described above, a regression equation with city and county travel expenditures as the dependent variable and each locality's place of work employment as the sole independent variable was then fit to the data for the 21 communities. Population was excluded from the regression since the correlation between the population and employment variables was very high making it difficult to get reliable estimates for both coefficients. However, because of the close relationship between population and employment at the jurisdiction level, the effect of population was assumed to be reflected in the coefficient for employment, so that the influence of population on visitor spending was captured by the employment variable. The resulting coefficient, after being rounded up slightly, was one thousand dollars per employee. This coefficient was then multiplied by the projected employment at Oceana so as to get an estimate of visitor expenditures in Hampton Roads associated

with activity levels at Oceana.[5] Because the employment variable in the regression was felt to have picked up much of the impact of both population and employment, multiplying the regression coefficient by the number of persons working at Oceana accounted for both business visitations to the base as well as visitations to the households of Oceana workers. Finally, all of the visitation expenditures were assumed to have been made in Virginia Beach where many of Oceana's personnel reside and where there are an abundance of tourist facilities. Visitor spending across the three scenarios was made to reflect changes in activity levels at the base.

Because the estimated changes in payroll spending are much larger than the estimated changes in local purchasing by the base and visitor spending, changes in payroll were the dominate factor driving the analysis.

Hampton Roads Impacts

Entering the estimated direct impacts described above into the REMI model produced projected impacts for each of the study's three scenarios. Review of those results suggest that if the Super Hornets are assigned to Oceana, the change in the economic impact of Oceana from current levels will be small. By contrast, should the Super Hornets be assigned elsewhere, the economic impact of the base upon the community will diminish significantly.[6]

The next several graphs highlight the many differences in economic outcomes between getting and not getting the new Super Hornets. These graphs show the decline in economic activity, which can be expected to result from the changes outlined in each scenario. In all scenarios the economic impacts generated by changes at Oceana are projected to be negative which simply means that the isolated effect of changes at Oceana is to reduce the level of economic activity – both for the region and the City of Virginia Beach. However, because there will be other factors contributing to regional

---

[5] The travel expenditure of $1,000 per employee compares to a statewide average of $2,128. The statewide average was higher than the regression estimate since it reflects not only the sorts of visits likely to be generated by Oceana but also the presence of tourism and highway travel along interstates.

[6] Dollar impacts are expressed in year 2000 dollars.

economic growth which will more than offset the negative impacts created by the Oceana scenarios, total economic activity in the region and in Virginia Beach will increase significantly over the period from 2000 to 2010. The conclusion that growth will occur in Hampton Roads in spite of any changes at Oceana is highlighted in Figures 2 and 3, which show the impact of each of the Oceana scenarios upon the region's projected Gross Regional Product and total employment.[7] In each case, the impact of the Oceana scenarios is to reduce the amount of growth likely to occur – not to stop growth completely. The figures to follow show the impacts generated by changes at Oceana after holding all other impacts in the economy constant.

The isolated impact of the Oceana scenarios is shown in Figure 4, which suggests that if the Super Hornets are assigned to Oceana, Gross Regional Product (GRP) in Hampton Roads will decline by $29.0 million dollars or by just 0.05% between 2000 and 2010. This modest decline will occur because the arrival of the Super Hornets is not projected to be sufficient to offset the loss of other aircraft. By contrast, if the base should remain open but the Super Hornets are assigned elsewhere, Gross Regional Product can be expected to decline by $645.5 million or by 1.19% between 2000 and 2010. Finally, closing Oceana would result in much larger impacts since GRP is projected to decline by $1,247.3 million or by 2.30% by 2010.

Figure 5 tells a similar story except this time for regional employment. Should the Super Hornets come to Oceana, employment within the region is projected to decline by 469 jobs by 2010. This constitutes a loss of no more than 0.05% of the region's total employment. By contrast, if the base remains open but operates without the Super Hornets, the region can be expected to lose 10,499 jobs by 2010 for a reduction in the region's total employment of 1.06%. Closing the base will result in the loss of 20,781 regional jobs or a decline of 2.10% by 2010.

[7] GRP is the value of the region's economic activity.

Figure 2

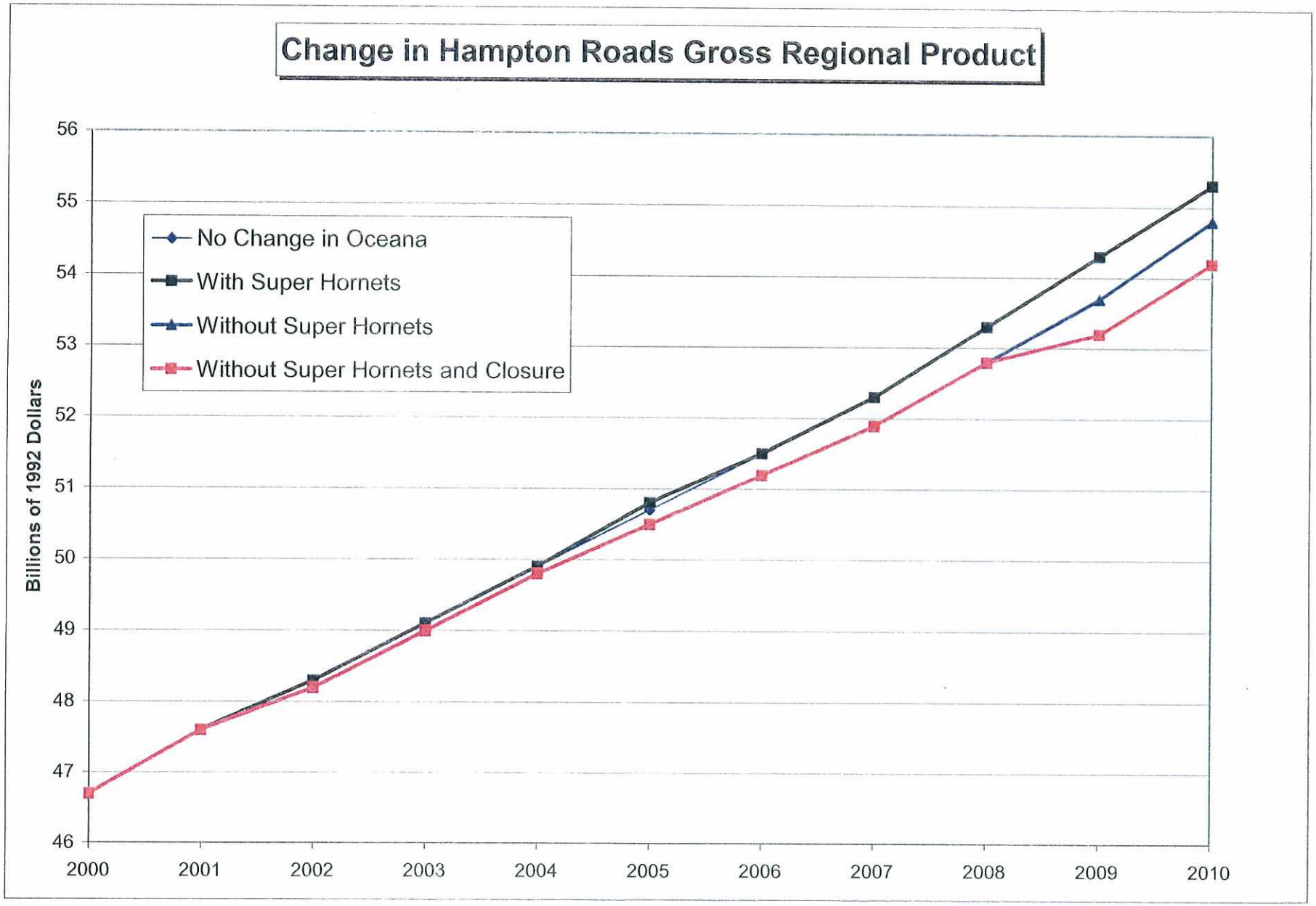

Change in Hampton Roads Gross Regional Product
Billions of 1992 Dollars
56
55
54
53
52
51
50
49
48
47
46
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
No Change in Oceana
With Super Hornets
Without Super Hornets
Without Super Hornets and Closure

Figure 3

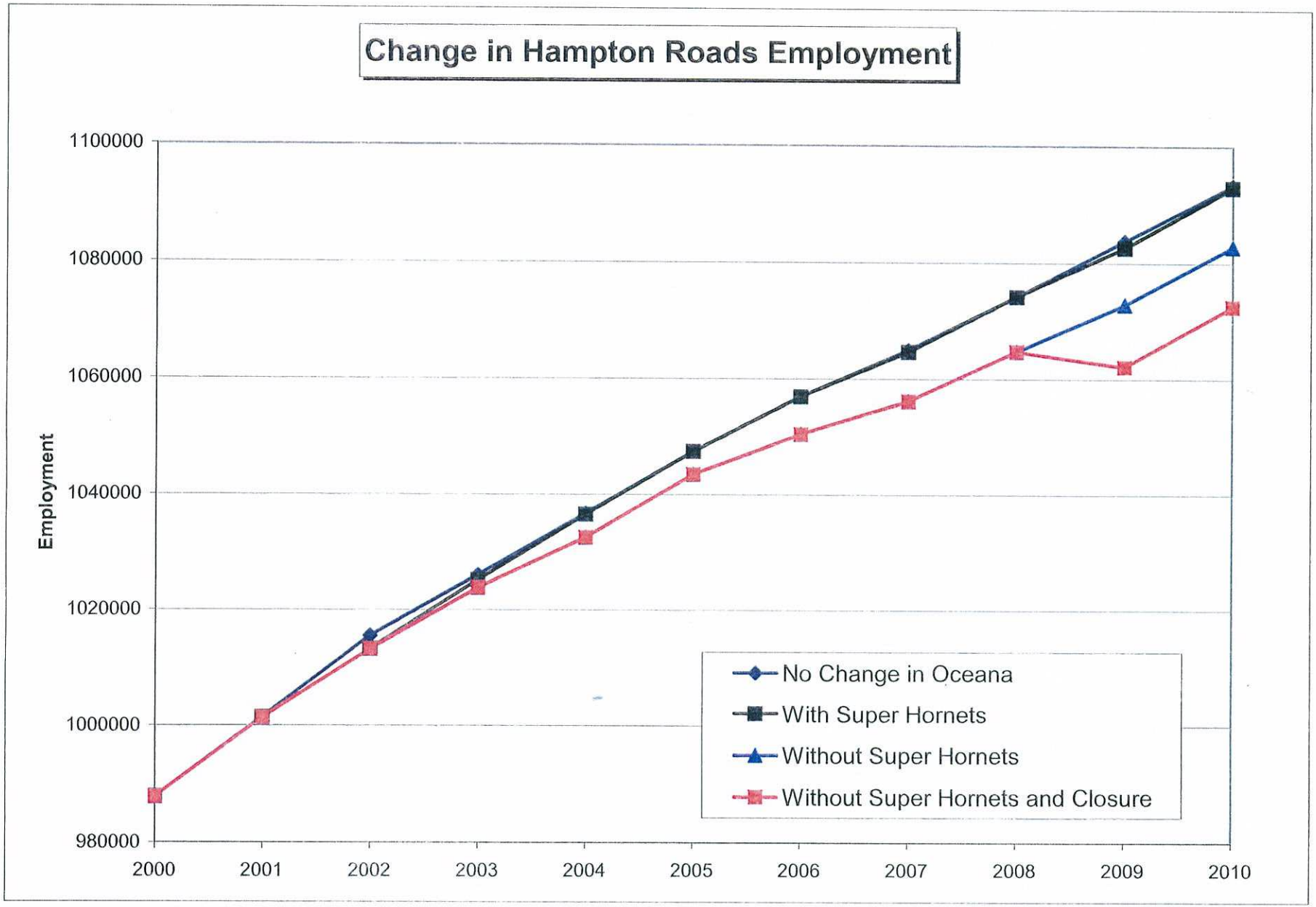

Change in Hampton Roads Employment
Employment
1100000
1080000
1060000
1040000
1020000
1000000
980000
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
No Change in Oceana
With Super Hornets
Without Super Hornets
Without Super Hornets and Closure

Figure 4

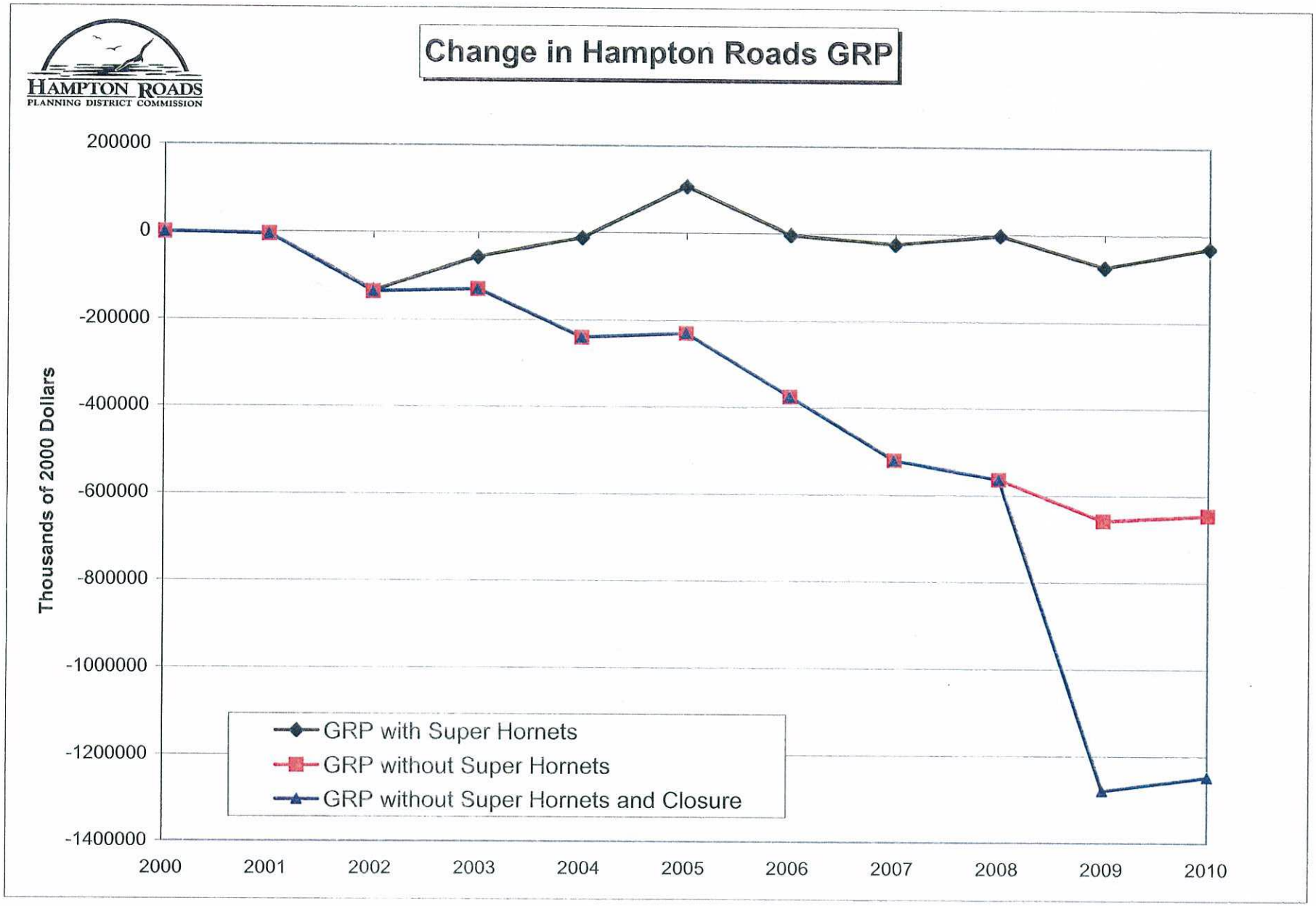
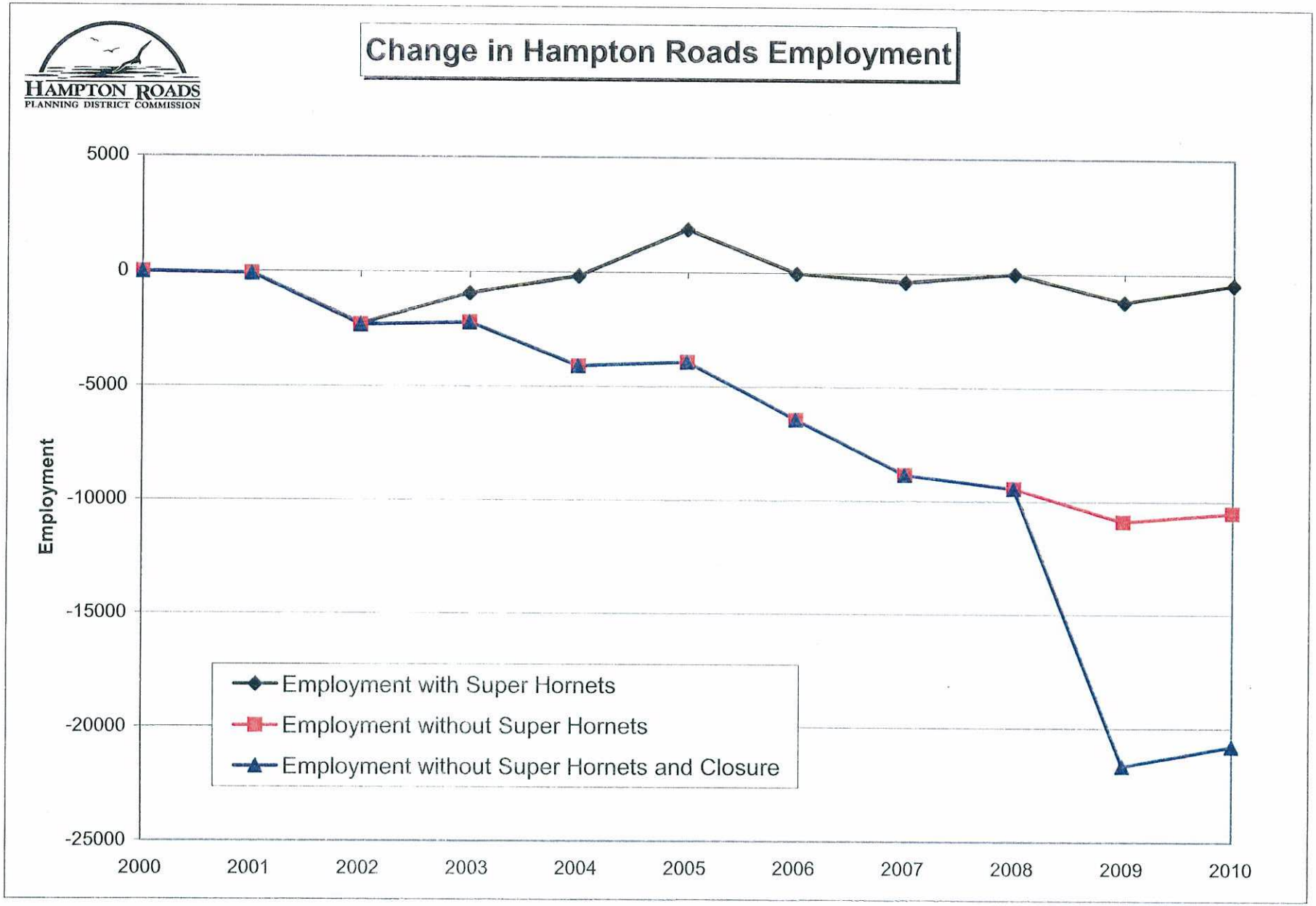

HAMPTON ROADS
PLANNING DISTRICT COMMISSION
Change in Hampton Roads GRP
Thousands of 2000 Dollars
200000
0
-200000
-400000
-600000
-800000
-1000000
-1200000
-1400000
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
GRP with Super Hornets
GRP without Super Hornets
GRP without Super Hornets and Closure

Figure 5


HAMPTON ROADS
PLANNING DISTRICT COMMISSION
Change in Hampton Roads Employment
5000
0
-5000
-10000
-15000
-20000
-25000
Employment
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Employment with Super Hornets
Employment without Super Hornets
Employment without Super Hornets and Closure

The wide disparity in the size of these impacts can be seen by simply looking at the ratio between the impacts projected for the three scenarios. For example, in the case of GRP, the loss to the regional economy if the base remains open but the Super Hornets are assigned elsewhere is 22 times larger than the loss to the economy if the Super Hornets are assigned to the base. The difference in the loss of jobs under the two scenarios is also considerable since the loss of employment in the region is over 22 times greater if the Super Hornets are not assigned to Oceana as compared to what would occur if the new jets are assigned to the base. By contrast, closing the base will produce impacts on GRP and employment which are more than forty times larger than the base case which assumes that the Super Hornets are assigned to Oceana.

The loss of jobs in the regional economy, along with other adverse effects created by this study's three scenarios will produce a loss of population as people leave the region for jobs elsewhere. The population loss which would result from projected changes in activity levels at Oceana is shown in Figure 6. As the figure suggests, if the Super Hornets are assigned to Oceana, the region's population will decline by 318 persons by 2010. By contrast, if the base should remain open but operate without the Super Hornets, the region can expect to experience the loss of 7,187 persons. Finally, closing the base would lead to a loss of 13,121 people from the region. It is emphasized that the region's population will continue to increase from 2000 to 2010. However, hidden in those increases will be the decline in population generated by the projected changes in activity levels at Oceana.

Because the jobs projected to be lost at Oceana under each scenario pay attractive wages by regional standards, it can be expected that the region's average wage will experience downward pressure generated by changes in activity levels at Oceana. In fact, as can be seen in Figure 7, the region's average annual wage is projected to decline by just $2.99 or by 0.01% by 2010 from 2000 levels if the Super Hornets are assigned to Oceana while the average annual wage will decline by $58.69 or 0.25% if the base remains open but does not have the new jets. Should the base close, the average wage would decline by $105.61 or 0.45% by 2010.

Figure 6

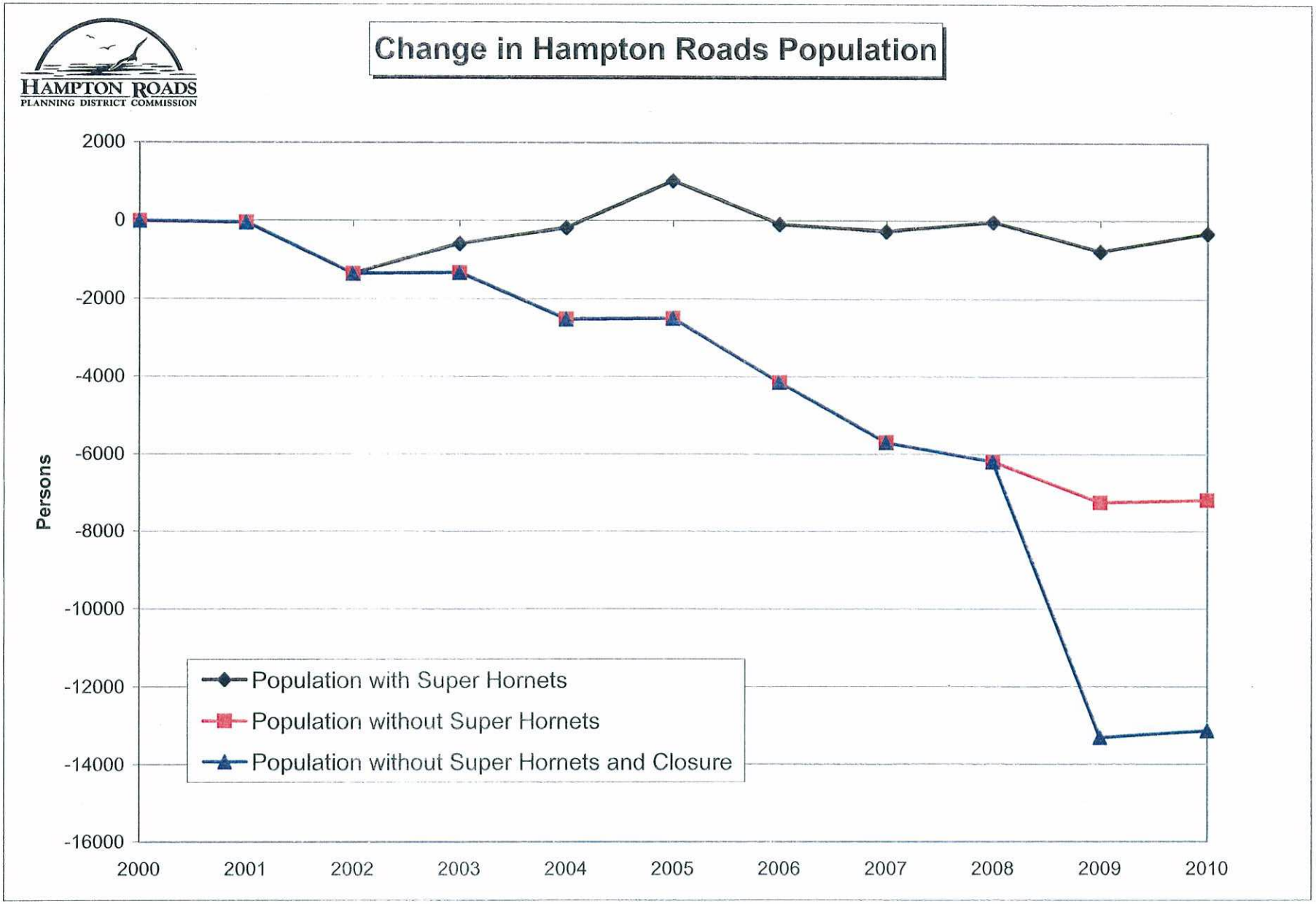
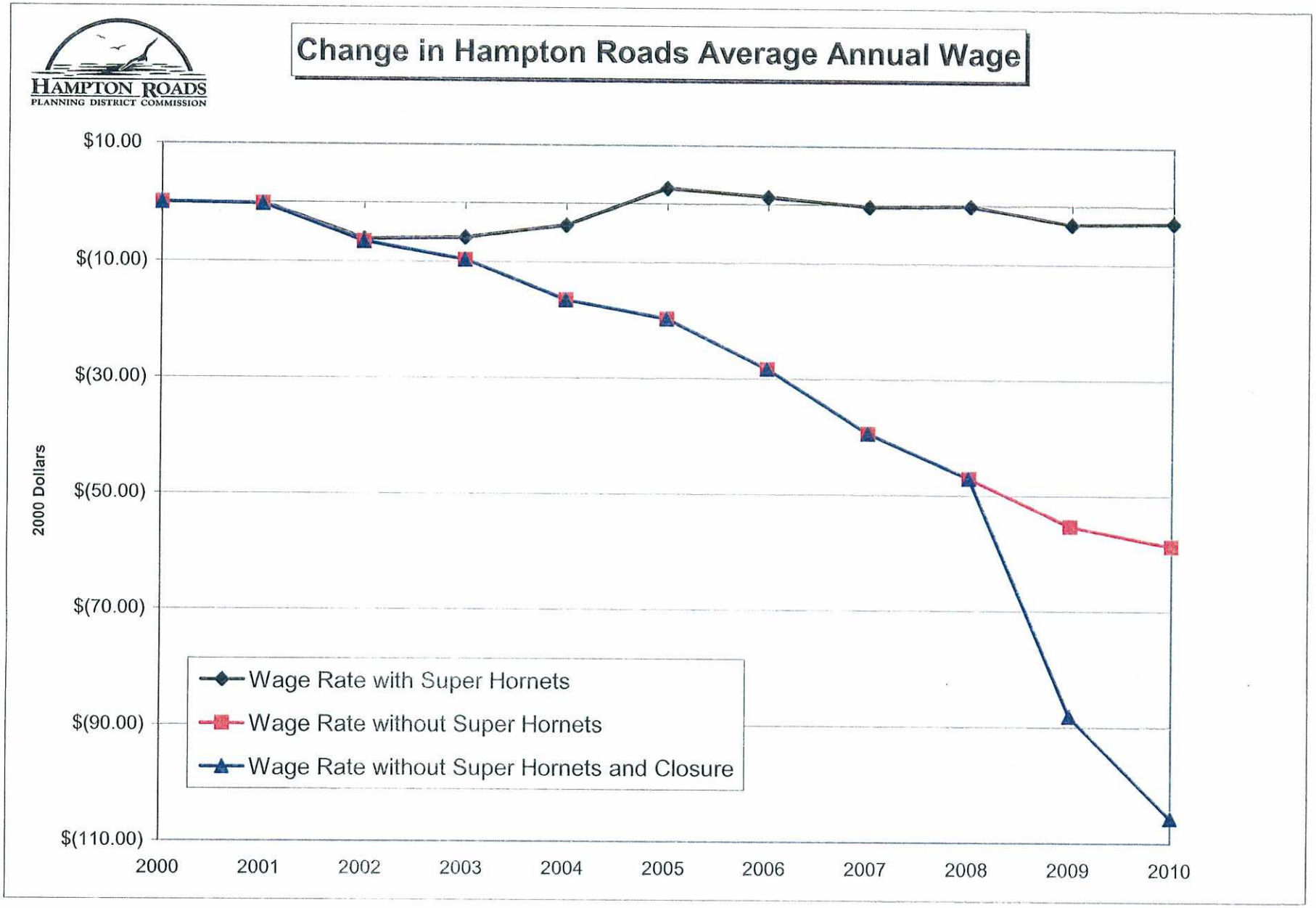

HAMPTON ROADS
PLANNING DISTRICT COMMISSION
Change in Hampton Roads Population
Persons
2000
0
-2000
-4000
-6000
-8000
-10000
-12000
-14000
-16000
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Population with Super Hornets
Population without Super Hornets
Population without Super Hornets and Closure

Figure 7


HAMPTON ROADS
PLANNING DISTRICT COMMISSION
Change in Hampton Roads Average Annual Wage
$10.00
$(10.00)
$(30.00)
$(50.00)
$(70.00)
$(90.00)
$(110.00)
2000 Dollars
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Wage Rate with Super Hornets
Wage Rate without Super Hornets
Wage Rate without Super Hornets and Closure

Since wages are a critically important component in determining incomes, it is projected that per capita income will decline as a result of the expected decline in wages. As can be seen in Figure 8, regional per capita income will decline by $3.28 by 2010 for an insignificant percentage decline if the Super Hornets are assigned to Oceana while a decline in the average regional per capita income of $83.32 or 0.32%, will occur without the new aircraft. Finally, regional per capita income is projected to decline by $180.54 or 0.70% by 2010 if the base is closed.

Finally, the impacts described above do not cover the full range of impacts, which were estimated during the course of this analysis. Additional impacts resulting from the two scenarios drawn in this investigation are contained in Tables 1 through 6. Both absolute changes as well as the percent changes from current levels are shown in the tables. Additional impacts covered in the tables include personal income, real disposable income, consumption, investment, non-residential investment, residential investment, employment by type, and state and local revenues.

Spatial Distribution of Impacts

As has been indicated, acquiring the Super Hornets insures that Oceana will continue to play an important role in the region's economy. By contrast, should the Super Hornets be assigned elsewhere, Oceana's role in the economy will diminish and there will be significant negative impacts upon the region's economy. Should the facility be closed, the impact would be even larger. Many of those impacts were outlined above. However, because the spatial distribution of those outcomes will vary considerably across scenarios it is important to examine the location of impacts. Information on the spatial distribution of impacts can be found in Table 3.

Because Oceana is physically located in Virginia Beach and many of its employees reside there, changes in activity levels at the base will, in most cases, have a larger impact on that city and especially in the area immediately surrounding the base than upon the rest of the region.

Figure 8

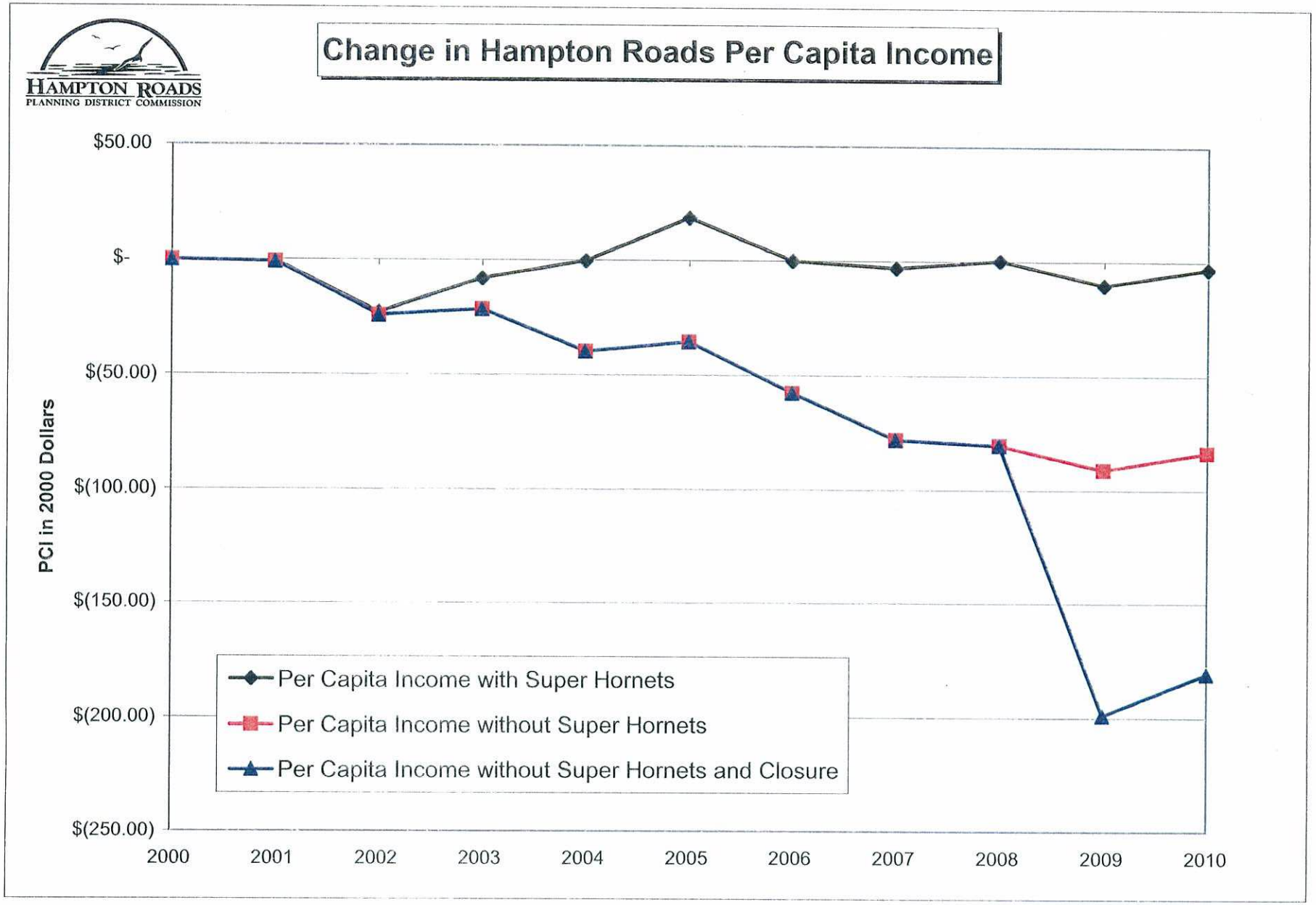

HAMPTON ROADS
PLANNING DISTRICT COMMISSION
Change in Hampton Roads Per Capita Income
$50.00
$-
$(50.00)
$(100.00)
$(150.00)
$(200.00)
$(250.00)
PCI in 2000 Dollars
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
Per Capita Income with Super Hornets
Per Capita Income without Super Hornets
Per Capita Income without Super Hornets and Closure

Table 1

Change in Regional Economic Activity Between 2000 and 2010

	Oceana With Super Hornets		
	Virginia Beach	Rest of Region	Hampton Roads
Gross Regional Product (000s of 2000 $s)	$ (26,013)	$ (3,386)	$ (29,399)
Personal Income (000s of 2000 $s)	$ (11,756)	$ (7,568)	$ (19,324)
Disposable Income (000s of 2000 $s)	$ (6,433)	$ (5,388)	$ (11,821)
Consumption (000s of 2000 $s)	$ (6,928)	$ (5,385)	$ (12,313)
Fixed Investment (000s of 2000 $s)	$ (3,317)	$ (2,658)	$ (5,975)
Non-Residential Structures (000s of 2000 $s)	$ (401)	$ (251)	$ (652)
Residential Structures (000s of 2000 $s)	$ (506)	$ (900)	$ (1,407)
Average Annual Wage (2000 $s)	$ (10.46)	$ (1.30)	$ (2.99)
Per Capita Income (2000 $s)	$ (8.15)	$ (1.25)	$ (3.28)
Total Employment	(396)	(73)	(469)
Government	(348)	(14)	(362)
Private Non-Farm	(47)	(59)	(106)
Retail	(25)	(21)	(46)
Eating and Drinking	(11)	(6)	(17)
Population	(125)	(193)	(318)
Fiscal Impacts			
State Revenues (000s of 2000 $s)	NA	NA	$ (1,663)
Local Revenues (000s of 2000 $s)	NA	NA	$ (739)

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

Table 2

Change in Regional Economic Activity Between 2000 and 2010

	Oceana Without Super Hornets		
	Virginia Beach	Rest of Region	Hampton Roads
Gross Regional Product (000s of 2000 $s)	$ (578,744)	$ (66,727)	$ (645,471)
Personal Income (000s of 2000 $s)	$ (272,267)	$ (158,903)	$ (431,170)
Disposable Income (000s of 2000 $s)	$ (169,168)	$ (112,361)	$ (281,528)
Consumption (000s of 2000 $s)	$ (181,002)	$ (111,989)	$ (292,992)
Fixed Investment (000s of 2000 $s)	$ (99,795)	$ (54,417)	$ (154,212)
Non-Residential Structures (000s of 2000 $s)	$ (11,746)	$ (4,778)	$ (16,524)
Residential Structures (000s of 2000 $s)	$ (17,462)	$ (20,929)	$ (38,391)
Average Annual Wage (2000 $s)	$ (205.09)	$ (25.56)	$ (58.69)
Per Capita Income (2000 $s)	$ (197.13)	$ (33.37)	$ (83.32)
Total Employment	(9,023)	(1,476)	(10,499)
Government	(7,436)	(260)	(7,696)
Private Non-Farm	(1,587)	(1,216)	(2,803)
Retail	(684)	(463)	(1,147)
Eating and Drinking	(281)	(136)	(417)
Population	(3,476)	(3,711)	(7,187)
Fiscal Impacts			
State Revenues (000s of 2000 $s)	NA	NA	$ (39,439)
Local Revenues (000s of 2000 $s)	NA	NA	$ (16,902)

Table 3

Change in Regional Economic Activity Between 2000 and 2010

	Oceana Without Super Hornets and Closure		
	Virginia Beach	Rest of Region	Hampton Roads
Gross Regional Product (000s of 2000 $s)	$ (1,098,546)	$ (148,747)	$ (1,247,293)
Personal Income (000s of 2000 $s)	$ (514,093)	$ (300,365)	$ (814,458)
Disposable Income (000s of 2000 $s)	$ (379,293)	$ (206,993)	$ (586,286)
Consumption (000s of 2000 $s)	$ (368,038)	$ (209,313)	$ (577,351)
Fixed Investment (000s of 2000 $s)	$ (217,319)	$ (135,056)	$ (352,375)
Non-Residential Structures (000s of 2000 $s)	$ (25,578)	$ (11,858)	$ (37,436)
Residential Structures (000s of 2000 $s)	$ (38,026)	$ (51,942)	$ (89,969)
Average Annual Wage (2000 $s)	$ (299.80)	$ (61.70)	$ (105.61)
Per Capita Income (2000 $s)	$ (379.06)	$ (88.54)	$ (180.54)
Total Employment	(17,510)	(3,271)	(20,781)
Government	(13,480)	(397)	(13,877)
Private Non-Farm	(4,030)	(2,874)	(6,904)
Retail	(1,439)	(947)	(2,386)
Eating and Drinking	(575)	(279)	(854)
Population	(7,460)	(5,661)	(13,121)
Fiscal Impacts			
State Revenues (000s of 2000 $s)	NA	NA	$ (78,517)
Local Revenues (000s of 2000 $s)	NA	NA	$ (31,590)

Table 4

Percent Change in Regional Economic Activity Between 2000 and 2010

	Oceana With Super Hornets		
	Virginia Beach	Rest of Region	Hampton Roads
Gross Regional Product	-0.22%	-0.01%	-0.05%
Personal Income	-0.08%	-0.02%	-0.04%
Disposable Income	-0.06%	-0.02%	-0.03%
Consumption	-0.06%	-0.02%	-0.03%
Fixed Investment	-0.10%	-0.04%	-0.06%
Non-Residential Structures	-0.08%	-0.03%	-0.04%
Residential Structures	-0.10%	-0.05%	-0.06%
Average Annual Wage	-0.05%	-0.01%	-0.01%
Per Capita Income	-0.03%	-0.01%	0.00%
Total Employment	-0.17%	-0.01%	-0.05%
Government	-0.71%	-0.01%	-0.13%
Private Non-Farm	-0.03%	-0.01%	-0.01%
Retail	-0.05%	-0.02%	-0.03%
Eating and Drinking	-0.07%	-0.02%	-0.03%
Population	-0.03%	-0.02%	-0.02%
Fiscal Impacts			
State Revenues	NA	NA	-0.03%
Local Revenues	NA	NA	-0.02%

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

Table 5

Percent Change in Regional Economic Activity Between 2000 and 2010

	Oceana Without Super Hornets		
	Virginia Beach	Rest of Region	Hampton Roads
Gross Regional Product	-4.91%	-0.16%	-1.19%
Personal Income	-1.93%	-0.51%	-0.95%
Disposable Income	-1.58%	-0.47%	-0.81%
Consumption	-1.64%	-0.45%	-0.82%
Fixed Investment	-3.03%	-0.75%	-1.46%
Non-Residential Structures	-2.40%	-0.49%	-1.13%
Residential Structures	-3.48%	-1.20%	-1.71%
Average Annual Wage	-1.00%	-0.10%	-0.25%
Per Capita Income	-0.69%	-0.14%	-0.32%
Total Employment	-3.94%	-0.19%	-1.06%
Government	-15.20%	-0.12%	-2.81%
Private Non-Farm	-0.88%	-0.23%	-0.39%
Retail	-1.43%	-0.40%	-0.70%
Eating and Drinking	-1.68%	-0.35%	-0.75%
Population	-0.78%	-0.32%	-0.45%
Fiscal Impacts			
State Revenues	NA	NA	-0.79%
Local Revenues	NA	NA	-0.41%

Table 6

Percent Change in Regional Economic Activity Between 2000 and 2010

	Oceana Without Super Hornets and Closure		
	Virginia Beach	Rest of Region	Hampton Roads
Gross Regional Product	-9.32%	-0.35%	-2.30%
Personal Income	-3.64%	-0.96%	-1.79%
Disposable Income	-3.54%	-0.86%	-1.69%
Consumption	-3.33%	-0.85%	-1.62%
Fixed Investment	-6.59%	-1.86%	-3.34%
Non-Residential Structures	-5.22%	-1.22%	-2.57%
Residential Structures	-7.57%	-2.98%	-4.01%
Average Annual Wage	-1.46%	-0.25%	-0.45%
Per Capita Income	-1.32%	-0.36%	-0.70%
Total Employment	-7.65%	-0.43%	-2.10%
Government	-27.55%	-0.18%	-5.06%
Private Non-Farm	-2.24%	-0.54%	-0.97%
Retail	-3.00%	-0.82%	-1.46%
Eating and Drinking	-3.43%	-0.72%	-1.54%
Population	-1.67%	-0.49%	-0.82%
Fiscal Impacts			
State Revenues	NA	NA	-1.58%
Local Revenues	NA	NA	-0.77%

This point is perhaps best illustrated by the Gross Regional Product projection. As can be seen in Figure 9, GRP is projected to decline by 26.0 million in Virginia Beach by 2010 with a slight decline of $3.3 million in the rest of the region if the Super Hornets are assigned to Oceana. By contrast, GRP is anticipated to decline by $578.7 million in Virginia Beach by 2010 if the base remains open without the new fighters as compared to a loss of $66.7 million in the remainder of Hampton Roads. Finally, if Oceana is closed, GRP in Virginia Beach is projected to decline by $1,098.6 million by 2010 as compared to $148.7 million in the remaining fifteen jurisdictions of the region. However, as large as these impacts are, it is important to note that other sources of growth will be operating over the study period in the regional and Virginia Beach economies so that on a net basis, a continuation of growth is projected for Virginia Beach. In other words, the City's economy will continue to grow regardless of changes in activity levels at Oceana. The effect of the Oceana scenarios is simply to slow the rate of economic growth as suggested in Figure 10.

Similarly, employment impacts will be concentrated in Virginia Beach under all three scenarios. For example, if the new fighters are assigned to Oceana, employment is projected to decline by 396 jobs by 2010 as compared to 73 jobs in the remainder of the region as can be seen in Figure 11. Alternatively, without the new aircraft employment in Virginia Beach is projected to decline by 9,023 by 2010 as compared to a loss of 1,476 jobs in the remaining communities of the region. Finally, should Oceana be closed, the city would lose 17,510 jobs by 2010 as compared to a projected loss of 3,271 in the other communities of the region.

By contrast, since many of the people who work at Oceana live in the region's other communities, the population impacts will be more widely distributed than the impact on GRP and employment. As can be seen in Figure 12, Virginia Beach is projected to experience the loss of 125 people from its current population if the Super Hornets are assigned to Oceana as compared to a larger loss of 193 people from the other jurisdictions. By contrast, should the Super Hornets be assigned elsewhere and the base remain in operation, the city would experience a loss of 3,476 persons by 2010 as compared to 3,711 in the other jurisdictions of Hampton Roads.

Figure 9

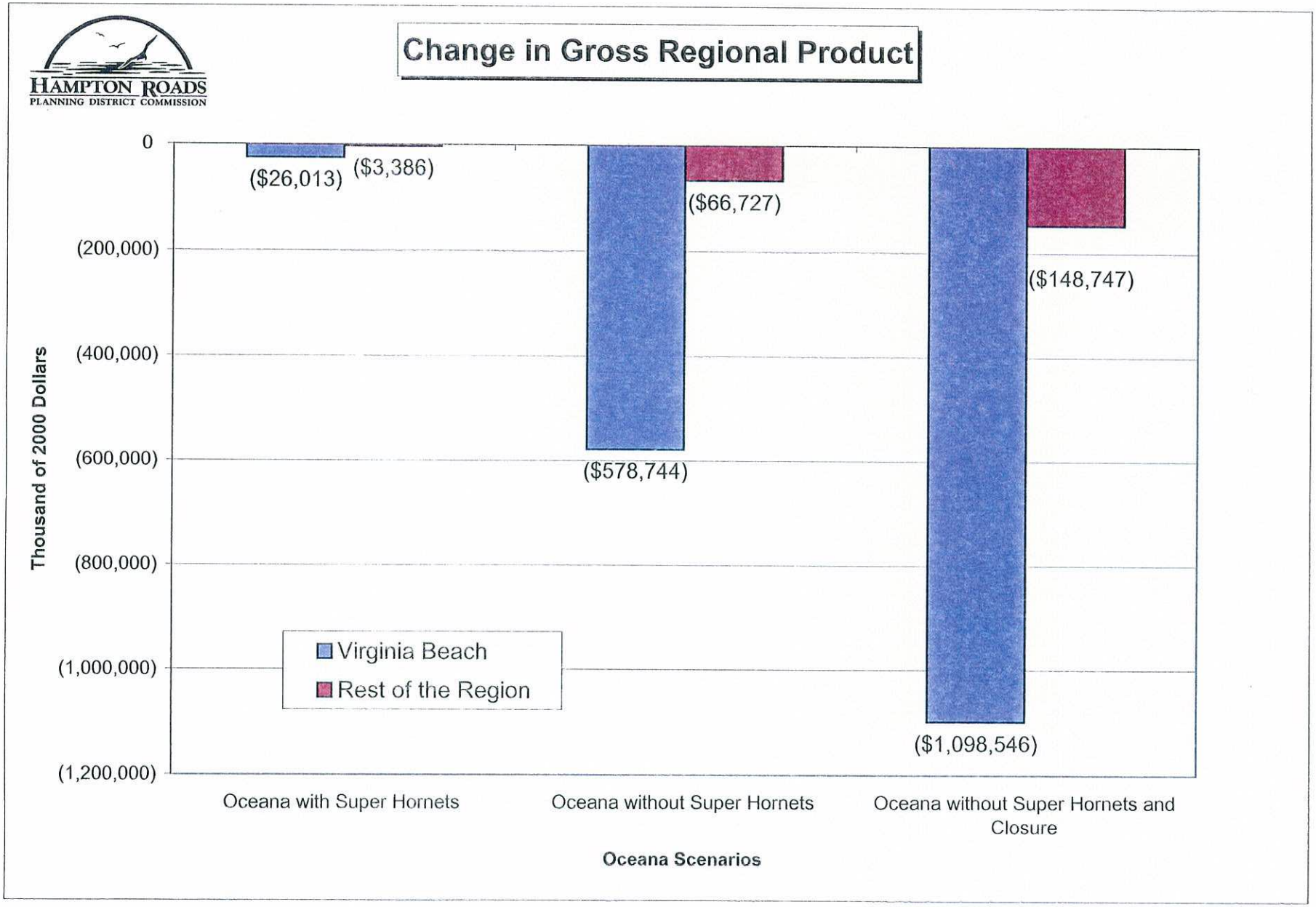

HAMPTON ROADS
PLANNING DISTRICT COMMISSION
Change in Gross Regional Product
0
(200,000)
(400,000)
(600,000)
(800,000)
(1,000,000)
(1,200,000)
Thousand of 2000 Dollars
($26,013)
($3,386)
($578,744)
($66,727)
($1,098,546)
($148,747)
Virginia Beach
Rest of the Region
Oceana with Super Hornets
Oceana without Super Hornets
Oceana without Super Hornets and Closure
Oceana Scenarios

Figure 10

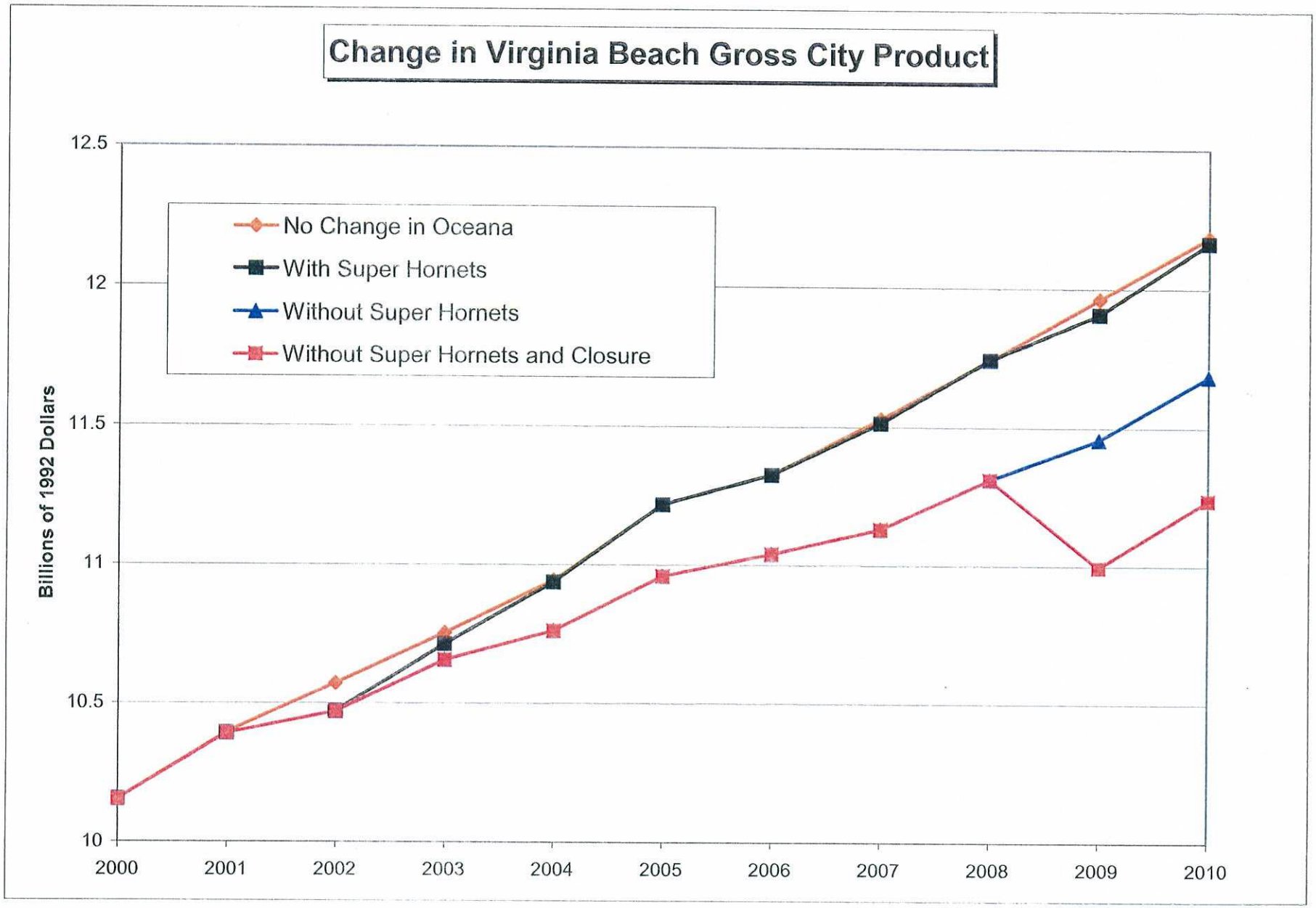

Change in Virginia Beach Gross City Product
Billions of 1992 Dollars
12.5
12
11.5
11
10.5
10
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
No Change in Oceana
With Super Hornets
Without Super Hornets
Without Super Hornets and Closure

Figure 11

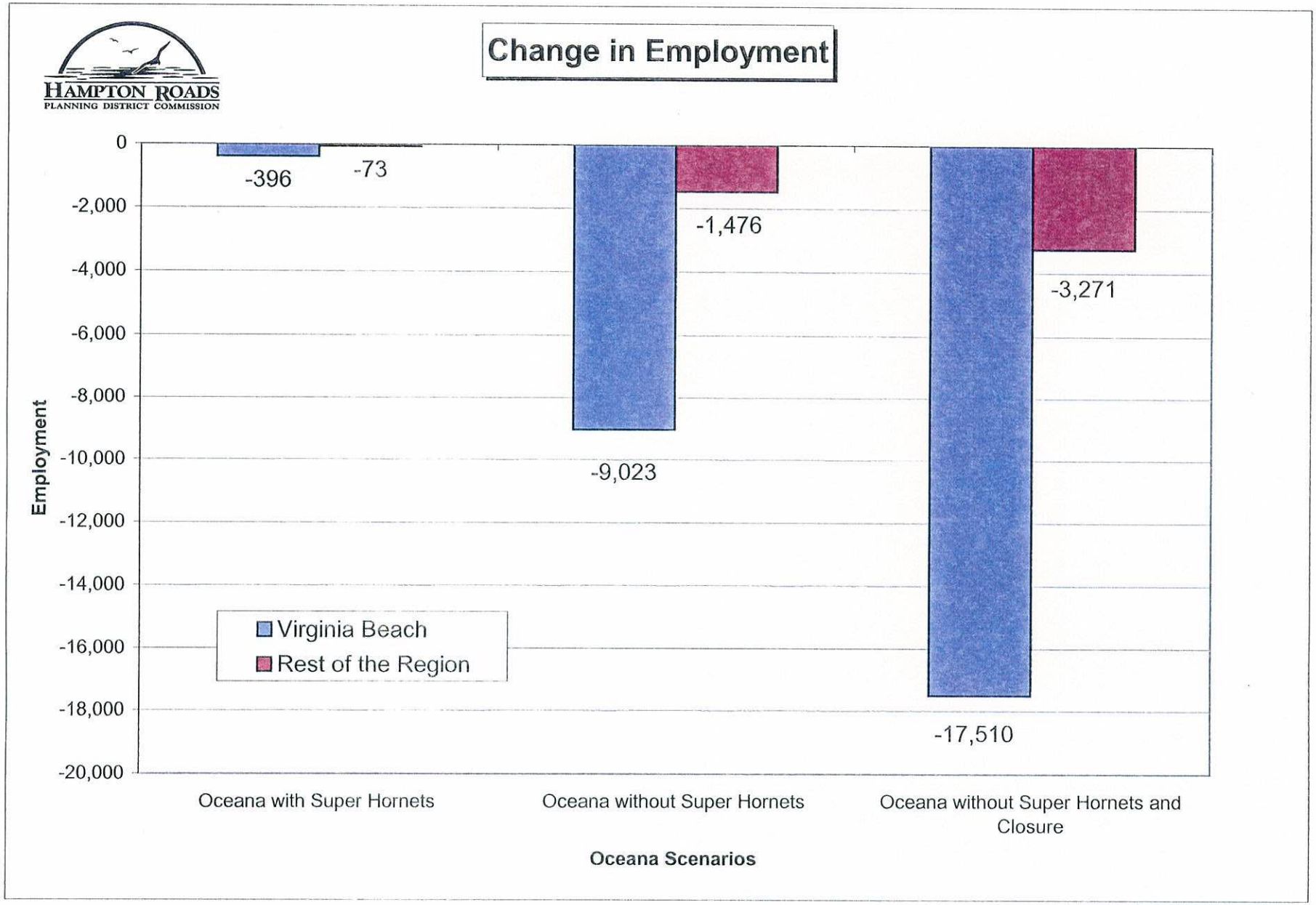
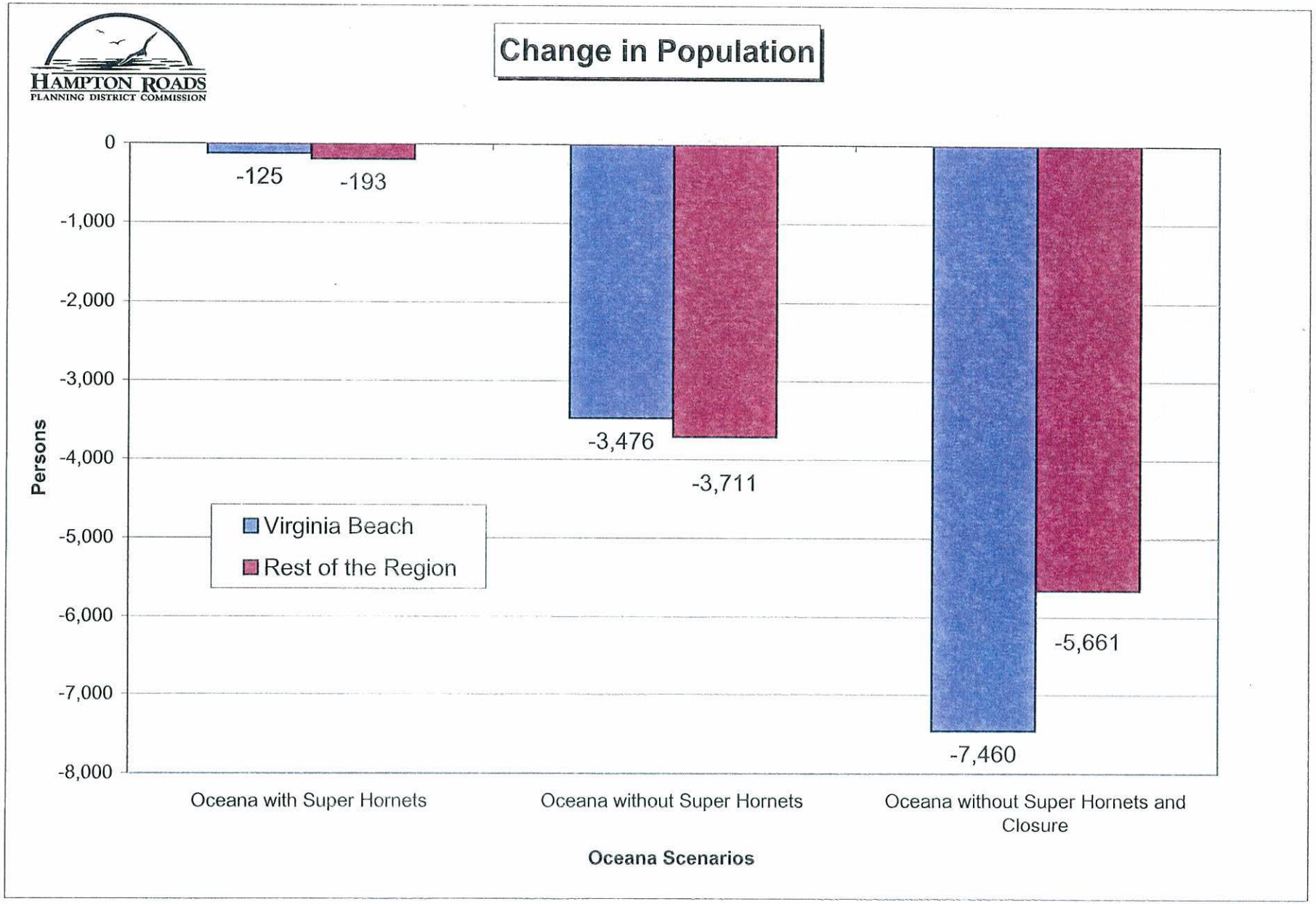

HAMPTON ROADS
PLANNING DISTRICT COMMISSION
Change in Employment
0
-2,000
-4,000
-6,000
-8,000
-10,000
-12,000
-14,000
-16,000
-18,000
-20,000
Employment
-396
-73
-9,023
-1,476
-17,510
-3,271
Virginia Beach
Rest of the Region
Oceana with Super Hornets
Oceana without Super Hornets
Oceana without Super Hornets and Closure
Oceana Scenarios

Figure 12


HAMPTON ROADS
PLANNING DISTRICT COMMISSION
Change in Population
0
-1,000
-2,000
-3,000
-4,000
-5,000
-6,000
-7,000
-8,000
Persons
-125
-193
-3,476
-3,711
-7,460
-5,661
Virginia Beach
Rest of the Region
Oceana with Super Hornets
Oceana without Super Hornets
Oceana without Super Hornets and Closure
Oceana Scenarios

Finally, closing Oceana would produce a loss of 7,460 persons from the population of Virginia Beach as compared to the loss of 5,661 in the other fifteen communities.

In similar fashion, the region's personal income, which is measured by where people live rather than where they work, will also experience impacts which will be more widely dispersed about the region than are the GRP and employment impacts. If the Super Hornets are assigned to Oceana, it can be expected that personal income in Virginia Beach will decline by $11.8 million by 2010 as compared to a loss of $7.6 million in the rest of Hampton Roads as shown in Figure 13. By contrast, operating without the Super Hornets, personal income in Virginia Beach would decline by $272.3 million by 2010 as compared to $158.9 million in the remaining fifteen cities and counties of the region. Even more dramatic would be the closure of the base in which case personal income in Virginia Beach would decline by $514.1 million by 2010 and by $300.4 million in the remainder of the region.

The proportional distribution of impacts between Virginia Beach and the remainder of the region is shown in Tables 7 through 9.

Conclusion

As was indicated at the outset, Oceana will soon experience the effect of a change in the composition of its aircraft. Unfortunately, the future makeup of aircraft at the facility is not currently known. Three outcomes are possible. The first is that the Navy will decide to base its new Super Hornets at Oceana. Another is that the new fighters will be assigned elsewhere but the base will continue operations with a reduced number of aircraft. Finally, a third scenario is that the Super Hornets are assigned elsewhere and that the base is closed in 2009 as a result. The outcome of the decisions as to the future location of the new jets as well as to whether the base will remain open will produce significant economic impacts in the community. Should the decision be made to assign the new aircraft to Oceana, the economic consequence of that decision will be to keep the base's future impact close to current levels. By contrast, should the Super Hornet squadrons be located elsewhere, activity levels at the base will drop between now and 2010 and that will set

Table 8

Change in Regional Economic Activity Between 2000 and 2010

	Oceana Without Super Hornets		
	Virginia Beach	Rest of Region	Hampton Roads
Gross Regional Product	90%	10%	100%
Personal Income	63%	37%	100%
Disposable Income	60%	40%	100%
Consumption	62%	38%	100%
Fixed Investment	65%	35%	100%
Non-Residential Structures	71%	29%	100%
Residential Structures	45%	55%	100%
Average Annual Wage	NA	NA	NA
Per Capita Income	NA	NA	NA
Total Employment	86%	14%	100%
Government	97%	3%	100%
Private Non-Farm	57%	43%	100%
Retail	60%	40%	100%
Eating and Drinking	67%	33%	100%
Population	48%	52%	100%
Fiscal Impacts			
State Revenues	NA	NA	100%
Local Revenues	NA	NA	100%

HAMPTON ROADS
PLANNING DISTRICT COMMISSION

Table 9

Change in Regional Economic Activity Between 2000 and 2010

	Oceana Without Super Hornets and Closure		
	Virginia Beach	Rest of Region	Hampton Roads
Gross Regional Product	88%	12%	100%
Personal Income	63%	37%	100%
Disposable Income	65%	35%	100%
Consumption	64%	36%	100%
Fixed Investment	62%	38%	100%
Non-Residential Structures	68%	32%	100%
Residential Structures	42%	58%	100%
Average Annual Wage	NA	NA	NA
Per Capita Income	NA	NA	NA
Total Employment	84%	16%	100%
Government	97%	3%	100%
Private Non-Farm	58%	42%	100%
Retail	60%	40%	100%
Eating and Drinking	67%	33%	100%
Population	57%	43%	100%
Fiscal Impacts			
State Revenues	NA	NA	100%
Local Revenues	NA	NA	100%