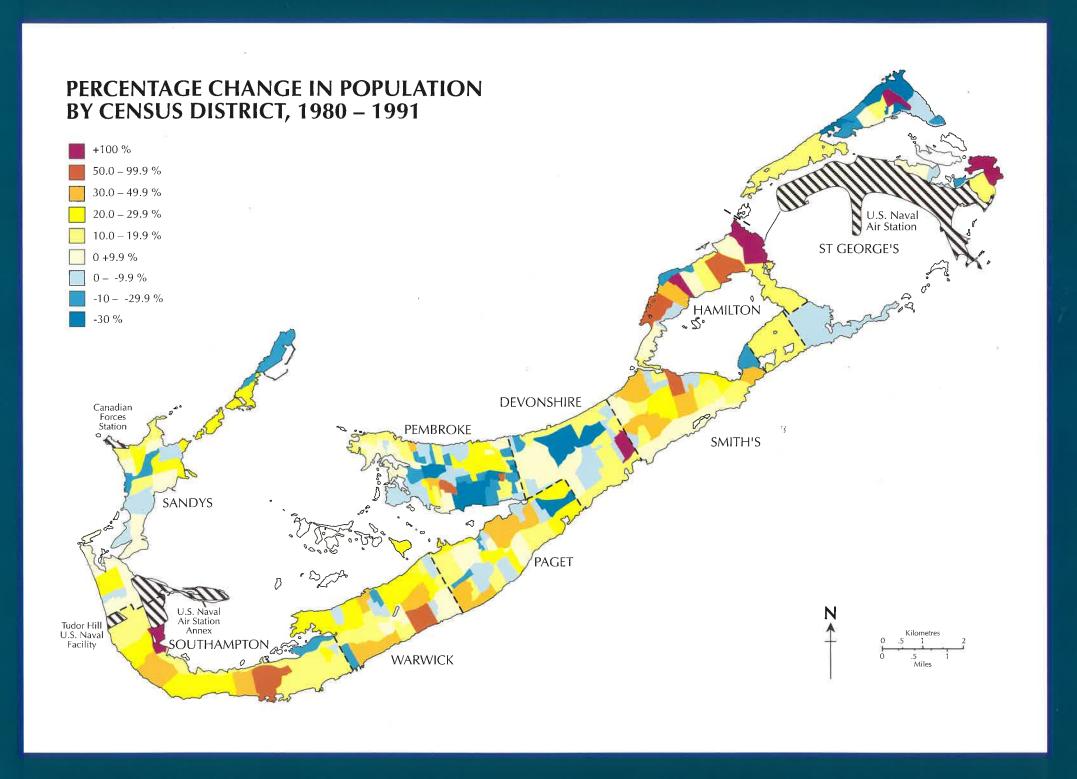
1991 Census of Population and Housing Map Supplement



Foreword

This supplement presents population and housing data from the 1991 Census in map form and also shows the data upon which the maps are based. Census districts are the smallest geographic areas for which data are available and the higher levels of aggregation, such as constituency and parish level data, are compiled from these basic areas.

The maps allow users to grasp quickly how features such as population and housing density vary within parishes and across the country. It is hoped that this supplement will prove a valuable reference source for policy-makers, researchers, teachers, students and others who have an interest in Bermuda's social and demographic characteristics.

The project leader for this supplement was Mr. Kenneth Scott and he was assisted ably by Ms. Penny Simmons and Ms. Andrea Brangman of the Census Office.

We also wish to thank Dr. Brian Horsfield, cartographer, of Island Maps for his invaluable work in setting up the database and designing the maps. In this regard, we also thank Mr. Christopher Marson, graphic artist in the Department of Information Services, for his expert technical assistance.

The Census Office is pleased to present this map supplement, the first of its kind for Bermuda, to all users of census data and we hope that it will arouse interest and stimulate the further use of the 1991 Census results.

Donald A.M. Scott Chief Statistician November 30, 1993



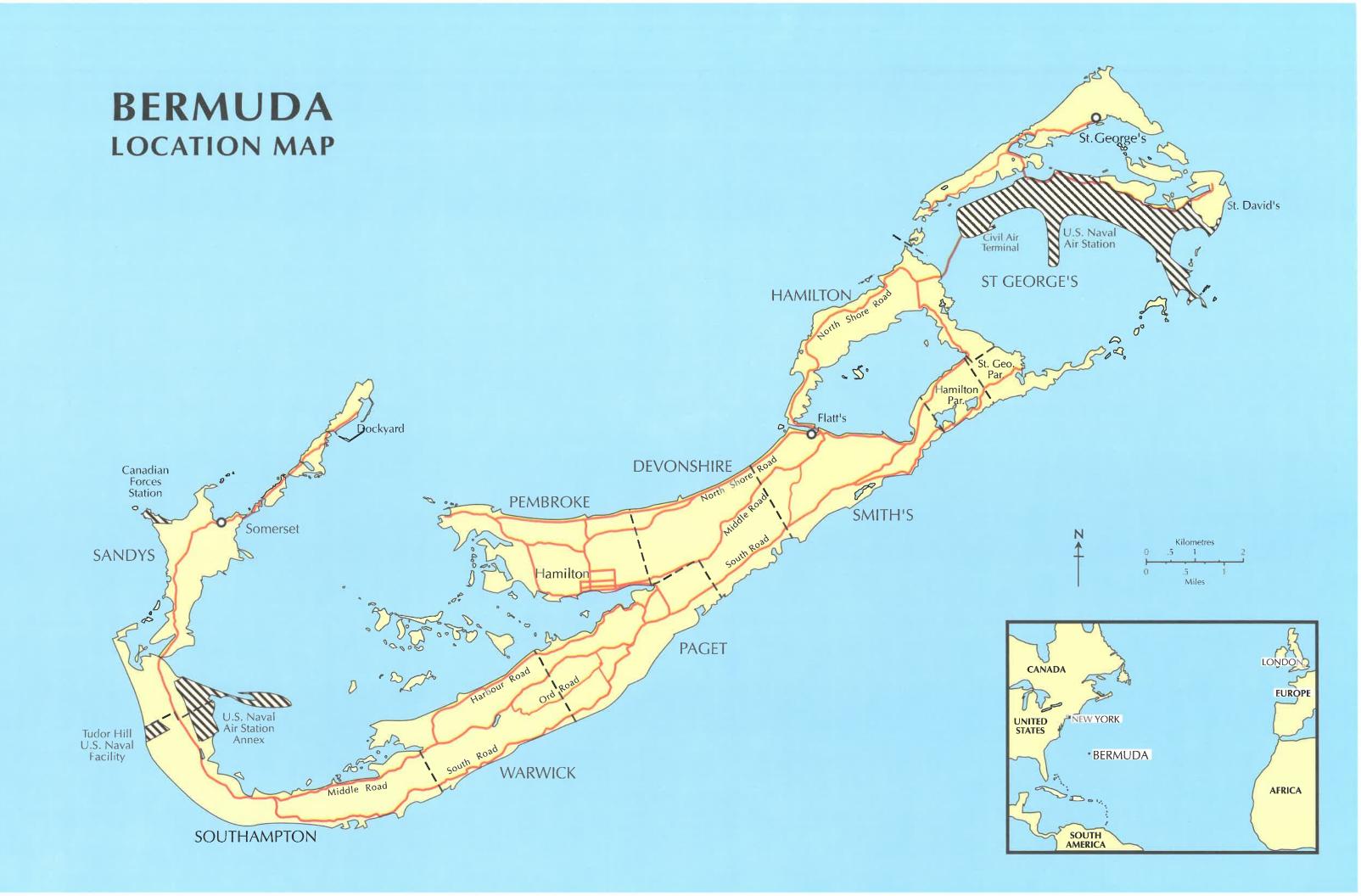
Contents

	Page
Foreword	1
Bermuda Location Map	3
Census Districts	5
Interpretation of the Maps	5
List of Maps	
Percentage Change in Population by Parish, 1980-1991(Map 1)	7
Population Density by Census District, 1991(Map 2)	9
Percentage Change in Population by Census District, 1980-1991(Map 3)	11
Percentage Change in Population by Constituency, 1980-1991(Map 4)	13
Population Under 12 Years of Age by Census District, 1991(Map 5)	15
Population Aged 12-18 Years by Census District, 1991(Map 6)	1 <i>7</i>
Population Aged 65 Years and Over by Census District, 1991(Map 7)	19
Percentage Change in Number of Occupied Dwelling Units by Parish, 1980-1991(Map 8)	21
Dwelling Unit Density by Census District, 1991(Map 9)	23
Percentage Change in Number of Occupied Dwelling Units by Census District, 1980-1991(Map 10)	25
Percentage of Occupied Dwelling Units Built in 1959 or Earlier(Map 11)	27
Percentage of Occupied Dwelling Units Reported In Need of Major Repairs, 1991(Map 12)	29
Vacancy Rates for Dwelling Units by Parish, 1991(Map 13)	31
Number of Employees Reporting to Work in each Parish, 1991(Map 14)	33
Technical Note on Area Calculations for Census Districts	34
Census Disrtrict Reference Map	35

Bermuda Location Map

The Bermuda Location Map shows major roads, towns and villages, as well as parish boundaries which are indicated by the vertical black dotted lines.

The location map also shows by the black and white shaded area the Canadian and United States military bases. Also, in the bottom right hand corner, an inset map shows Bermuda in relation to the North and South American continents, the Caribbean, Europe and Africa.



1991 Census of Population and Housing Map Supplement

Census Districts

There are 241 census districts each of which is identified by a three-digit code with the first digit identifying the parish and the last two digits uniquely identifying the specific area. Further, there is a clearly defined boundary description written for each census district which is in published form and is available upon request.

Page 35 displays a census district reference map which is a black and white fold-out map entitled 'Bermuda Census Districts'. A quick referral to the Census District reference map will help the user to identify census districts. For those maps which refer to population and dwelling densities, the metric measurement of a hectare is used. A hectare is equal to 10,000 square metres or 2.47 acres, roughly the area of a piece of land approximately 100 yards long by 120 yards wide.

The census district areas vary in size from 1.2 hectares (census district 1-08 in St. George's) to 114.4 hectares (census district 1-22 in Tucker's Town). The average census district area is 19.5 hectares.

Interpretation of the Maps

The maps are very useful as a visual aid to grasping similarities and differences in the geographic distribution of an attribute or characteristic in Bermuda's population or its housing stock.

Users should note however that the average values or proportions shown for a specific geographic area - census district, constituency or parish - do not imply a uniform distribution of the characteristic over the entire area. For example, census district 5-17 has an area of 58.1 hectares. However, the Pembroke Marsh (swamp land) covers some 90% of the district and hence the population of the area is concentrated in 4.5 hectares in and around the St. Monica's Mission area. In other words, there is a variation in population density within census district 5-17 but at census district level an average of the internal density measures is used to describe or characterize the entire area.

This interpretative note applies to all of the maps in the supplement and does not detract from their main use which is to show similarities and differences between major areas.

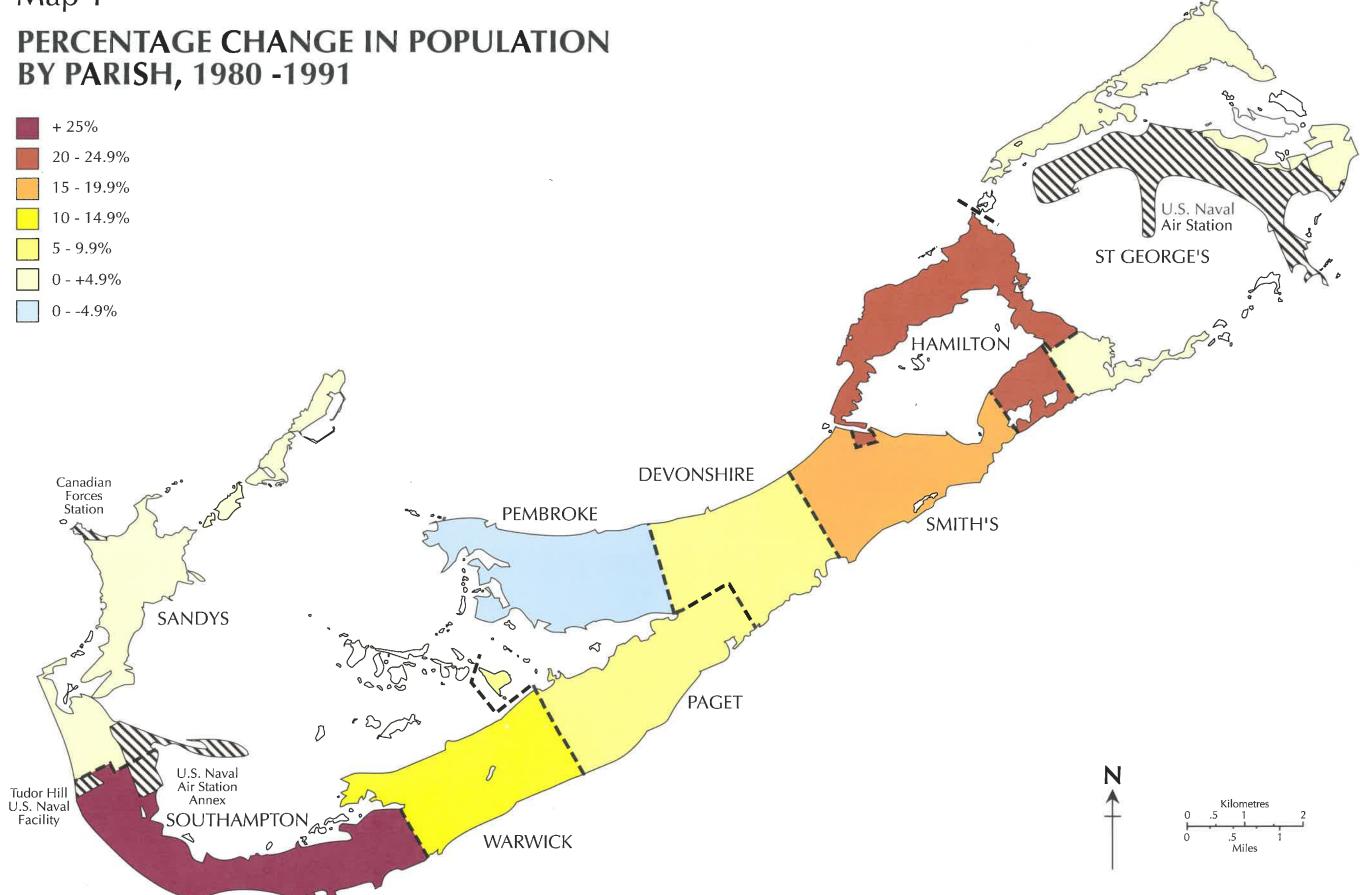


Percentage Change in Population by Parish, 1980-1991

Bermuda's non-institutional civilian population stood at 58,460 in 1991 an increase of 8% over the 1980 figure of 54,050. The parishes which recorded the most significant population increases were Southampton (+26%), Hamilton (+24%), Smiths (+18%) and Warwick (+14%). Pembroke continued its long-term decline in population and recorded a decrease of 5%. Most of this decrease was experienced in the City of Hamilton which recorded a 32% decline over the eleven-year period. The remaining parishes all experienced increases in population ranging from a marginal 1% to 8% over the period.

Percentage Change in Population by Parish, 1980-1991				
Parish	1991 Population	1980 Population	% Change 1980-1991	
Bermuda	58,460	54,050	8%	
St. George's	4,623	4,587	+1%	
Hamilton	4,680	3,784	+24%	
Smith's	5,261	4,463	+18%	
Devonshire	7,371	6,843	+8%	
Pembroke	11,507	12,060	-5%	
Paget	4,877	4,497	+8%	
Warwick	7,900	6,948	+14%	
Southampton	5,804	4,613	+26%	
Sandys	6,437	6,255	+3%	
City of Hamilton	1,100	1,617	-32%	
Town of St. George	1,648	1,647	0%	

Map 1



Population Density by Census District - 1991

Pembroke remains the most densely populated parish at 21.1 persons per hectare.

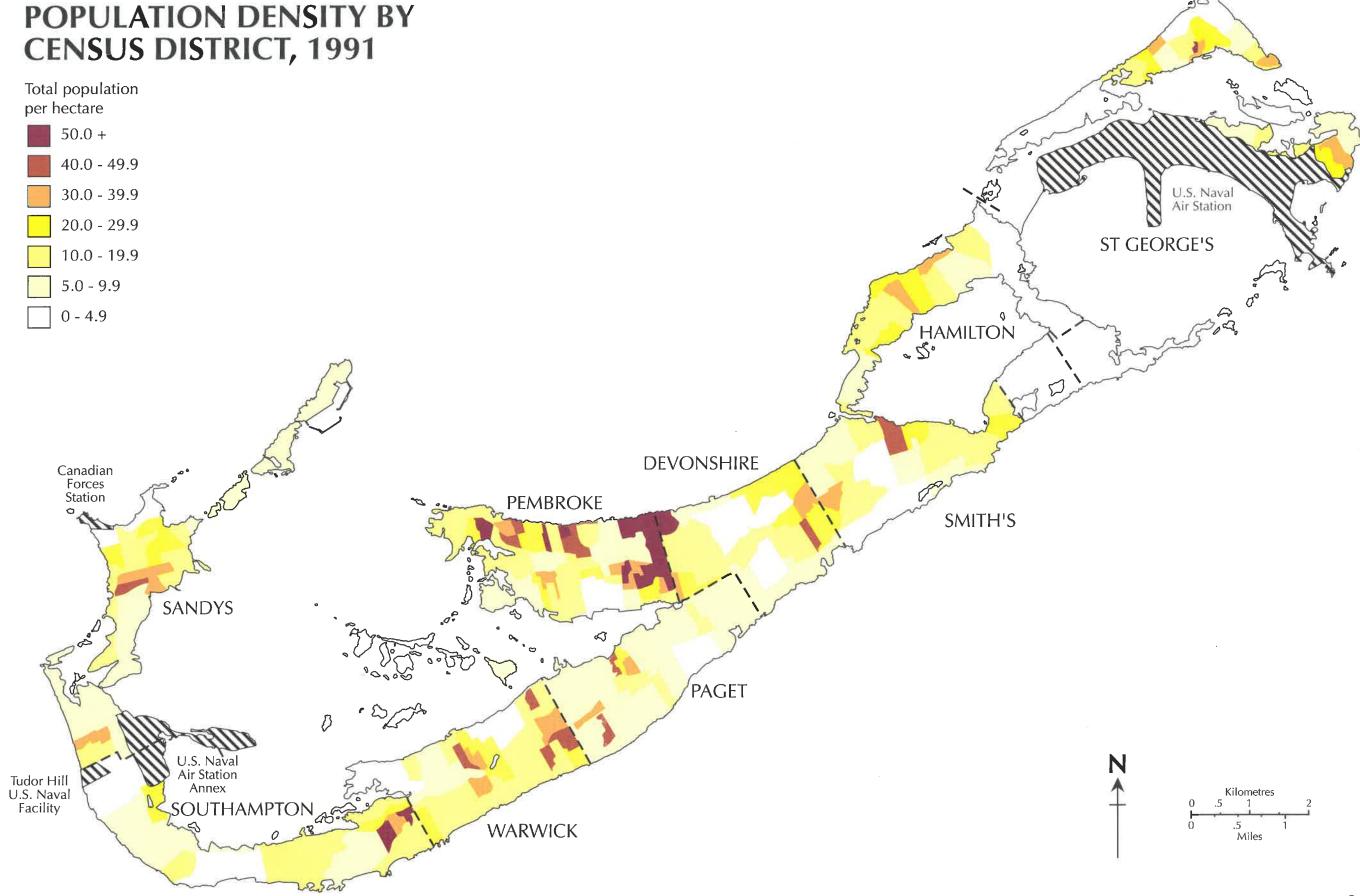
Devonshire and Warwick parishes followed with population densities of 14.5 and 15.5 persons per hectare, respectively. The density of these two parishes was above the national average of 12.5 persons per hectare.

Those parishes which experienced the largest population growth, namely Southampton, Smith's and Hamilton Parish, still maintained density levels that were below the national average. St. George's recorded the lowest density of 8.9 persons per hectare replacing Hamilton Parish which recorded the lowest population density of 7.5 persons per hectare in 1980.

Map 2 actually shows the variation in population density within parishes (at census district level), and Pembroke continues to have the greater concentration of areas with very high population density, namely, 50 or more persons per hectare.

Population Density by Parish - 1980 and 1991					
Parish	Area in Hectares	1991 Population Pop	1991 ulation/ha.	1980 Population Popu	1980 ulation/ha.
Bermuda	4,691	58,460	12.5	54,050	11.5
St. George	519	4,623	8.9	4,587	8.8
Hamilton	507	4,680	9.2	3,784	7.5
Smith's	467	5,261	11.3	4,463	9.6
Devonshire	507	7,371	14.5	6,843	13.5
Pembroke	• 546	11,507	21.1	12,060	22.1
Paget	533	4,877	9.1	4,497	8.4
Warwick	510	7,900	15.5	6,948	13.6
Southampton	562	5,804	10.3	4,613	8.2
Sandys	540	6,437	11.9	6,255	11.6
City of Hamilton	84	1,100	13.1	1,617	19.3
Town of St.George	e 135	1,648	12.2	1,647	12.2

Map 2



Percentage Change in Population by Census District, 1980-1991

Population growth between 1980 and 1991 was very significant in the outlying parishes. This growth occurred mostly in Southampton, Warwick, Smith's and Hamilton Parish in the range of 14% to 26%. However, at the census district level population growth varied greatly in the range of 23% to over 100%.

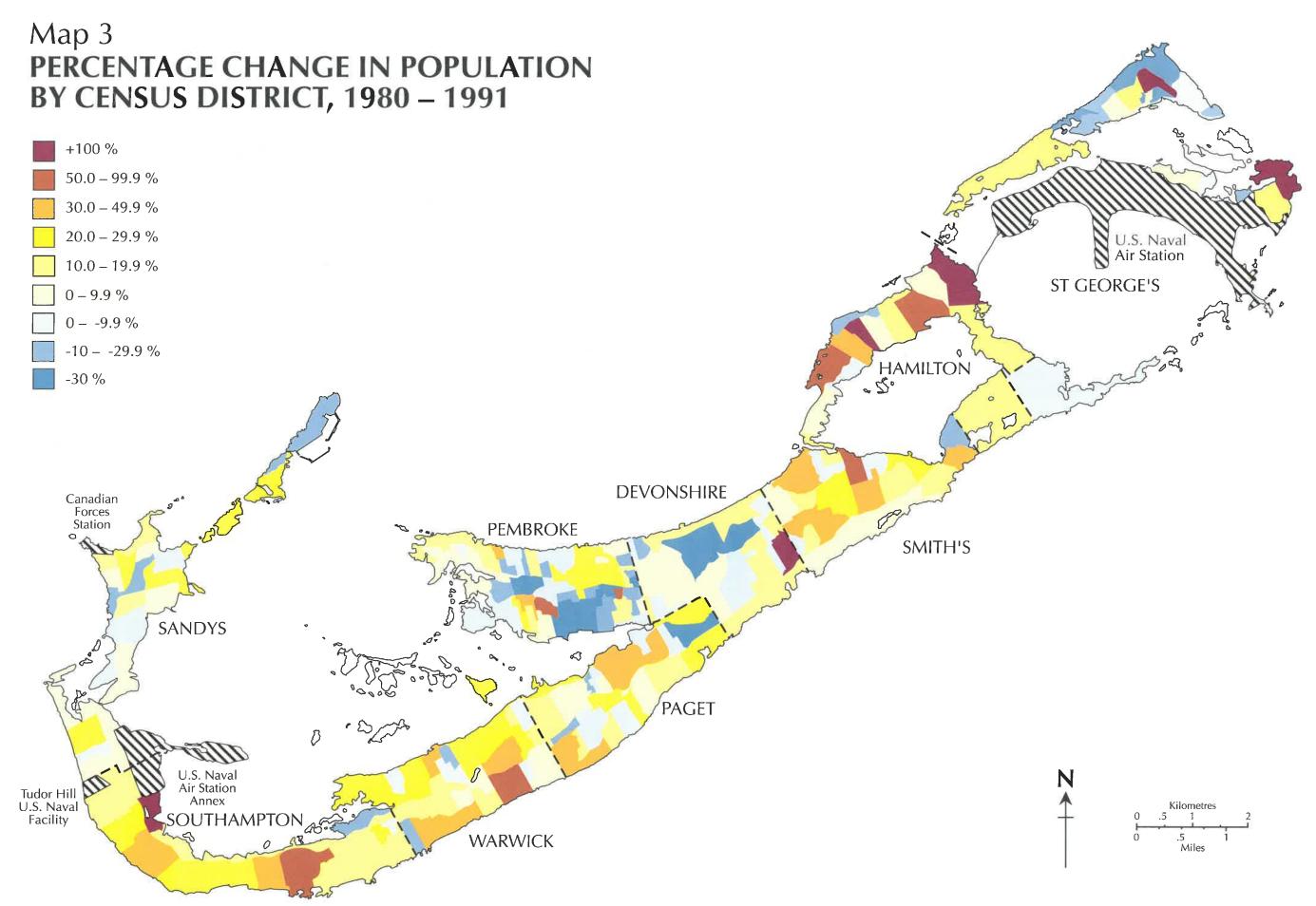
On the other hand, Pembroke parish showed a decline in population of 5%. A closer look at Pembroke by census district shows that those census districts which make up the City of Hamilton experienced the sharpest decline in population in the range of -18% to -51%. This was due in part to the growing commercialization of the City.

Additionally, in St. George's parish population declines in the range of -12% to -40% were recorded in various census districts. These were followed by the remaining parishes all showing varying degrees of population decline in their respective census districts.

Percentage Change in Population by Selected Census Districts, 1980-1991

Selected			
Census	1991	1980	% Change
Districts	Population	Population	1980-1991
St. George's			
1-01	181	206	-12%
1-04	129	214	-40%
1-06	198	327	-39%
1-08	73	112	-35%
1-13	195	249	-22%
1-14	188	278	-32%
Hamilton Parish			
2-03	182	71	+156%
2-05	333	214	+56%
2-09	421	175	+141%
2-11	533	366	+46%
2-12	397	252	+57%

Selected Census Districts	1991 Population	1980 Population	% Change 1980-1991
Smith's			
3-02	376	266	+41%
3-04	186	151	+23%
3-09	394	259	+52%
3-13	309	220	+40%
3-16	428	296	+45%
City of Hamilton			
5-23	61	79	-23%
5-24	50	102	-51%
5-25	144	195	-26%
5-26	139	232	-40%
5-27	172	263	-35%
5-28	115	173	-34%
5-29	139	180	-23%
5-30	179	218	-18%
5-31	102	175	-42%
5-32	62	102	-39%
Warwick			
7-02	296	209	+42%
7-04	299	204	+47%
7-09	312	216	+44%
7-20	245	190	+29%
7-26	176	126	+40%
Southampton			
8 -03	444	207	+114%
8-04	280	210	+33%
8-08	355	243	+46%
8-09	249	159	+57%
8-11	411	215	+91%



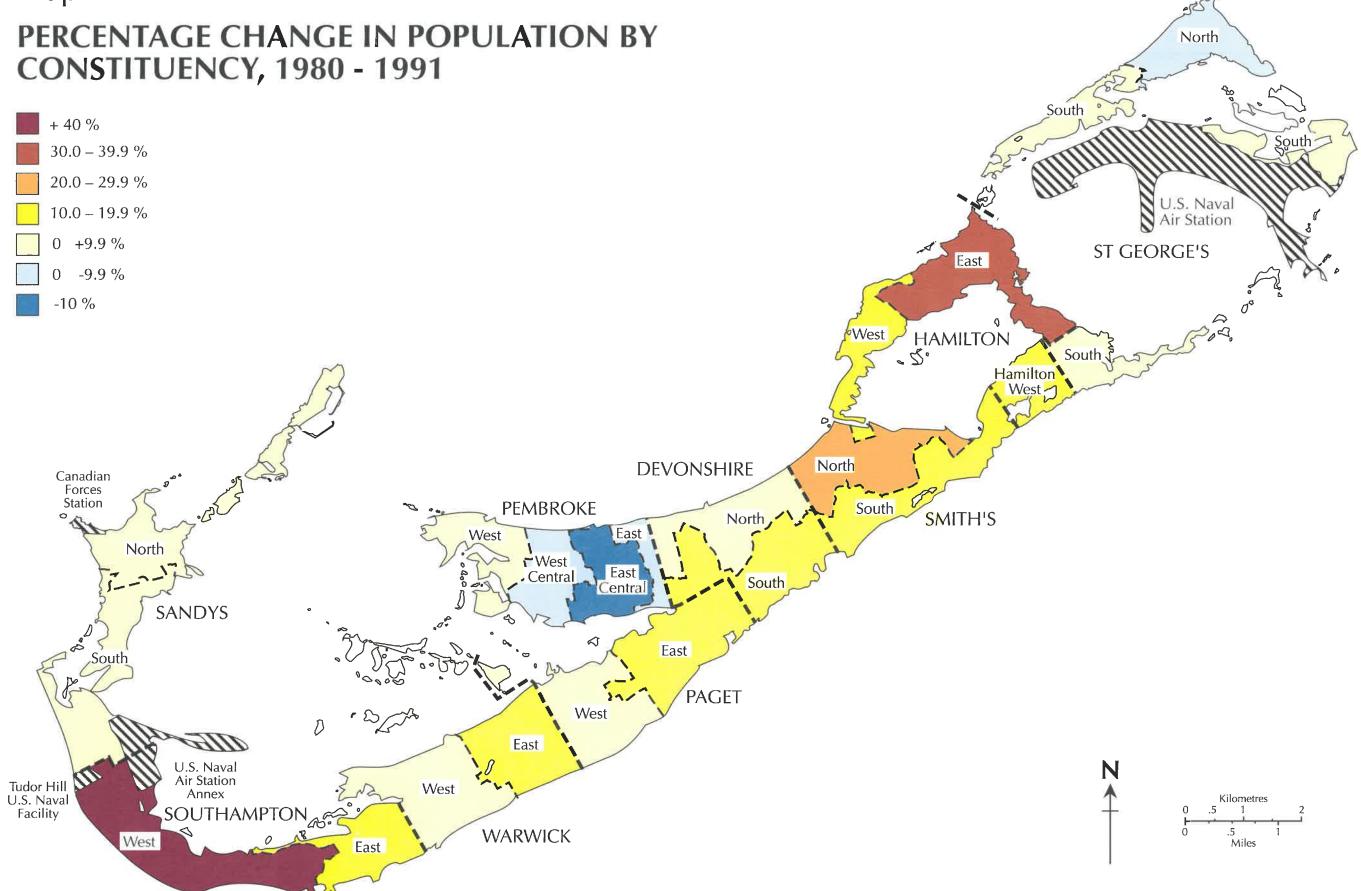
Percentage Change in Population by Constituency, 1980-1991

The constituencies which recorded the most significant population increases over the intercensal period were Southampton West (+43.0%), Hamilton East (+31.0%) and Smith's North (+24.0%).

Those constituencies experiencing population decline were Pembroke East Central (-15%), Pembroke East (-6%), St. George's North (-3%) and Pembroke West Central (a marginal -0.5%).

Population by Constituency, 1980-1991					
Parish Constituencies	1991 Population	1980 Population	% Change 1980-1991		
Bermuda	58,460	54,050	+8%		
St. George's North	2,256	2,322	-3%		
St. George's South	2,367	2,265	+4%		
Hamilton East	2,506	1,909	+31%		
Hamilton West	2,174	1,875	+16%		
Smith's North	2,664	2,154	+24%		
Smith's South	2,597	2,309	+12%		
Devonshire North	3,433	3,369	+2%		
Devonshire South	3,938	3,474	+13%		
Pembroke East	2,764	2,935	-6%		
Pembroke East Central	2,643	3,095	-15%		
Pembroke West Central	3,041	3,057	-0.5%		
Pembroke West	3,059	2,973	+3%		
Paget East	2,417	2,136	+13%		
Paget West	2,460	2,361	+4%		
Warwick East	4,170	3,535	+18%		
Warwick West	3,730	3,413	+9%		
Southampton East	2,710	2,452	+10%		
Southampton West	3,094	2,161	+43%		
Sandys North	3,180	3,057	+4%		
Sandys South	3,257	3,198	+2%		

Map 4



Population Under 12 Years of Age by Census District, 1991

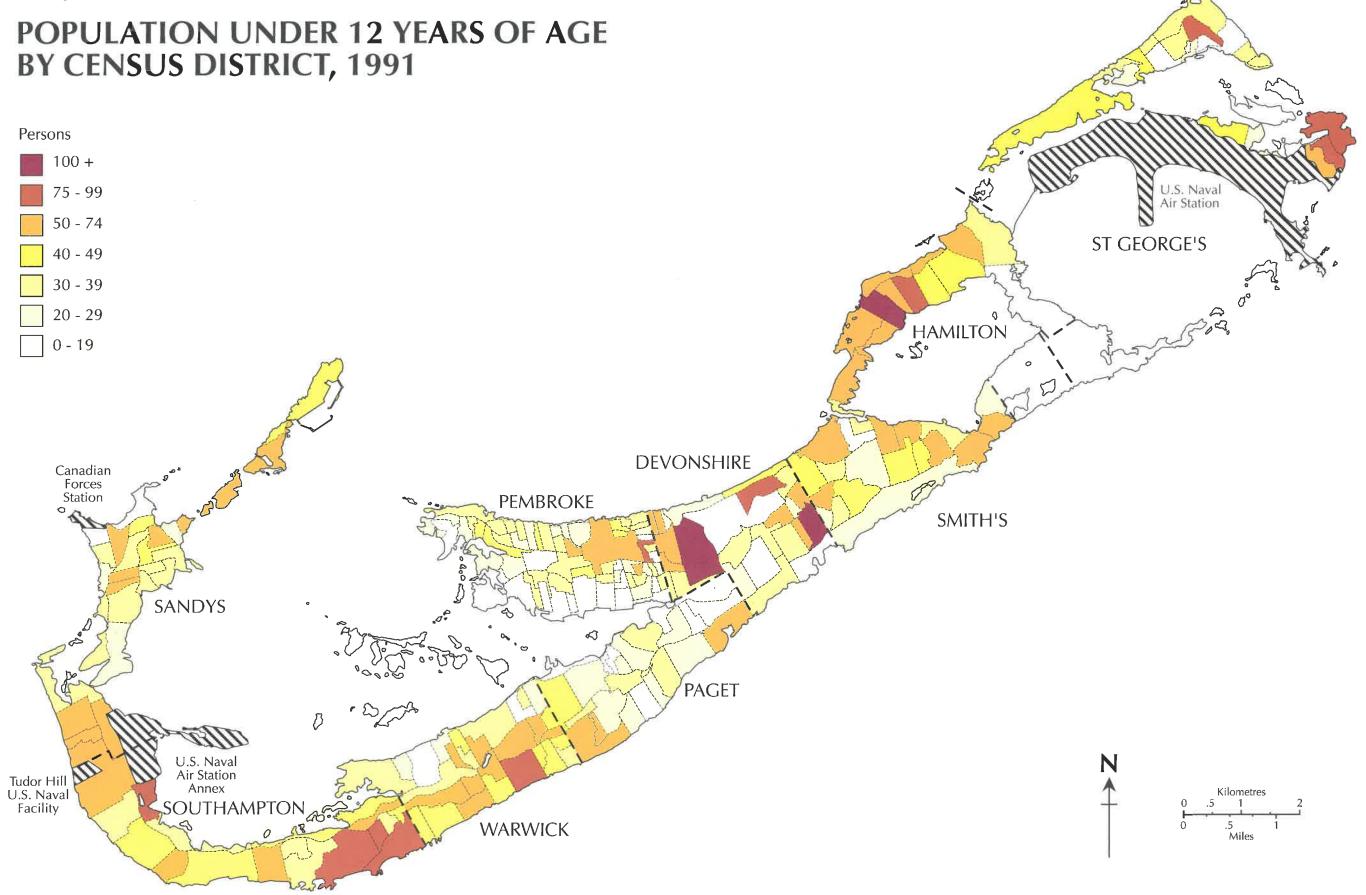
Bermuda's population of persons under 12 years ranged from a low of 657 persons in Paget to a high of 1,796 in Pembroke.

Some of the more heavy concentrations of this age group were found in census districts in Devonshire, Pembroke, Southampton, Sandys, Hamilton, Warwick and St. George's parishes.

Population Under 12 Years by Parish, 1991

Parish	Number	Percentage Distribution	
Total	9,415	100%	
St. George's	812	9%	
Hamilton	770	8%	
Smith's	817	9%	
Devonshire	1,213	13%	
Pembroke	1,796	19%	
Paget	657	7%	
Warwick	1,312	14%	
Southampton	957	10%	
Sandys	1,081	11%	

Map 5



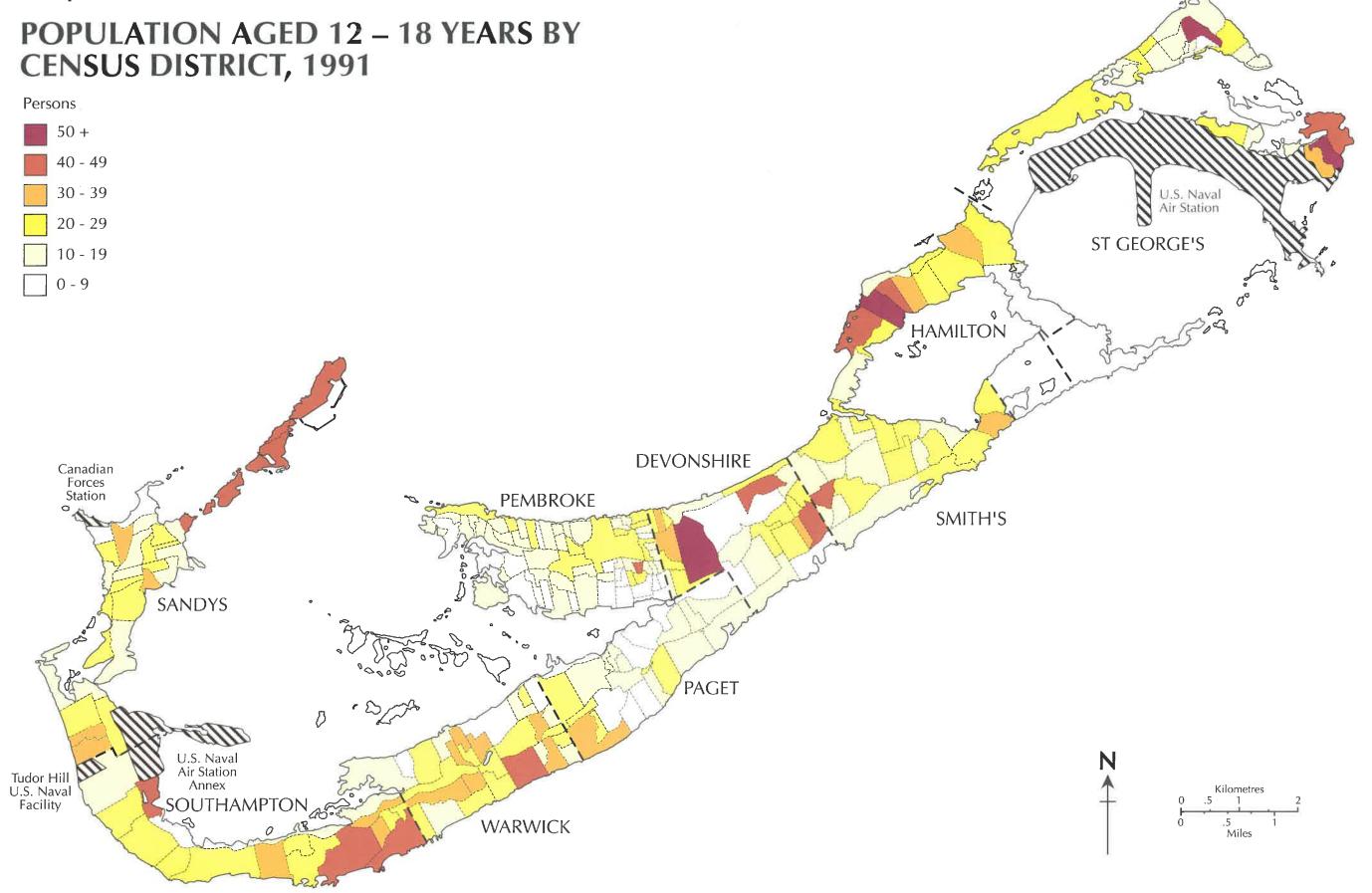
Population Aged 12-18 Years by Census District, 1991

This segment of Bermuda's population aged 12-18 years shows a similar distribution by parish as those persons 12 years and under.

Population Aged 12-18 Years by Parish,1991

Parish	Number	Percentage Distribution	
Total	4,851	100%	
St. George's	464	10%	
Hamilton	407	8%	
Smith's	416	9%	
Devonshire	651	13%	
Pembroke	906	19%	
Paget	308	6%	
Warwick	664	14%	
Southampton	461	9%	
Sandys	574	12%	

Map 6



Population Aged 65 Years and Over by Census District, 1991

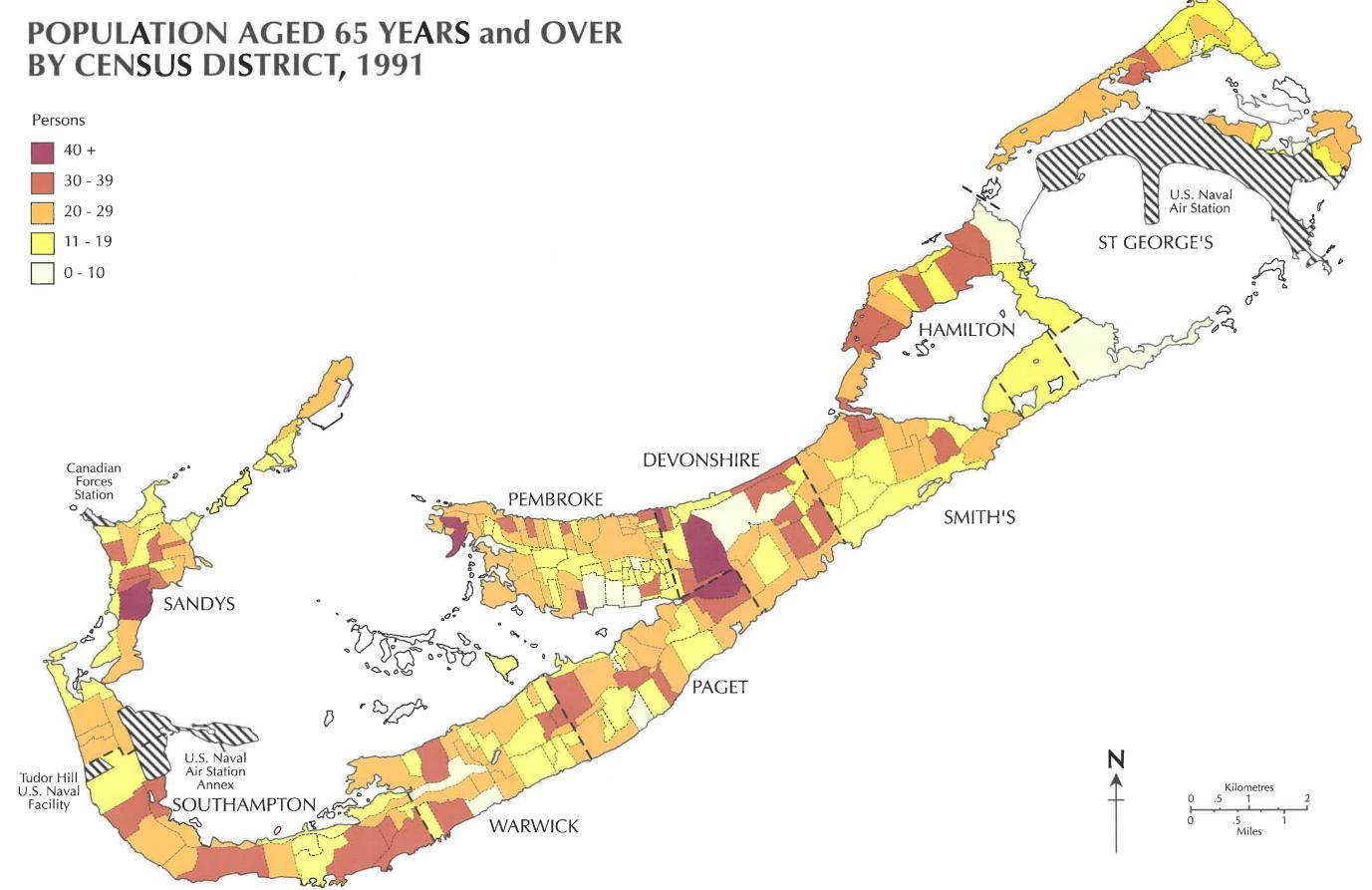
This map highlights the distribution by census district of the non-institutional population aged 65 years and over.

The map indicates that the highest concentrations of elderly citizens were located in census districts in Pembroke, Devonshire, Paget and Sandys parishes. Policies aimed at re-directing resources towards the needs of a growing elderly population could be based on the information shown on this map, along with other related information such as housing, health care services, and pension distributions for the elderly.

Population Aged 65 Years and Over by Parish, 1991

Parish	Number	Percentage Distribution	
Total	5,396	100%	
St. George's	419	8%	
Hamilton	369	7%	
Smith's	422	8%	
Devonshire	655	12%	
Pembroke	1,327	25%	
Paget	540	10%	
Warwick	616	11%	
Southampton	446	8%	
Sandys	602	11%	

Map 7



Percentage Change in Number of Occupied Dwelling Units by Parish, 1980-1991

The 1991 Census of Population and Housing recorded a total of 22,430 households on the island, compared with 18,449 households in 1980 - a 22% increase. Map 8 shows that Hamilton and Southampton parishes experienced the highest rates of growth in numbers of dwelling units at 45% and 38%, respectively. Those parishes were followed by Smith's, Warwick and Devonshire with 27%, 26% and 23%, respectively. The City of Hamilton experienced an 18% decrease in occupied dwellings. This is an indication of the growing commercialization of the City over the eleven-year period.

Occupied Dwelling Units by Parish, 1980 and 1991

Parish	1991 Dwellings	1980 Dwellings	% Change 1980-1991
Bermuda	22,430	18,449	+22%
St. George's	1,699	1,464	+16%
Hamilton	1,737	1,196	+45%
Smith's	2,031	1,594	+27%
Devonshire	2,726	2,214	+23%
Pembroke	4,636	4,296	+8%
Paget	2,015	1,707	+18%
Warwick	3,086	2,447	+26%
Southampton	2,152	1,565	+38%
Sandys	2,348	1,971	+19%
City of Hamilton	500	608	-18%
Town of St. George	602	477	+26%

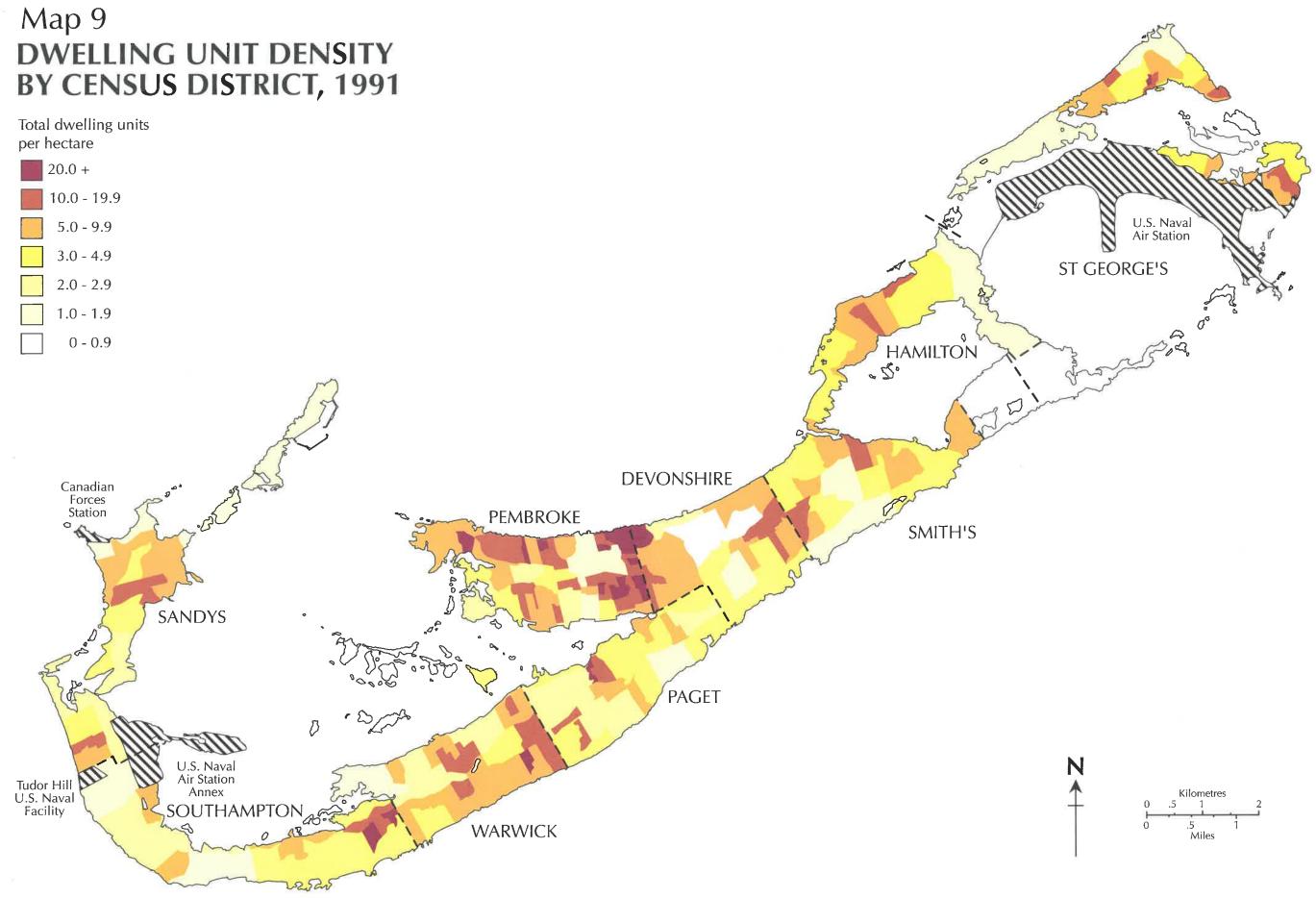
Map 8 PERCENTAGE CHANGE IN NUMBER OF OCCUPIED **DWELLING UNITS BY PARISH, 1980-1991** + 35% 25 - 34.9% 20 - 24.9% U.S. Naval Air Station 15 - 19.9% 0 - 14.9% ST GEORGE'S HAMILTON S DEVONSHIRE Canadian Forces Station PEMBROKE SMITH'S SANDYS PAGET dIIFU.S. Naval Air Station Tudor Hill U.S. Naval Facility Annex SOUTHAMPTON

WARWICK

Dwelling Unit Density by Census District, 1991

Pembroke remained the parish with the highest dwelling unit density of 8.5 dwellings per hectare. This was up from 7.9 dwellings per hectare in 1980. Warwick and Devonshire parishes followed with 6.1 and 5.4 dwellings per hectare, respectively. In absolute numbers Pembroke increased its share of the Island's stock of dwellings over the intercensal period by 340 dwellings; this was significantly lower than that of most of the other parishes.

Dwelling Unit Density by Parish, 1980 and 1991						
Parish	Area Hectare	1991 Dwellings Dw	1991 ellings/ha.	1980 Dwellings Dwe	1980 ellings/ha.	
Bermuda	4,691	22,430	4.8	18,449	3.9	
St. George	519	1,699	3.3	1,464	2.8	
Hamilton	507	1,737	3.4	1,196	2.4	
Smith's	467	2,031	4.4	1,594	3.4	
Devonshire	507	2,726	5.4	2,214	4.4	
Pembroke	546	4,636	8.5	4,296	7.9	
Paget	533	2,015	3.8	1,702	3.2	
Warwick	510	3,086	6.1	2,447	4.8	
Southampton	562	2,152	3.8	1,565	2.8	
Sandys	540	2,348	4.3	1,971	3.6	
City of Hamilton	84	501	6.0	608	7.3	
Town of St. George	135	602	4.4	477	3.5	



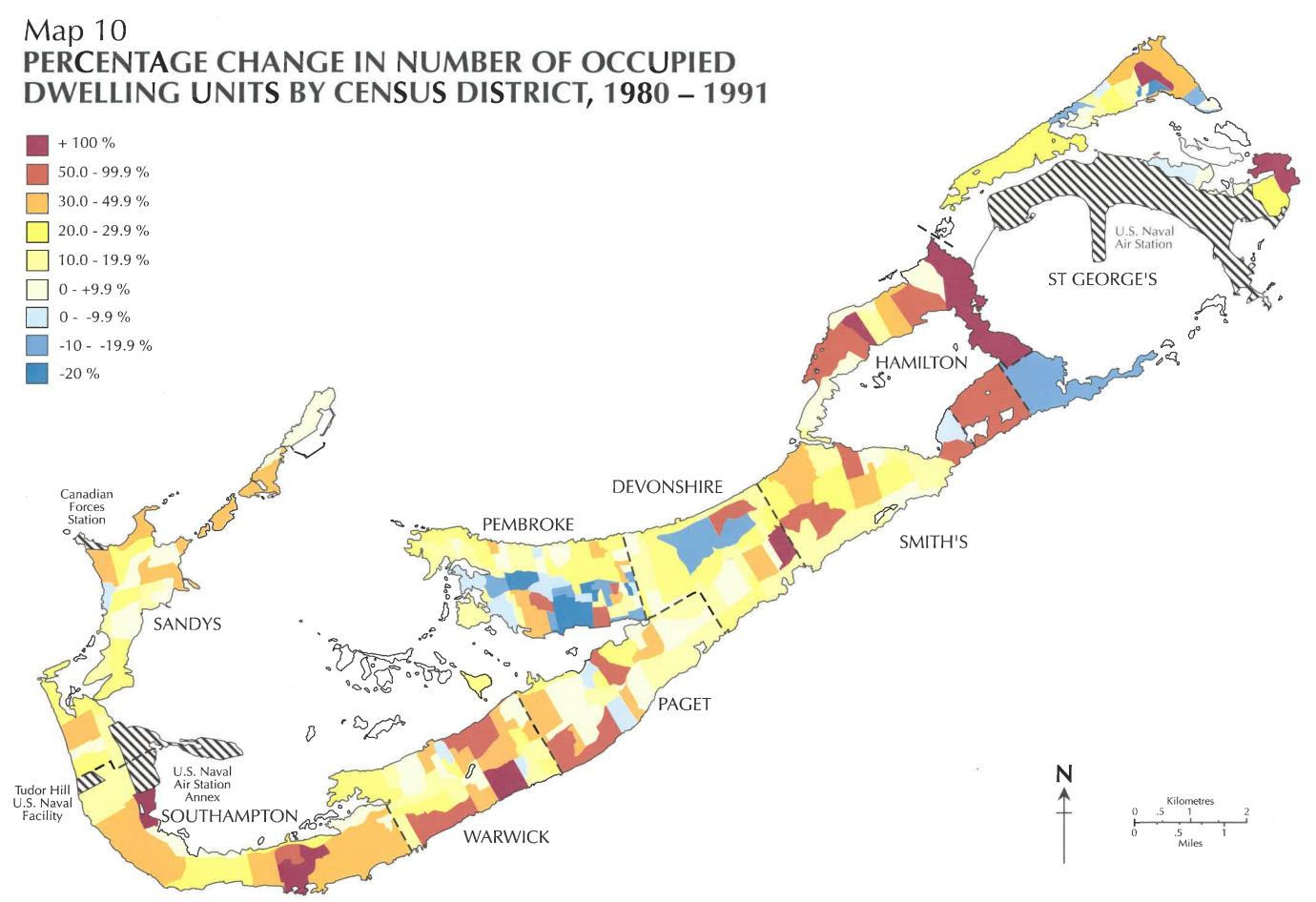
Percentage Change in Number of Occupied Dwelling Units by Census District, 1980-1991

One of the more significant findings of the 1991 Census was the growth of dwellings in the outer parishes. The parishes of Devonshire, Smiths's and Hamilton in the east all recorded increases in dwelling unit counts of +23%, +27% and +45%, respectively. However, the census districts contained within these parishes experienced rates of increase in the number of dwellings ranging from 10% to more than 100%. Within Pembroke, the City of Hamilton experienced a decline in dwelling units.

Similarly, in Sandys, Southampton and Warwick parishes, total dwelling units increased over the period in the range of 19% to 38%. Again, their respective census districts varied substantially with percentage increases ranging between 26% and over 100% during the intercensal period. It should be noted that the areas recording dwelling unit increases of 50% - 99.9% and over 100% are generally those census districts which over the period have undergone extensive housing development. This included new apartments created from additions to or subdivisions of existing houses, as well as new construction.

Dwelling Units by Selected Census Districts - 1980 & 1991				
Selected Census Districts	1991 Dwelling Units	1980 Dwelling Units	% Change 1980-1991	
Hamilton				
2-01	65	41	+58%	
2-02	90	38	+137%	
2-03	63	25	+152%	
2-09	143	56	+155%	
2-14	101	92	+10%	
Smith's				
3-02	143	91	+57%	
3-09	156	99	+58%	
3-11	<i>7</i> 5	63	+19%	
3-13	11 <i>7</i>	76	+54%	
3-16	158	101	+56%	

Selected Census Districts	1991 Dwelling Units	1980 Dwelling Units	% Change 1980-1991
Devonshire			
4-05	330	257	+28%
4-09	174	98	+77%
4-13	190	87	+118%
4-16	105	79	+33%
4-19	110	87	+26%
City of Hamilton			
5-24	20	39	-49%
5-26	57	94	-39%
5-29	52	66	-21%
5-30	76	85	-11%
5-31	51	94	-46%
Warwick			
7-02	131	81	+62%
7-04	121	77	+57%
7-08	188	88	+114% °
7-20	122	80	+52%
7-26	70	49	+43%
Southampton			
8-02	104	72	+49%
8-03	154	<i>7</i> 5	+105%
8-09	100	60	+67%
8-11	138	65	+112%
8-13	149	106	+41%
Sandys			
9-02	105	76	+38%
9-08	56	40	+37%
9-13	98	76	+29%
9-17	110	87	+26%
9-20	88	68	+29%



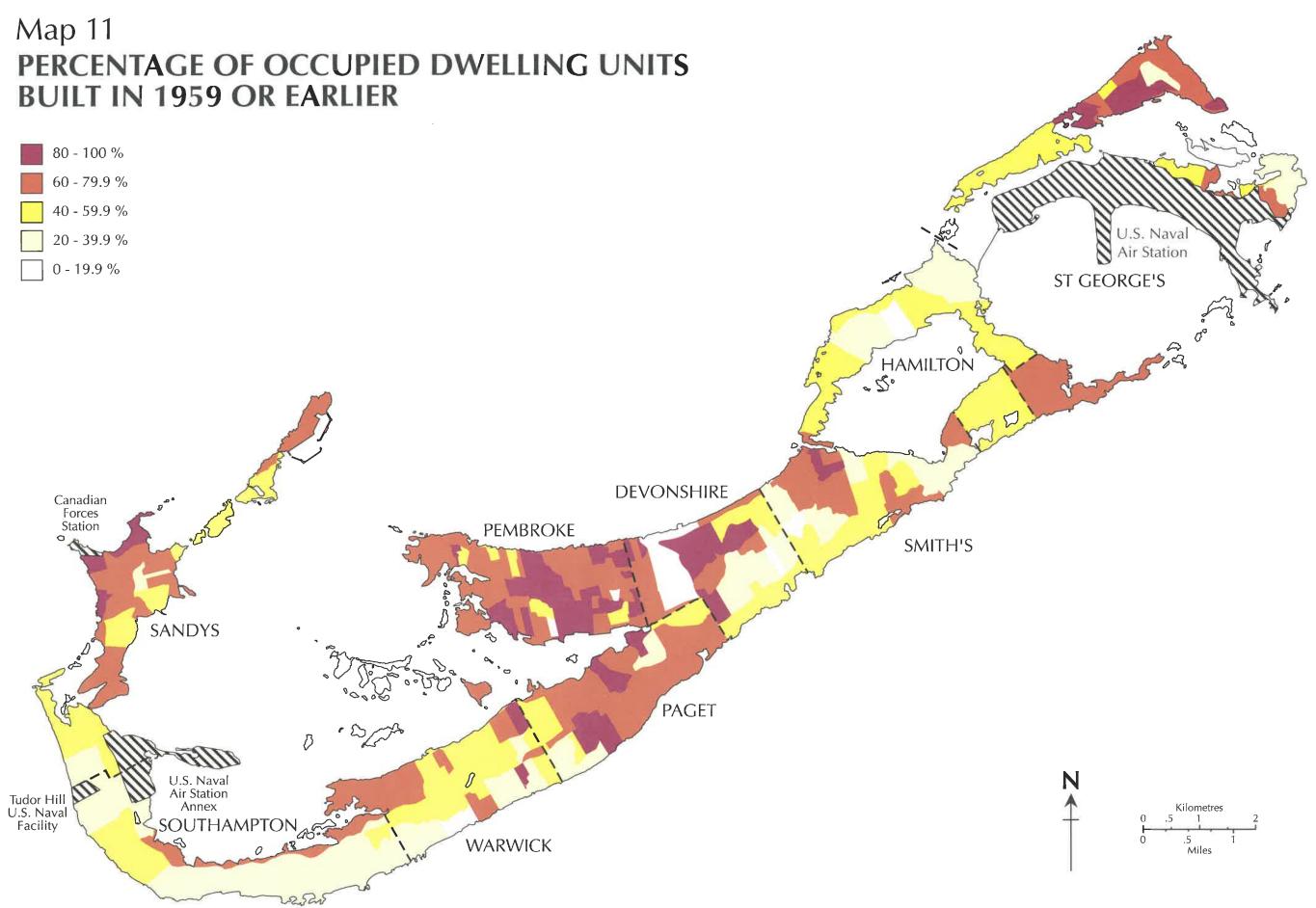
Percentage of Occupied Dwelling Units Built in 1959 or Earlier

The purpose of this map is to highlight the spatial distribution of dwelling units which were built before 1960. At the time of the 1991 Census, such dwellings were 30 years or older and as such would likely require comparatively higher levels of repair and maintenance.

Policies aimed at housing re-development or general improvement programmes could make use of this map and other related information to target those areas where the need is likely to be greatest.

¹ Excludes 369 households in group dwellings

Parish	Total¹ 1991 Occupied Dwellings	Total Dwellings Built Before 1960	% Built Before 1960
Bermuda	22,061	12,342	55%
St. George	1,687	1,071	63%
Hamilton	1,680	703	42%
Smith's	2,031	915	45%
Devonshire	2,693	1,362	50%
Pembroke	4,475	3,302	74%
Paget	1,974	1,349	68%
Warwick	3,064	1,524	49%
Southampton	2,147	775	36%
Sandys	2,310	1,341	58%
City of Hamilton	388	345	89%
Town of St. George	590	423	72%



Percentage of Occupied Dwelling Units Reported In Need of Major Repairs, 1991

The intention of this map is to focus on those areas in which the respondents reported their dwellings were in need of major repairs.

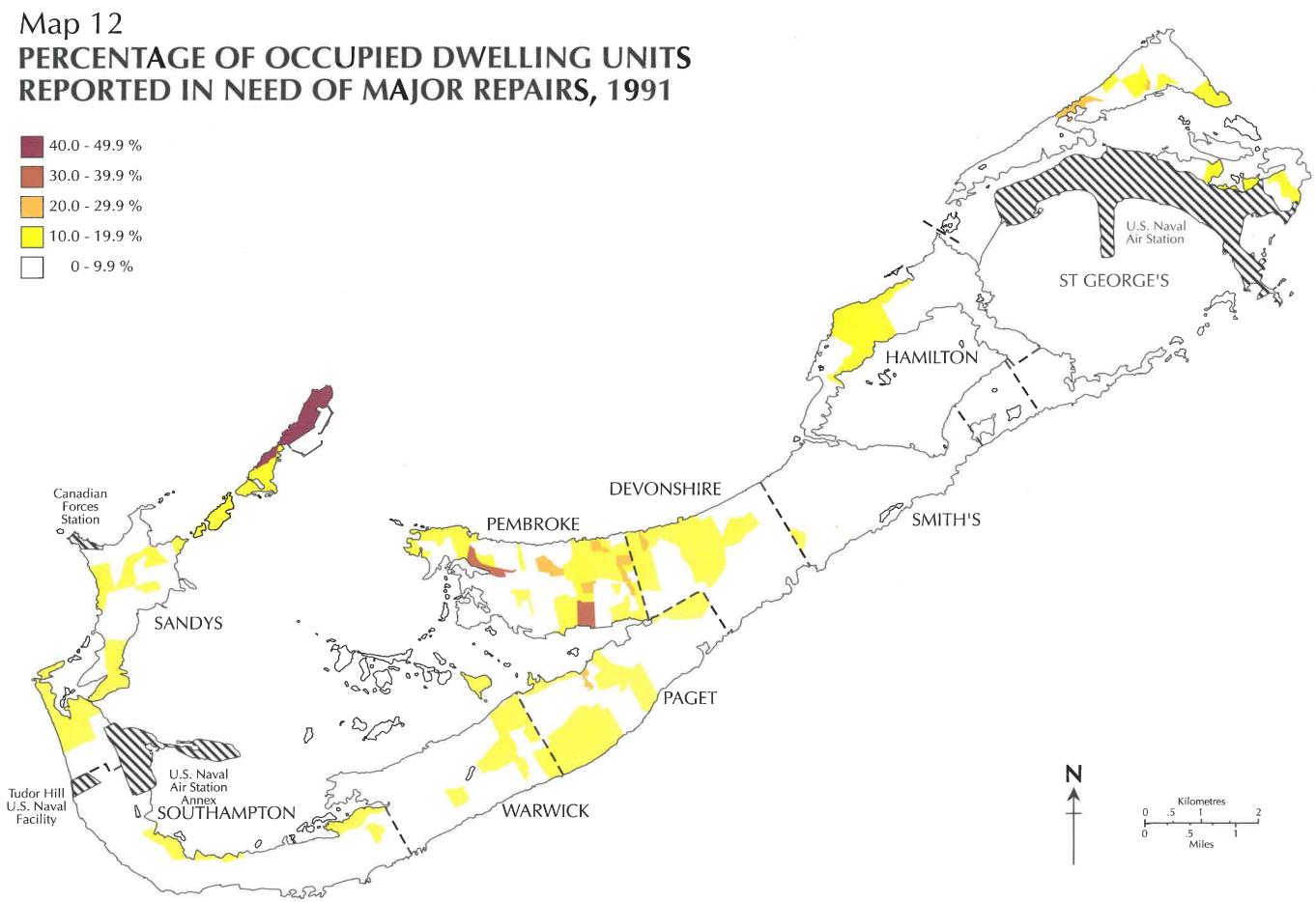
The map shows that dwellings which were reported in need of major repairs generally were concentrated around the middle parishes. However, the parishes reporting the highest proportion of dwellings in need of substantial renovations were Sandys and Pembroke which reported 10% and 11%, respectively. They were followed by St. George's, Hamilton, Devonshire, Paget and Warwick which reported in the range of 7% to 9%.

In general, however, the map demonstrates that the majority of Bermuda's stock of housing is in a reasonably good state of repair.

Percentage of Dwelling Units Reported In Need of Major Repairs by Parish

Parish	Total Occupied ¹ Dwellings	Reporting Dwelling Units	% In Need of Repairs
Bermuda	22,061	1,903	9%
St. George	1,687	159	9%
Hamilton	1,680	141	8%
Smith's	2,031	92	4%
Devonshire	2,693	230	8%
Pembroke	4,475	507	11%
Paget	1,974	190	9%
Warwick	3,064	234	7%
Southampton	2,147	115	5%
Sandys	2,310	235	10%

¹ Excludes 369 households in group dwellings



Vacancy Rates for Dwelling Units by Parish, 1991

The purpose of this map is to highlight the spatial distribution of vacant dwelling units as at Census Day, May 20, 1991.

In 1991 9% of the 24,184 private dwellings were vacant because they either were awaiting new tenants, on the market for sale, awaiting the settlement of litigation or were being held empty for other reasons.

These vacant units numbered 2,123 and whilst they generally were scattered about the island, the incidence was highest in Sandy's, Hamilton Parish and the City of Hamilton at 11%, followed by Warwick (10%). The lowest vacancy rate of 6% was recorded in Devonshire.

Vacant Dwelling Units as at May 20, 1991				
Parish	Occupied ¹ Dwellings	Vacant Dwellings	Vacancy Rates	
Bermuda	22,061	2,123	9%	
St. George	1,687	162	9%	
Hamilton	1,680	212	11%	
Smith's	2,031	178	8%	
Devonshire	2,693	167	6%	
Pembroke	4,475	342	7%	
Paget	1,974	206	9%	
Warwick	3,064	340	10%	
Southampton	2,147	214	9%	
Sandys	2,310	302	12%	
City of Hamilton	388	49	11%	

590

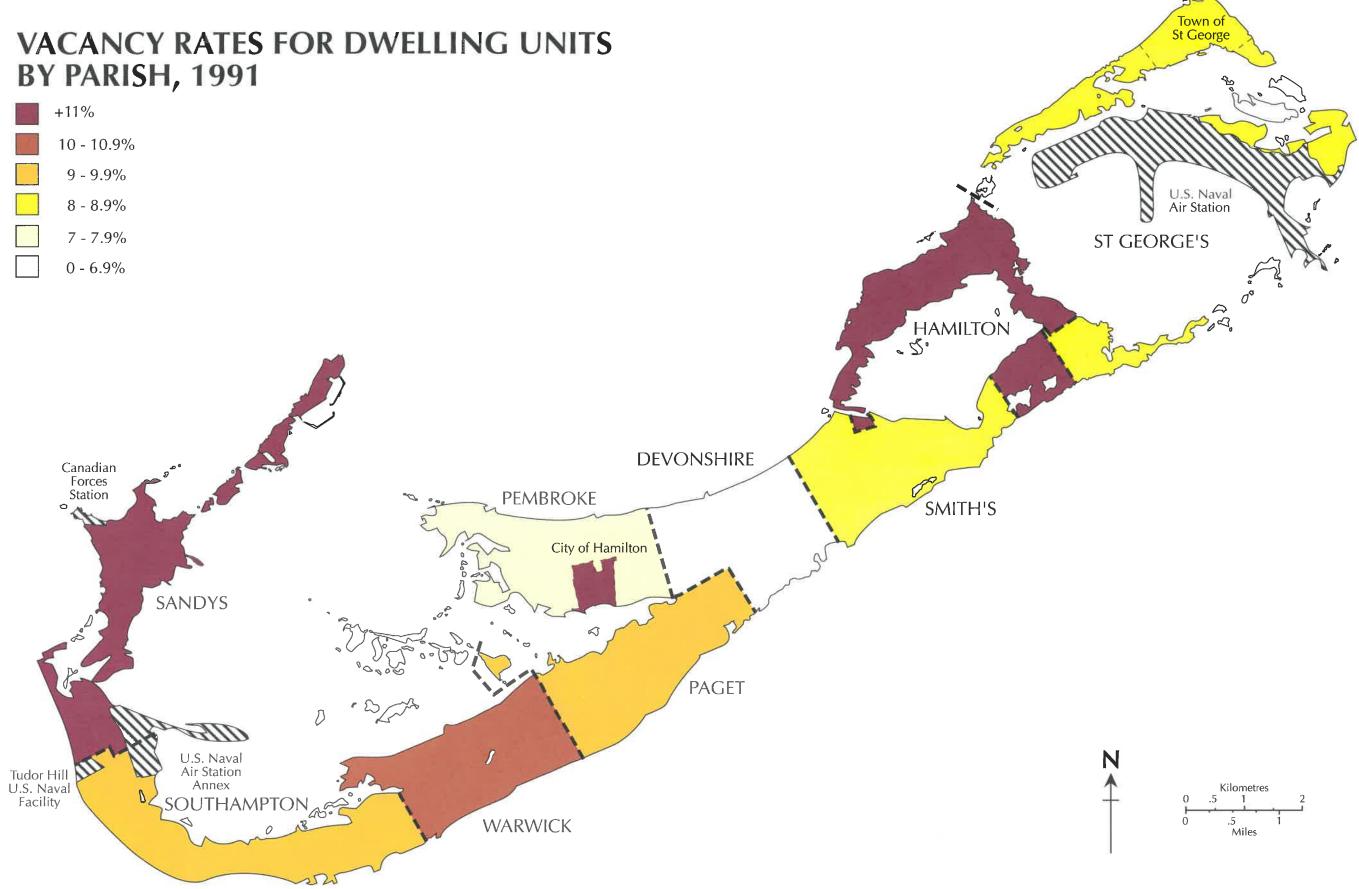
55

9%

Town of St. George

¹ Excludes 369 households in group dwellings

Map 13



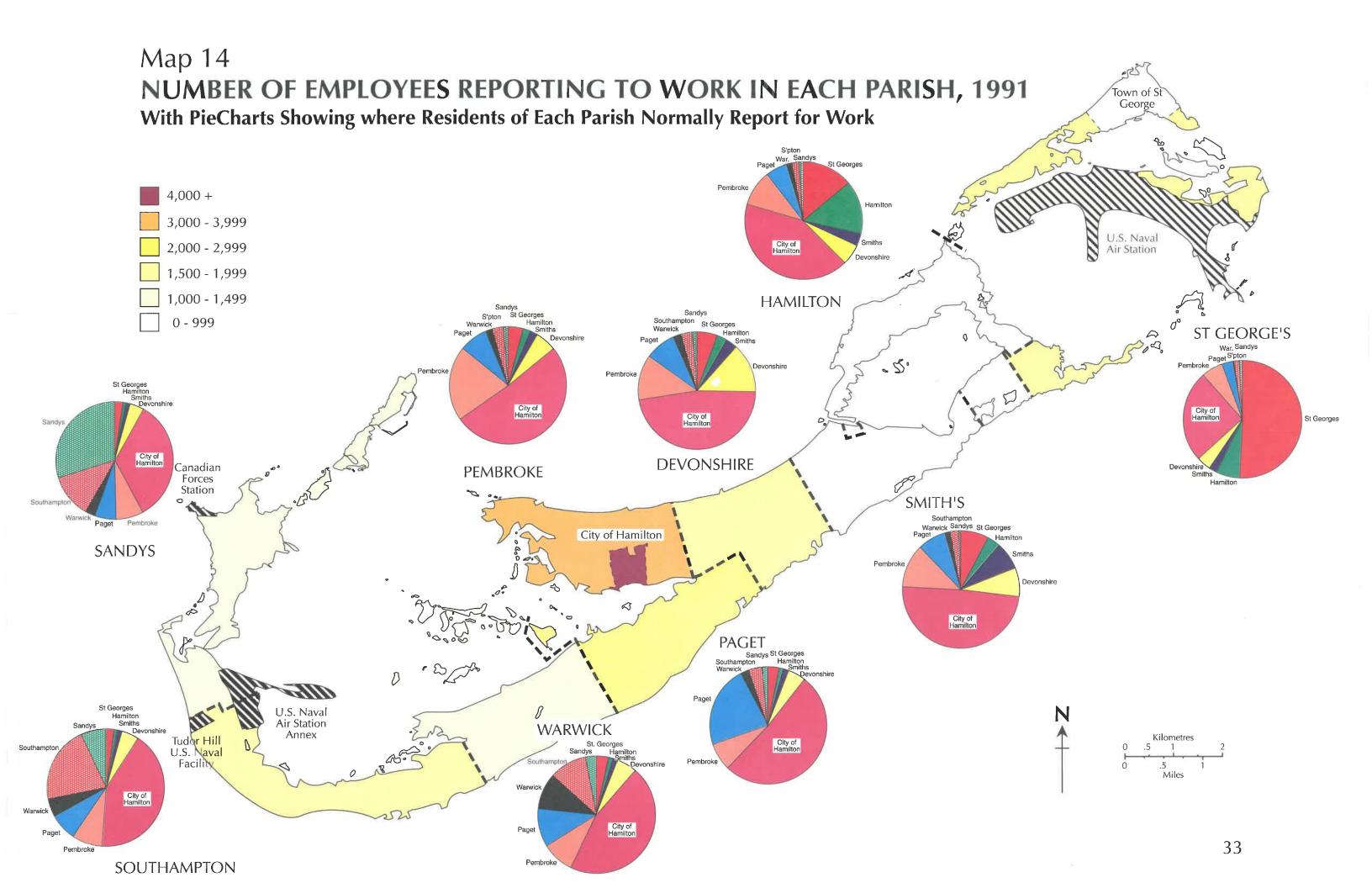
Number of Employees Reporting to Work in each Parish with Pie Charts Showing where Residents of Each Parish Normally Report for Work, 1991

Map 14 shows that a large proportion of the workforce reported to work in the City of Hamilton, the hub of commercial activity on the island. A total of 13,340 workers or 40% of all workers descended upon the City daily. Another 10% or 3,382 persons worked elsewhere in Pembroke where a number of large and small businesses, hotels and schools are located. Paget and Devonshire parishes followed, hosting 8% and 6% or 2,630 and 1,898 workers, respectively. The Towne of St. George hosted only 2% or 645 workers while the remainder of St. George's parish accounted for 6% of the workforce. A further 9% or 3,041 workers had no fixed reporting locations and thus could not be shown on the map; this group includes persons such as taxi-drivers and construction and related workers.

St. George's residents were clearly more likely to work in their parish of residence than were the remainder of the population.

Number of Employees Reporting to Work in each Parish

Job Location	Number	Percentage Distribution	
Total	33,120	100%	
City of Hamilton	13,340	40%	
Elsewhere in Pembroke	3,382	10%	
Town of St. George	645	2%	
Elsewhere in St.George's	1,896	6%	
Hamilton	958	3%	
Smiths	<i>77</i> 0	2%	
Devonshire	1,898	6%	
Paget	2,630	8%	
Warwick	1,017	3%	
Southampton	1,976	6%	
Sandys	1,497	5%	
No Fixed Location	3,041	9%	



Technical Note on Area Calculations for Census Districts

A major new initiative was undertaken for the 1991 Census of Population and Housing by presenting some of the data in map form. All of the data were collected by census district which is the smallest geographical area that can be analyzed. The districts vary in land area but contain approximately similar numbers of dwelling units.

Calculation of each census district area was computed on the basis of the fully digitized road map of Bermuda, produced by Dr. Brian Horsfield of Island Maps. Each census district was defined on this map and transferred into a Computer Assisted Drafting (CAD) software programme for area calculations.

The area measurements are given in hectares and include outlying islands which were visited by the Census enumerators. Islands with no dwelling units were excluded from the area calculations; the US Naval Air Station and US Naval Annex were also excluded.

Conversion Table

Square miles/	Hectares/
Units per Hectare	Equivalent units per Square Mile
1	259
2	518
3	777
4	1,036
5	1,295
10	2,590
15	3,885
20	5,180
25	6,475
30	7,770
40	10,360
50	12,950

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