

**PRESERVING THE QUALITY OF LIFE  
IN HAWAII:  
A STRATEGY FOR  
POPULATION  
GROWTH CONTROL**

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## FOREWORD

During the 1978 legislative session, the Senate of the State of Hawaii adopted Senate Resolution 166. The Resolution, which is set out in Appendix C, requested that the Office of the Legislative Reference Bureau conduct an "investigation of alternative plans and strategies to establish limits on State growth rates which are in harmony with the supply and distribution of natural resources". This report is in response to that request.

Upon undertaking this study, it was found that the initial steps of defining and setting the focus of the investigation were particularly troublesome. This was because, although it is usual to find that a problem means different things to different people, the arena prescribing growth issues is ringed by many emotional signposts. Some of the issues flowing from growth concerns include traffic congestion, crime, high-rise building construction, unemployment, and too little agricultural land. There are many issues associated with growth management and Hawaii's residents feel very strongly about them. Whichever way the "growth problem" was defined, it was sure not to address at least one important issue raised in the context of growth control. During the early stages of this investigation, it became evident that limitations on time and resources prohibited such a comprehensive and wide-ranging discussion of growth concerns. Therefore, the most fruitful approach to growth management issues appeared to be an examination of the issue in terms of the population growth that has been characterized as "central to nearly every problem in our State" in recent years.\*

Such initial difficulties aside, a new dilemma arose. Preliminary research on the "population problem" revealed that population growth and its consequences are not well understood. As a result, it was necessary to decide whether to assume the "problem" and emphasize choices among alternative remedies or, in the alternative, to understand population growth and to identify those remedies flowing from that understanding. The latter course was followed in the belief that how a problem is defined will indicate its solutions. Consequently, the study that follows cannot and does not result in a comprehensive plan for population control. The thrust of this study is very modest. By developing a better understanding of the population growth phenomenon and its impact on our quality of life, this study offers a framework to address growth management issues.

The study that follows presents a somewhat different perspective of population growth than is generally articulated. Perhaps this different perspective explains the wide spectrum of reviewers' comments found in Appendix D. Recognizing the limitations of available population data, this study compares the relative magnitudes of sources of Hawaii's population growth in recent years. Although the study is about population, the numbers evidencing their growth are not as important to Hawaii's future as are the relationships between the growth sources identified, the ability of the State to influence them, and how they affect the quality of life. The fact that those reviewing the

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\*Hawaii, Department of Budget and Finance, Growth Management Issues in Hawaii (Honolulu: 1977), p. 3.

preliminary draft of this study had much to comment on can be seen as reflecting the divergence of perspectives held by students of growth management issues.

We wish to express our sincere appreciation to those reviewers for their helpful comments. The study incorporates many of their suggestions that clarified and improved numerous areas in the preliminary draft. We thank Mr. Hideto Kono, Director, Department of Planning and Economic Development; Mr. Robert C. Schmitt, Chief, Statistical Analysis, Department of Planning and Economic Development; Dr. Robert W. Gardner, Research Associate, East-West Population Institute; Ms. Eleanor C. Nordyke, Community Population Specialist, East-West Population Institute; Mr. Richard L. O'Connell, Director, Office of Environmental Quality Control; and Ms. Lynette Araki, Information Specialist, Commission on Population and the Hawaiian Future for their comments and criticisms.

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## SUMMARY

In recent years, Hawaii's population has increased by approximately 24,000 people each year. Contrary to public impression, the effect of migration from other states on Hawaii's population growth can be described as small. The data available show that while the numbers in-migrating have grown, out-migration also has kept pace.

Three other sources, however, currently contribute noteworthy portions to Hawaii's population growth. Natural increase due to childbirth presently contributes one-third of Hawaii's growth each year. Another twenty per cent is attributable to the influx of aliens. A third source, tourism, accounts for another twenty-five per cent of the increase in the total population of the State each year.

Forecasts for growth indicate that it is reasonable to expect that by the year 2000, between 400,000 to 500,000 more persons will be added to Hawaii's population total.

Whether such future growth is good or bad depends on how a "population problem" is defined. This is because population growth is only one variable affecting the quality of life. Whether there is a problem depends on the aspect of the quality of life that is chosen for examination, e.g., jobs or environment. The fact that there is no comprehensive measure for relating population size to the public welfare suggests that popular sentiment may be the primary criterion for currently defining population as a problem.

However the population problem is defined, state actions for controlling population growth must recognize that forces more powerful than population may provide the bases of present concerns over how Hawaii's resources are used. By restating environmental and resource allocation issues in terms of economic growth, the basic trade-offs associated with managing population growth become more explicit: how much economic growth is Hawaii willing to sacrifice in order to limit population growth?

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In addressing that fundamental question, Hawaii's decision-makers must be cognizant of the setting in which growth management tools operate. First, it is highly uncertain what the identity and size of the negative side effects associated with population control proposals might be. Second, the state government has relatively little control over the social forces influencing population growth.

An effective approach to such a situation may be a procedural-supply strategy. Such a strategy focuses on decision-making processes and determinations of the manner and extent to which Hawaii's limited supply of resources are consumed. By relying on growth management proposals matching the procedural-supply strategy, it is possible to increase the chances for guiding population growth while minimizing the risk of negative impacts. To implement this approach to growth management, the following recommendations are offered:

- \* Limit consideration of growth management proposals to those embodying the procedural-supply oriented strategy.
- \* Retain the present land regulation structure as the primary growth management tool.
- \* Adopt a point system specifying performance standards for making decisions on state land use district boundary amendments.
- \* Create seed-money incentives for counties choosing to develop a point system for regulating land use.
- \* Develop alternative proposals for licensing tourist developments to control the rate of development.
- \* Develop projections for immigration.
- \* Adopt a public land banking system to regulate development if further research confirms its desirability.

## INTRODUCTION

There is a new mood in America. Increasingly, citizens are asking what urban growth will add to the quality of their lives. They are questioning the way relatively unconstrained, piecemeal urbanization is changing their communities and are rebelling against the traditional processes of government and the marketplace which, they believe, have inadequately guided development in the past. They are measuring new development proposals by the extent to which environmental criteria are satisfied--by what new housing or business will generate in terms of additional traffic, pollution of air and water, erosion, and scenic disturbance.<sup>1</sup>

Over the last decade, a new mood has swept America. With that new mood has emerged the questioning of traditional assumptions about the desirability of growth.<sup>2</sup> The emergence of that nationwide mood has not left the Hawaiian islands untouched. Hawaii's residents have expressed concern over the future of their island State and over the changes that growth will bring. While there are a host of issues surrounding the desirability of future growth, many of Hawaii's residents believe that the basic problem is excessive population growth.<sup>3</sup>

Hawaii's population is growing.<sup>4</sup> Since the advent of statehood in 1959, the number of persons residing in Hawaii has grown by over 40 per cent,<sup>5</sup> and one projection anticipates Hawaii's residents to number in excess of 1.3 million people by the year 2000.<sup>6</sup> Such population growth is associated with overcrowding, social deterioration, and environmental degradation,<sup>7</sup> and it is not surprising that much public concern has focused on the rising numbers as the cause of Hawaii's "growth problem".<sup>8</sup> This widespread concern has led to the call for state action in managing population growth. It is this new mood of concern over what future growth will bring to Hawaii that sets the backdrop for this study.

Within the context of developing state policies for dealing with population growth, it is necessary to examine the growth phenomenon with an eye toward fashioning workable programs. This study is an examination of Hawaii's population growth and its relationship to the quality of life of the State's

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residents. It is divided into four chapters. The first chapter looks at the figures evidencing Hawaii's population growth. The chapter examines the various components of Hawaii's total population and identifies the major contributors to population growth in recent years.

The second chapter reviews the population projections for Hawaii. It looks to the year 2000 and sets reasonable expectations for what Hawaii's population size will be in that year. Because it contains much discussion regarding the methodology of population forecasting, the hurried reader may wish to quickly skim over this chapter.

The third chapter addresses the difficulty in defining a population growth problem. The focus of this chapter is to pose alternative criteria for defining present and future population growth as a problem. The rationale and limitations of each alternative criterion are explored in detail.

The final chapter relates population growth to the quality of life in Hawaii. A careful reading of the preceding chapter is a helpful introduction to the questions addressed in this chapter. In attempting to make explicit the relationship between population size and the quality of life, the effects of selected proposals addressing population growth are compared. The chapter closes by offering an approach for choosing among growth control alternatives.

## Chapter I

### THE EVIDENCE OF GROWTH

It is widely accepted that Hawaii's population is growing. While much has been said and written about this phenomenon, relatively little energy has been directed toward substantiating the size and shape of the population increases that have taken place in recent years.<sup>1</sup> What is the evidence of Hawaii's population growth? What is the size of Hawaii's population and how fast is it growing? Are some segments of the population growing faster than others? In this study, these questions provide the initial step for examining population growth.

It is the purpose of this chapter to review the data giving substance to the concern over population growth. The chapter begins by looking at the aggregate totals of population size and how they have changed. The aggregate population growth is broken down into five components--natural increase, immigration,<sup>2</sup> alien immigration,<sup>3</sup> the military, and tourists. Each of these growth components is discussed separately. Given the differing growth experiences of the population components, the chapter closes by identifying those that should be considered when fashioning a state program dealing with growth.

#### Defining Population

Hawaii's population is the focus of this study. It is therefore appropriate to begin by defining the term and how it is used before proceeding. In this report, the term "population" means the total number of persons accommodated by the State at any one point in time. It refers to visitors or tourists, as well as residents.<sup>4</sup> The reason for using this broad definition is simple. The more persons in the islands, the greater their tendency to use Hawaii's resources. What do the numbers representing population show?

## Population Numbers

Before becoming entwined in a discussion of population figures, a methodological caveat is in order. All numbers used in discussions of population are estimates.<sup>5</sup> This is true because there are no annual censuses. The federal decennial census is undertaken every ten years. As a result, the number of civilians in Hawaii can only be estimated. This creates difficulties in analyzing components of the total population figure.<sup>6</sup> Each component part, like the estimated total, must, in turn, be estimated. Some approximations can be made by a relatively direct method<sup>7</sup> and other estimates must rely on indirect methods.<sup>8</sup> As a result, the numbers generated are only as good as the method employed.

In the analysis below, the reader will be directed to the more serious methodological problems by footnotes. None of the figures presented provide an exact population count. Instead, the numbers presented are estimates of how Hawaii's population changes have occurred since statehood. While they cannot be exact counts as to how much the population of the islands has grown, the figures do represent reasonable approximations of the magnitude of the changes that have taken place.

### HAWAII'S ANNUAL POPULATION GROWTH HAS AVERAGED 2.39 PER CENT SINCE STATEHOOD

<u>Year</u>	<u>Hawaii's Population</u>	<u>Growth Rate</u>
1960	653,300	2.65%
1961	670,600	3.88
1962	696,600	0.14
1963	697,600	2.62
1964	715,900	0.73
1965	721,100	1.43
1966	731,400	2.57
1967	750,200	2.23
1968	766,900	2.70
1969	787,600	3.07
1970	811,800	3.46
1971	839,900	3.83

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<u>Year</u>	<u>Hawaii's Population</u>	<u>Growth Rate</u>
1972	872,100	3.81
1973	905,300	1.63
1974*	920,100	1.86
1975	937,200	2.99
1976	965,200	1.69
1977	981,500	(NA)

Ave. = 2.39%

Source: Hawaii, Department of Planning and  
Economic Development, The Population  
of Hawaii, 1977 (Honolulu: 1978),  
Table 1.

\*Figures subsequent to 1974 found in this table  
differ from those in Appendix A. The difference  
reflects a change in estimation methodology.

The numbers of persons in Hawaii have increased since statehood in 1959.<sup>9</sup> By the beginning of 1977, the total population numbered 981,500 persons. This figure represents an increase by more than 300,000 persons in the seventeen-year period. In terms of growth, this means that Hawaii's population grew by 2.39 per cent a year. However, identifying the components of that growth and their relative sizes is not so straightforward.

### The Five Components of Growth

Hawaii's total population growth can be broken down into five components. They are listed below:

#### HAWAII'S POPULATION GROWTH HAS FIVE COMPONENTS

##### Natural Increase

This component is represented by the difference between the births and deaths.



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### In-Migrants

This component reflects the migration of people from other states.

### Immigrants

The migration of aliens from abroad reflects this component.

### The Military

The migration of two classes of persons affects this component. First, there are members of the armed forces. Second are their civilian dependents, who relocate in Hawaii after a family member is stationed here.

### Tourists

This component is represented by visitors coming to Hawaii and staying for relatively short periods of time.

In analyzing these components, there are two ways to examine population growth.<sup>10</sup> One way is to look at the size of the population group attributable to each component after a few years. The other alternative is to review the rate of growth of the component.

Determining the size of the population group attributable to each component in any given year is problematical. This is because of the methodological problems in accumulating and reporting population data in that manner. However, it is possible to isolate both the tourist and military groups from available data. Broken down in this manner, it can be seen that three components, natural increase, in-migrant, and immigrant, presently contribute a large proportion, almost 80 per cent, of the total population. Almost 9 per cent represented tourists and 12 per cent can be classified as military. Because of the limitations of data availability, it is more fruitful to examine the rate of growth of each of the population components.

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## ONE-FIFTH OF HAWAII'S POPULATION COMES FROM THE MILITARY AND TOURIST COMPONENTS 1977

<u>Source</u>	<u>Size</u>	<u>Per Cent</u>
Natural Increase, In-Migrant, and Immigrant Components	773,300	78.8
Military Component	121,400	12.4
Tourist Component	<u>86,800</u>	<u>8.8</u>
Total	981,500	100.0

The role of each component in contributing to population growth has changed since 1960. While natural increase contributed a decreasing proportion of growth during that period, the numbers of persons added to the population count from that source continue to be large. In spite of the fact that natural increase's contribution fell from two-thirds to one-third of the annual population growth, it continues to add almost 7,900 persons to the population count each year.

## NATURAL INCREASE, IMMIGRATION, AND TOURISM ARE MAJOR CONTRIBUTORS TO POPULATION GROWTH

### Average Annual Breakdown of Population Growth Totals

<u>Component</u>	<u>1960-65</u>	<u>1965-70</u>	<u>1970-75</u>	<u>1960-75</u>
Natural increase	68.1%	42.4%	32.7%	44.5%
Net in-migration	19.7	24.3	11.4	17.6
Immigration	4.4	20.2	20.2	16.3
Military	- .3	- 9.3	9.7	1.1
Tourist	<u>8.1</u>	<u>22.4</u>	<u>25.9</u>	<u>20.4</u>
Total*	100.0%	100.0%	99.9%	99.9%

Source: Appendix A, Table 2.

\*May not total to 100 per cent due to rounding.

Net in-migration from the mainland also evidenced a decline in its contribution to growth. By the mid-1970's, in-migrants accounted for 12 per

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cent of the annual population growth. This figure represents a decline from the late 1960's when the State's economic growth was most dynamic.

In contrast, however, alien immigration has increased the proportion of growth it contributes to population. One-fifth of all growth is presently accounted for by this component. Federal regulations governing immigration indicate that this proportion is not likely to decrease in the next few years.

The military component of Hawaii's population has erratically contributed to growth. However, the net effect of those contributions from year to year appears to have been minimal. The average proportion of growth from the military approximates one per cent a year.

One-fourth of the annual population growth is currently contributed by tourism. This proportion represents a threefold increase in the size of the growth contribution added by the tourist component of Hawaii's population. Each of these components is described further below.

### Natural Increase

Population has a natural increase when the number of births is greater than the number of deaths within a given time period. Natural increase embodies the relationship between two relatively independent phenomenon: the number of children born and the number of deaths. This means that there will be natural increase during a year if there are more births than deaths. Over time, many complex social forces determine both how many are born and how many die. Such forces come together to separately influence trends in births and deaths.<sup>11</sup>

The interaction of these separate trends produces a natural increase rate that changes over time. For example, if the number of births increases each year and the number of deaths decreases also, there would be a trend toward a growing natural increase. This combination would accelerate the population growth rate. On the other hand, if the number of births was higher than deaths but births decreased each year while deaths remained constant, there

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would still be natural increase. However, over time, births would equal deaths and there would be no natural increase.<sup>12</sup> This latter situation describes Hawaii's natural increase trend since statehood.<sup>13</sup>

Hawaii's natural increase from nonmilitary-related residents has been declining.<sup>14</sup> This is primarily because the birth rate has been declining. Between 1960-61, the number of births added enough new persons to Hawaii's population for it to grow by 1.87 per cent. This figure represents what Hawaii's growth rate would have been had there been no deaths or persons moving in and out of the State. By 1975-76, however, the number of births decreased<sup>15</sup> and population would have grown by only 1.27 per cent.

### GROWTH DUE TO NATURAL INCREASE IS DECLINING

Per Cent of Population			
<u>Year</u>	<u>Births</u>	<u>Deaths</u>	<u>Natural Increase</u>
1960-61	1.87%	-0.50%	1.36%
1965-66	1.61	-0.48	1.12
1970-71	1.53	-0.47	1.06
1975-76	1.27	-0.44	0.83

Source: Appendix A, Table 9.

At the same time, the death rate in Hawaii remained relatively stable. Between 1960 and 1975, the death rate lowered the population by approximately one-half per cent annually.<sup>16</sup> When taken together, the decreasing birth rate and stable death rate yield a declining rate of natural increase. In the first year following statehood, natural increase was 1.36 per cent a year. By the year between 1975-76, it increased the population count by 0.83 per cent. When translated into the total number of persons added to Hawaii's population, natural increase averaged 7,900 persons a year between 1970 and 1975.

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### NATURAL INCREASE ADDS 7,900 NEW PERSONS TO HAWAII'S POPULATION

<u>Period</u>	<u>Annual Average Natural Increase</u>
1960-65	9,260
1965-70	7,700
1970-75	7,880

Source: Appendix A, Table 5.

### In-Migrants

The effect of in-migrants on population growth is better explained as net in-migration. Like natural increase, net in-migration is the result of two factors.<sup>17</sup> Each year, net in-migration is the difference between in-migration and out-migration. The term "in-migration" refers to the number of U.S. residents who move into the State to make it their residence. On the other hand, the term "out-migration" refers to the number who move away from Hawaii each year. Net in-migration does not represent the coming or going of any one individual. Instead, it counts the total movement of persons into and out of Hawaii. A person reflected in the out-migration figure may be one who has been a lifelong resident of Hawaii, or one who has moved here a few years ago, or one who has moved here in the very same year.

When both in-migration and out-migration are considered together, the difference indicates the change in population caused by the comings and goings of many people. From one year to another, it is possible for the total population to remain relatively stable but be composed of totally different persons. If a large number moves into the State during the year, but a large number of other persons simultaneously moves away, their movements cancel each other and there is little population growth. This pattern describes net in-migration in Hawaii.

In Hawaii, the population growth attributable to net in-migration<sup>18</sup> reflects both high in-migration and high out-migration. The number of persons moving to Hawaii each year has increased substantially since statehood. In the years

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between 1960 and 1965, an average of 11,600 persons were in-migrating. This number jumped to 21,600 per year for the 1970-75 period. At the same time, however, those out-migrating from the islands also were increasing in number.<sup>19</sup> An average of 9,600 people moved from Hawaii during the early years following statehood. By the early 1970's, this figure had almost doubled to 18,900 persons annually.<sup>20</sup>

The overall effect of such contrary directions of movement is a relatively small portion of population growth attributable to net in-migration. Net in-migration accounted for 2,700 new residents a year between 1960 and 1965. The number rose to 4,400 in the following five-year period. However, in the early 1970's, the figure fell to an average of 2,700 new residents a year. While the numbers in-migrating each year are substantially higher than the total number of births, the effect of out-migration lowers the net in-migration figure to a figure materially below the population increase contributed by natural increase.

### OUT-MIGRATION HAS KEPT PACE WITH IN-MIGRATION

#### Civilian Population Annual Average

	<u>1960-65</u>	<u>1965-70</u>	<u>1970-75</u>
In-migration	11,600	19,700	21,600
Out-migration	9,000	15,300	18,900
Net in-migration	2,700	4,400	2,700

Source: Appendix A, Table 6.

The effect of vigorous in- and out-migration on Hawaii's population growth can be seen by how their interplay contributes to the rate of population increase.

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### POPULATION GROWTH ATTRIBUTABLE TO NET IN-MIGRATION IS SMALL

#### Per Cent of Population

<u>Year</u>	<u>In-Migration</u>	<u>Out-Migration</u>	<u>Net In-Migration</u>
1960-61	1.79%	1.13%	0.66%
1965-66	1.75	1.89	-0.14
1970-71	3.08	2.22	0.86
1975-76	2.28	(NA)	(NA)

Source: Appendix A, Table 11.

The number of in-migrants was sufficient to increase the total by 1.79 per cent in the year between 1960 and 1961. This rate of in-migration rose to 3.08 per cent during the 1970-71 year. By 1975-76, the in-migration rate fell to 2.28 per cent even though the total number of in-migrants had increased.

When isolated in this manner, it can be said that the in-migration rate has risen since 1960. However, out-migration needs to be considered to balance the picture. Notwithstanding in-migration rates, out-migration rates have increased since statehood. For example, available estimates of out-migration indicate that the number of persons leaving Hawaii in 1960 would have lowered the population by 1.13 per cent. This annual rate of out-migration jumped to 1.89 per cent by 1965. It rose still further between 1970 and 1971 to 2.22 per cent. Taken alone, the effect of a rising out-migration rate is to lower the total population number in an increasing manner.

When the rates for in-migration and out-migration are considered together, their combined effect is a small contribution to population growth. Net migration caused the population to grow by 0.66 per cent a year in 1960. Five years later, in-migration and out-migration appeared to cancel each other out. Data for the year between 1970 and 1971 show that net in-migration accounted for 0.86 per cent. Even acknowledging the limitations of available out-migration estimates, the magnitude of the contributions to growth from net in-migration appears to be small.

Thus, while the numbers of in-migrants have risen, the number leaving Hawaii has also increased. However, the canceling effect cannot change the fact

that in-migrants have outnumbered out-migrants annually. Net migration has increased the population in the years since statehood. But the size of those increases have been relatively small and have raised the total population figure by approximately 2,700 persons a year.

### **Alien Immigrants**

Along with natural increase and net in-migration, immigration of aliens to Hawaii is a third component contributing to population growth. As a source of population growth, the number attributable to immigration each year is based on a number of factors. Those immigrating to Hawaii increase the population.<sup>21</sup> Emigration and interstate migration of aliens, on the other hand, tend to decrease population figures. Similarly, aliens dying in Hawaii lower the count. Like net in-migration, the population increases attributable to immigration over a number of years are determined by trends in both alien arrivals and the three countervailing factors.

The population increases attributable to immigration have risen since 1960. The number of aliens locating in Hawaii has grown each year.<sup>22</sup> At the same time, the numbers representing alien deaths, emigration, and interstate migration also have risen. Because, however, the rate of arrivals has been greater than the combined rate for the three negative factors, the net effect of immigration has been to accelerate the rate of population growth steadily.

The number of aliens moving to Hawaii each year increased threefold between 1960 and 1975.<sup>23</sup> Between 1960 and 1965, an average of 1,780 aliens immigrated to Hawaii annually. The number rose to 5,160 aliens in the 1965-70 period. It increased still further in the five-year 1970-75 span when an average of 7,060 aliens arrived in the islands.<sup>24</sup> Similarly, the numbers attributable to alien death, emigration, and migration to another state also increased.<sup>25</sup> An average of 1,180 aliens a year fell within those categories in the 1960-65 period. Between 1965 and 1970, the number in the three categories increased to 1,500. It rose still further to an annual average of 2,200 in the five years between 1970 and 1975.



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When the number of immigrants is adjusted by those negative factors, the impact of immigration on population growth becomes evident. The numbers added to Hawaii's population by immigration each year grew sharply in the decade following statehood. An average of 600 immigrants was added to the population annually between 1960 and 1965.

### IMMIGRATION NUMBERS HAVE INCREASED

<u>Period</u>	<u>Alien Arrivals</u>	<u>Deaths, Emigration, and Interstate Migration</u>	<u>Net Immigration</u>
1960-65	1,780	1,180	600
1965-70	5,160	1,500	3,660
1970-75	7,060	2,200	4,860

Source: Appendix A, Table 7.

The latter half of the decade experienced an annual increase of 3,660 persons from immigration. The numbers attributable to immigration continued to grow between 1970 and 1975 when an average of 4,860 persons a year was added to the population.

As a source of population growth, immigration caused the population to grow at an increasingly fast rate. If the other components like natural increase and tourism were not considered, immigration increased Hawaii's population by only 0.09 per cent a year in 1960.

### IMMIGRATION HAS CAUSED POPULATION TO GROW AT AN INCREASINGLY FAST RATE

#### Per Cent of Population

<u>Year</u>	<u>Alien Arrivals</u>	<u>Deaths, Emigration, and Interstate Migration</u>	<u>Net Immigration</u>
1960-61	0.28%	-0.18%	0.09%
1965-66	0.43	-0.17	0.26
1970-71	0.75	-0-	0.75
1975-76	0.85	(NA)	(NA)

Source: Appendix A, Table 13.

However, because of the rising number of alien arrivals, by the year 1970, immigration contributed 0.75 per cent to the total population growth.

## The Military

Since 1960, the group comprised of military-related persons<sup>26</sup> underwent radical fluctuations. For example, in the year between 1963 and 1964, it grew by 17.60 per cent.<sup>27</sup> For the following year, the rate was turned on its head to -16.23 per cent. The overall effect of such ups and downs on an annual basis is reflected by comparing the group's size. Those related to the military numbered 119,400 in 1960.<sup>28</sup>

### MILITARY-RELATED PERSONS DO NOT CONTRIBUTE GREATLY TO GROWTH OVER TIME

<u>Period</u>	<u>Military Growth</u>	<u>Military Growth Rate</u>
1960-65	- 40	-0.03%
1965-70	-1,680	-1.46
1970-75	2,340	2.00
1960-75	207	0.33

Source: Appendix A, Table 16.

Sixteen years later, the group totaled 122,900 persons. The fact that the average increase each year has approximated 200 persons and that the numbers of persons in the group may fluctuate widely from year to year, indicate that military-related persons do not contribute greatly to Hawaii's population growth over time.<sup>29</sup>

## Tourists

The size of the tourist population<sup>30</sup> has also undergone a dramatic change. Unlike the military growth which varied widely from year to year, the

## PRESERVING THE QUALITY OF LIFE

growth rate for the tourist population has remained steady. However, its dramatic nature is embodied in an extremely high rate of growth.

### THE TOURIST POPULATION HAS GROWN DRAMATICALLY

<u>Period</u>	<u>Tourist Growth</u>	<u>Tourist Growth Rate</u>
1960-65	1,100	7.65%
1965-70	4,060	15.52
1970-75	6,240	12.08
1960-75	3,800	11.70

Source: Appendix A, Table 16.

The average annual growth rate through the fifteen-year period approximated 11.70 per cent. The numbers themselves are better indicators of how strong tourist growth has been. The daily average number of tourists in Hawaii in 1960 was 11,800. By 1976, it had jumped to 78,500, which represents an increase of over six and a half times the 1960 figure.

### Three Components Worth Mentioning

When concerns over population growth are articulated in the form of population numbers, three components stand out. Natural increase is most noteworthy because of its size. Although the birth rate for Hawaii's women is low, the total numbers of children added to the population each year is the largest in comparison to other sources of growth.

A second notable contributor to growth is the alien immigrant component. This group adds approximately 5,000 new residents to Hawaii's population each year and accounts for almost one-fifth of the total population increase annually. Tourists compose the third group of importance. Since 1970, this component has increased population by approximately 6,000 persons a year and has demonstrated the most dynamic growth pattern during the last few years.

## THE EVIDENCE OF GROWTH

By recognizing that population components have grown in different rates and amounts during recent years, a more complex picture of population growth emerges. Disaggregating the total population is instructive in pointing out that reference to Hawaii's population growth involves the total of the five component parts.<sup>31</sup> If population growth is undesirable, then growth in some or all of those components is undesirable. On the basis of their contribution to population growth, three components most likely to be judged as noteworthy are identified above. However, this description of present growth patterns is only half the picture. The other half of the concern over Hawaii's population future requires a look to the future.

## Chapter II

### FORECASTING POPULATION GROWTH

In the previous chapter, attention was focused on the present and on the recent past. Hawaii's population concerns also should be viewed in terms of the future. Notwithstanding Hawaii's current population size and growth rate, planning for public policy requires that attention also be directed at what will occur in the future. By anticipating Hawaii's population future it may be possible to identify oncoming changes and trends with an eye toward avoiding or alleviating the problems that they may cause. In order to anticipate such future problems, a first step involves estimating Hawaii's population size in the years to come.

With this in mind, this chapter looks at forecasts of Hawaii's population for the year 2000. Hawaii's population growth was broken down into its five component parts in the preceding chapter. Available population forecasts do not lend themselves to such component by component breakdowns.

There are, however, two types of population forecasts. One estimates what is called "resident" population. Such forecasts account for growth in the natural increase, in-migrant, immigrant, and military components of Hawaii's total population. The second projects the future size of the tourist component. In this discussion, the two types of forecasts are treated separately.

Both types of projections, however, are dependent upon assumptions about the future. These assumptions are not fixed and unchangeable because a reasonable alternative could be substituted for any assumption. Alternative assumptions lead to different forecasts of the future.

The general approach taken is to examine the assumptions used in developing population projects. Those assumptions deemed reasonable are identified. The projections associated with the selected assumptions are then reviewed. Such population forecasts present a range of projections that realistically bracket expectations for Hawaii's population future.

## FORECASTING POPULATION GROWTH

### Resident Population Forecasts

The Hawaii Department of Planning and Economic Development (DPED) has produced two series of resident population projections.<sup>1</sup> The variability of the forecasts is illustrated by the table below:<sup>2</sup>

AVAILABLE POPULATION ESTIMATES FOR THE YEAR 2000  
VARY WILDLY

<u>Projection</u>	<u>Year 2000</u>
E-1	1,282,600
E-2	1,349,200
F-1	1,247,900
F-2	1,311,200
II-A	1,021,100
II-B	918,000
II-C	1,268,600
II-D	2,728,300
II-E	1,256,700
II-F	1,225,900
I-A*	1,068,500
III-A*	987,400

Source: Appendix A, Table 24.

For the year 2000, the forecasts for resident population in the above table ranges from a low of 918,000 to 2,728,000 persons. They cluster between 1.0 and 1.3 million persons.

The table above is illustrative of the large number of forecasts of Hawaii's population that can be developed. This is because there are an infinite number of assumptions about the future that can be made.<sup>3</sup> However, examination reveals that the available population forecasts are principally determined by two assumptions.<sup>4</sup>

One assumption involves the fertility of women. Fertility is the tendency to bear children.<sup>5</sup> A second assumption accounts for population changes due to migration. In the case of Hawaii, this means increases caused by net migration from both the mainland and foreign countries. These two assumptions give

meaning to the forecasts and set realistic bounds for which expectations of Hawaii's future population are likely.

Understanding the population projections for the year 2000 in terms of those two assumptions is relatively simple. In the table above, the label for each projection is represented by a letter and a number. The first letter or number in the label is the assumption about fertility. The second symbol indicates the migration assumption.

Only reasonable assumptions about the future lead to likely projections of Hawaii's population. What assumptions about the future can be said to be reasonable? One approach is to bracket the fertility and net migration assumptions that are reasonable. This is done by comparing the assumptions used in the forecasts against the currently available information about social behavior. By selecting likely assumptions about fertility and migration, it is then possible to identify their associated population forecasts.<sup>6</sup> The fertility and migration assumptions are examined separately below.

### **Resident Fertility Assumptions**

The fertility assumptions are made in terms of the number of births per woman.<sup>7</sup> This figure represents the average number of births per woman living in the year 2000 will have in their lifetimes.<sup>8</sup> The average number used in the projections above range from 1.7 to 2.7 births per woman.<sup>9</sup>

# FORECASTING POPULATION GROWTH

## FERTILITY ASSUMPTIONS RANGE FROM 1.7 TO 2.7 CHILDREN PER WOMAN

<u>Label for Projection First Symbol</u>	<u>Average Number of Lifetime Births Per Woman by Year 2000</u>
E	2.1
F	1.8
I	2.7
II	2.1
III	1.7

How do these fertility figures for the year 2000 compare to recent Hawaiian experiences? The fertility of Hawaii's women has been declining since 1960. The average number of children born to women at completion of child-bearing age was 3.4 in 1960. This number fell to an average of 1.8 in 1975. This trend paralleled that of the nation.<sup>10</sup> However, this general trend towards lower fertility may be misleading.

## FERTILITY FOR THE UNITED STATES AND HAWAII HAS FALLEN SINCE 1960

<u>Year</u>	<u>United States</u>	<u>Hawaii Civilians</u>
1960	3.6084	3.3605
1965	2.8847	2.7445
1970	2.4341	2.4615
1975	1.7706	1.8215

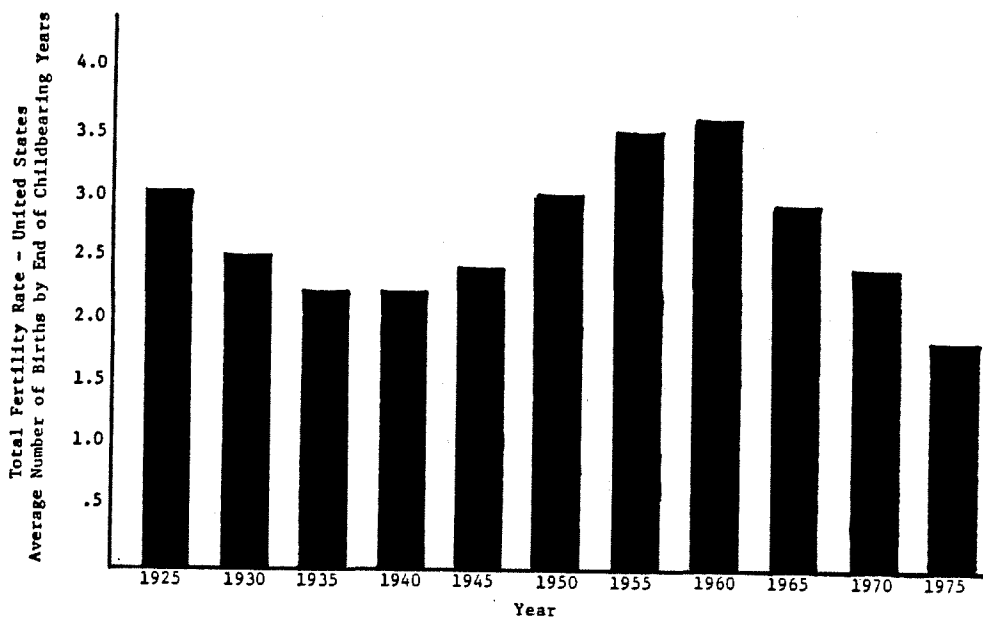
Source: Hawaii, Department of Planning and Economic Development, Long Range Population and Economic Simulations and Projections for the State of Hawaii (Honolulu: 1978), Table A-3.

Notwithstanding this trend during the last decade and a half, social scientists anticipate a rise in fertility by the year 2000.<sup>11</sup> This is in keeping with the general trend for national fertility to cycle up and down over long periods of time.<sup>12</sup> Consistent with this cycling, they see current low fertility rates as hitting a low point and about to rise.<sup>13</sup>



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THE NATIONAL FERTILITY RATE HAS CYCLED  
UP AND DOWN AND NOW  
MAY BE ABOUT TO SWING UPWARD



Source: U.S., Bureau of the Census, "Projections of the Population of the United States: 1977 to 2050," Current Population Reports, Series P-25, No. 704 (Washington: U.S. Government Printing Office, 1977), Table A-5.

There are two major reasons for expecting higher fertility in the future. First, there is a large proportion of the American female population growing into the highest child-bearing ages, the ages between 18 and 24 years old.<sup>14</sup> Second, survey data show that American women currently expect to have an average of 2.1 children during their lives.<sup>15</sup> The U.S. Bureau of the Census relies heavily on this expectation of fertility.<sup>16</sup>

On the other hand, there also is evidence that the American fertility rate will not climb as high as 2.1 by the year 2000. The median age for marriage, an important status related to child-bearing, is rising for American women. Even after marrying, American women are waiting longer before having children and desire smaller families. This compares with the former pattern of earlier marriages and the tendency to have children soon after marriage. The overall effect is that the median age for having the first child has risen.<sup>17</sup>

A second set of factors relating to fertility decline is economic forces. It is not known to what extent economic factors contribute to changes in fertility.<sup>18</sup> However, it is known that they do have some effect and recent evidence indicates that substantial increases in fertility in the face of adverse economic conditions are unlikely.<sup>19</sup>

Given such conflicting expectations regarding the national fertility, Hawaii's fertility can be expected to rise from the present 1.8 toward the 2.1 level. This is generally because Hawaii's fertility trends have closely paralleled those of the nation. The DPED's planning efforts are based on the 2.1 rate of fertility.<sup>20</sup> On the other hand, there are social forces at work that would tend to hold the fertility rate down.<sup>21</sup> Recognizing such countervailing pressures, it is reasonable to expect fertility in the year 2000 to fall within presently observed levels and 2.1. That range of fertility is represented by the designations "E", "F", "II", and "III".

## Resident Migration Assumptions

In contrast to fertility assumptions, the migration assumptions are somewhat more involved. In the projections developed for Hawaii, the second symbol in each label may be either a letter or a number. Both represent the net effect of migration. That is, the difference between people moving in and out of Hawaii. However, the letters signify a different type of assumption about migration.

The numbers "1" and "2" assume that a proportion of the United States total population is related to the number relocating in Hawaii.<sup>22</sup> The migration assumption "1" assumes that the "annual net in-migration would remain constant at 34.3 per 1,000,000 U.S. population, the approximate level observed for 1970-74".<sup>23</sup> The "2" designation assumes that "net in-migration per 1,000,000 U.S. population would double over a 50-year period, rising from 34.3 in 1970-75 to 68.6 in 2015-2020".<sup>24</sup>

The migration assumptions represented by letters signify a different type of perspective about migration behavior.<sup>25</sup> They attempt to take into account

the considerations that describe migration patterns.<sup>26</sup> In doing so, the assumptions about net migration are based on the performance of the Hawaiian economy. The theory is relatively straightforward and involves a chain of reasoning associated with the migration assumption.

Net migration is determined by the economy. The economy, in turn, depends largely on the performance of the tourist industry.<sup>27</sup> As a consequence, the migration assumption takes the form of assumptions about the tourist industry's growth. These assumptions range from an annual growth rate of zero to 10 per cent in tourism between now and the year 2000.<sup>28</sup>

The two migration assumptions are not equal in terms of their reliability. Those based on data regarding the total national population have little in the way of supporting rationale to justify their reliability.<sup>29</sup> They reflect the theory that a proportion of persons on the mainland U.S. move to Hawaii each year.<sup>30</sup> However, the problem with this reasoning is illustrated by the fact that almost two-thirds of the increase from net migration currently results from immigration. The assumptions implicitly fail to account for population increases due to immigration. Problems with this approach are compounded when it is further assumed that the proportion moving from the mainland doubles between 1975 and 2000.<sup>31</sup> Because the reasoning giving rise to these assumptions is not sound, the DPED has rejected that means for estimating future population.<sup>32</sup>

One advantage of this approach, however, is its simplicity in estimating net migration. It generates a slowly rising increase in net migration. It can be viewed as a way to predict future net migration without taking into account the social forces that act on it. The approach describes the population growth that would occur if present amounts of growth due to net migration were to slowly increase. For this reason, the assumption labeled "1" has been retained for further analysis.<sup>33</sup> It calls for an annual net migration approximating 8,000 persons.

In contrast, the migration assumptions based on the economy are more sophisticated in their understanding of migration behavior.<sup>34</sup> But the approach also has limitations. The economy-related assumptions of migration predict migration behavior on the basis of the number of jobs available in Hawaii. The

more jobs in Hawaii, the higher net migration. The approach simplifies motivations for human behavior to those related to financial opportunity.

While there is much to be said for using this approach in predicting aggregate human behavior, there are two limitations in applying it to the Hawaiian setting. First, a large proportion of each year's net migration is made up of foreign immigrants. These aliens move to Hawaii for social and familial reasons.<sup>35</sup> So far as immigration to Hawaii is not affected by how the economy performs, the economy-based approach leads to underestimation of future population.<sup>36</sup> There is still a need for developing reasonable estimates of how large a growth force immigration will be in the future.

Second, there is a general national trend of migration to sunny climates.<sup>37</sup> Nationally, those making such moves have been characterized as relatively more educated, professional, young, and well able to compete in tight labor markets.<sup>38</sup> To the extent that those moving from the mainland to Hawaii fit that description, mainland in-migration will be unresponsive to labor conditions.<sup>39</sup> Notwithstanding such limitations, the economy-based approach is a well grounded method for tying migration assumptions to available knowledge regarding human behavior.<sup>40</sup>

How do the assumptions used in the economy-based forecasts compare with Hawaii's tourist industry performance? Since statehood, the tourist industry has grown an average of 16 per cent each year.<sup>41</sup> Since 1970, however, this growth rate has averaged 9 per cent a year.<sup>42</sup> By comparison, the assumptions used by DPED were generally lower than the growth experience observed since statehood. The assumptions about the tourist industry used by DPED are set out in the table below.<sup>43</sup>

## PRESERVING THE QUALITY OF LIFE

### DPED ASSUMPTIONS ABOUT TOURISM GROWTH ARE LOWER THAN EXPERIENCED IN RECENT YEARS

<u>Label</u>	<u>Tourist Industry Growth Assumption</u>
A*	Zero net migration
A	Slow growth of tourism approximating zero net migration
B	Zero growth in tourism
C	Five per cent annual growth
D	Ten per cent annual growth
E	Slowing growth to a stable 2.5 per cent in 1995
F	"Most likely" growth as follows:
	1977-79            7 per cent
	1980-85           5 per cent
	1986-90           4 per cent
	1991-95           3 per cent
	1996-2000        1 per cent

The tourism growth assumptions used by DPED reflect the reasoning that the industry growth rate will decline.<sup>44</sup> There are three reasons for expecting a decline in tourist industry growth. First, it is believed that Hawaii's decline is consistent with the theory that tourist destination areas have life-cycles of growth.<sup>45</sup> Secondly, mathematically, it is difficult to maintain continued levels of high growth because the size of the base increases over time. Larger amounts of growth each year would be necessary to sustain a high rate of increase. Third, government will intervene to manage growth of the industry. Based on those expectations, the reasonableness of the assumptions used in the analysis are determined by expectations of how quickly the decline in industry growth rate will take place.

Using the expectation that growth of the tourist industry will decline, it is possible to eliminate a number of economy-based assumptions as unlikely. A growth rate of 10 per cent a year is not consistent with that expectation. It is higher than the average rate observed since 1970. The expectation is all the

more unlikely if it is assumed that the 10 per cent rate would be sustained until the year 2000. This assumption would translate into the statement that there would be over 700,000 tourists in Hawaii on an average day in the year 2000.<sup>46</sup> The figure for 1977 was 87,000.<sup>47</sup> The 10 per cent growth assumption, designated as "D", can be eliminated as an unlikely expectation of the future.

At the other end of the spectrum, evidence from recent years sets a lower limit as to how quickly the industry's growth rate can be expected to decline. Since 1970, there have been two years when the tourism growth rate fell below 5 per cent.<sup>48</sup> In both periods, the low rate of growth was associated with periods of economic recession.<sup>49</sup> To the extent that radical declines in tourism growth are related to recessionary periods, expectations for such low growth to average below 5 per cent would mean a continued state of national recession. Those assumptions designated as "A\*", "A", and "B" relating the economy to zero growth in net migration reflect growth rates under 5 per cent a year for the Hawaiian tourist industry. Because it is unlikely that the economy will experience such a long period of recession, those assumptions can be eliminated as unreasonable expectations for the near future.

Three assumptions remain after the most unlikely expectations about tourist industry growth are eliminated. The assumption labeled "C" represents an annual tourism growth rate of 5 per cent. The assumption designated "E" anticipates a slowing growth to a stable 2.5 per cent in 1995. The assumption "F" calls for a declining growth rate from 7 per cent a year in 1979 to one per cent in the year 2000.<sup>50</sup> These assumptions must be coupled with those regarding fertility to generate population projections.

The range of population forecasts that are associated with the combinations of likely fertility and net migration assumptions can be identified as likely estimates of what Hawaii's population will be in the year 2000. When the projections developed by DPED are examined in this manner, five population forecasts are singled out. They are identified in the table below:

# PRESERVING THE QUALITY OF LIFE

## POPULATION FORECASTS FOR THE YEAR 2000 DIFFER BY 56,700 PERSONS

<u>Projection</u>	<u>Fertility Assumption</u>	<u>Net Migration Assumption</u>	<u>Resident Population Forecast - Year 2000</u>
E-1	2.1	Annual net migration approximating 8,000 persons	1,282,600
II-C	2.1	5% annual tourist industry growth	1,268,600
II-E	2.1	Slowing tourist industry growth to stable 2.5% in 1995	1,256,700
F-1	1.7	Annual net migration approximating 8,000 persons	1,247,900
II-F	2.1	Tourist industry growth as follows:	1,225,900
		1977-79            7%	
		1980-85           5%	
		1986-90           4%	
		1991-95           3%	
		1996-2000        1%	

The forecasts range from a high of 1,282,600 persons to a low of 1,225,900. The difference between the highest and lowest forecast is 56,700 residents.

The five projections show that changing fertility and net migration assumptions within the range of likely alternatives do not lead to wide variations in the forecasted population total. To the extent that the assumptions and methods used in developing the forecasts are reasonable, it can be concluded that Hawaii's resident population will approximate 1.25 million persons by the year 2000. Such a total would mean that Hawaii's resident population will grow by 350,000 persons in 20 years. This increase does not account for the additional number of tourists that also will contribute to Hawaii's total population.

## Tourist Component Forecasts

The track record for forecasting tourism in Hawaii is poor. A recent report credits the state statistician for pointing out that past "projections are consistent in one respect--they're all wrong!"<sup>51</sup> Nevertheless, they do serve the purpose of providing a bracketing of the number of tourists to be expected in future years.

The assumptions giving rise to the tourism forecasts are based on tourist industry growth.<sup>52</sup> Realistic assumptions about the industry's annual growth range between 5 and 10 per cent increase in the next few years.

### HAWAII'S POPULATION WILL INCLUDE 181,800 TO 210,900 TOURISTS IN THE YEAR 2000

<u>Projection Assumption</u>	<u>Tourists in Year 2000</u>
Declining tourist industry growth from current rate to 3% a year in 1990	210,900
Five per cent annual tourism growth	210,500
"Most likely" tourist industry growth as follows:	181,800
1977-79	7%
1980-85	5
1986-90	4
1991-95	3
1996-2000	1

Three of the available projections above fall within that range. The growth assumption labeled "most likely" produces a tourist count of 181,800 in the year 2000. An assumed annual industry growth rate of 5 per cent is associated with 210,500 tourists. A declining industry growth to 3 per cent yields the highest number of tourists at 210,900.

These figures represent the expected number of tourists in the islands on an average day in 2000. The estimated tourist count in 1977 was 87,000. In comparison to the forecasts, industry growth will increase Hawaii's population by 95,000 to 160,000 persons in approximately twenty years.



## Expectations for the Year 2000

The population forecasts devised for Hawaii in recent years create differing expectations for the future. Yet, when the various projections are screened on the basis of the reasonableness of their underlying assumptions, the expectations for the year 2000 become more focused. By combining projections for residents and tourists, a picture of the size of the population drawing upon Hawaii's resources emerges.

Expectations for Hawaii's population in the year 2000 are best expressed as a projected range. Based on reasonable assumptions about what the future will hold, a low forecast of population is 1,407,700 persons. On the other end of the range, a high projection for that year totals 1,493,500 people. The difference between the high and low forecasts is about 85,000 persons. These figures reflect the expected number of persons in Hawaii on an average day twenty years from now.

### HAWAII'S POPULATION CAN BE EXPECTED TO EXCEED 1.4 MILLION PEOPLE IN THE YEAR 2000

<u>Population Component</u>	<u>Low</u>	<u>High</u>
Residents	1,225,900	1,282,600
Tourists	<u>181,800</u>	<u>210,900</u>
Total	1,407,700	1,493,500

They tell us that Hawaii's population will increase by 416,000 to 512,000 people between now and the year 2000. Whether such an increase can be characterized as a problem requiring governmental action depends upon the criteria used in defining the problem.

## Chapter III

### TOWARDS DEFINING A POPULATION GROWTH PROBLEM

That Hawaii's population is increasing is a fact. Yet, translating this fact into the statement that "Hawaii has a population growth problem" is more difficult than appears on its face. Stating that there is a "population problem" presupposes the existence of guidelines and definitions marking the point after which further growth is undesirable. The previous chapters have already identified the major contributors to Hawaii's recent population growth. They point out that a description of how Hawaii's population has grown looks radically different, depending on which population component is the focus of discussion. Quite independent of which component is viewed to warrant concern are the criteria for assessing whether growth creates a problem. The purpose of this section is to identify alternative criteria for defining population growth as a problem.<sup>1</sup> In doing so, the discussion that follows looks at six alternative bases that can be used as benchmarks in problem specification.

Before proceeding, it is important to recognize a distinction in the types of data available. There are data from the past. These data are exemplified by population statistics which describe the present state of the Hawaii around us. In contrast, there are forecasts or data anticipating the future. Such information is based on "best guesses" of what will happen in the years ahead. Current population forecasts for Hawaii are discussed in the preceding chapter. There is no way to say with certainty which forecast, if any, correctly describes the Hawaii of the future.

The difference in the two types of data is related to how the population problem is defined. Data of the present may (or may not) indicate the existence of a current problem. Data of the future, on the other hand, point to a problem that may (or may not) arise in the years ahead. This potential problem may necessitate action now in order to avoid it.<sup>2</sup> However, while an existing problem requires immediate action, the remedies for avoiding a potential problem differ in urgency of implementation and amount of resources committed. The present problem--future problem distinction also is a useful framework in how each problem criterion is applied.

## PRESERVING THE QUALITY OF LIFE

Six alternative criteria for determining whether population growth is undesirable are examined in this chapter. Such criteria serve to reflect our quality of life. The value underlying the criteria explain why the quality of life is affected. The various criteria differ in both their theoretical basis and soundness.

The six alternatives are: (1) absolute population number,<sup>3</sup> (2) population increase rate,<sup>4</sup> (3) carrying capacity,<sup>5</sup> (4) employment availability,<sup>6</sup> (5) popular sentiment,<sup>7</sup> and (6) economic welfare.<sup>8</sup> They are described in summary form below:

## ALTERNATIVE WAYS TO DEFINE THE POPULATION GROWTH PROBLEM

Criterion	Alternative Measures	Rationale	Limitations
ABSOLUTE POPULATION NUMBER	Total population Resident population Population density	There is a finite number of people that Hawaii can physically hold.	Population is not the predominant cause of environmental decline; ignores consumption practices.  Difficult to specify number.
POPULATION INCREASE RATE	In-migrant growth Immigrant growth Natural increase growth Military growth Tourist growth Total population growth	A controlled rate permits physical and socio-economic adjustment to change.	Ignores consumption patterns.  Difficult to specify rate.
CARRYING CAPACITY	Not yet developed	Technological advances permit physical setting to comfortably accommodate larger maximum population number over time.	Methodology still in development stage.  Theoretical problems with totally integrated approach.  Provides no guidelines for which growth is desirable.
EMPLOYMENT AVAILABILITY	Annual number of new jobs	Ensure economic well-being.	Does not account for environmental or other social concerns.
POPULAR SENTIMENT	Population survey	Quality of life is determined by how people feel.	Public not informed regarding issues.  Present concerns do not insure future welfare.
ECONOMIC WELFARE	Per capita gross state product	Ensure economic well-being.	Ignores externalities.  Does not account for public goods.

The rationale and limitations of each alternative help give meaning to the numbers evidencing Hawaii's population growth. For this reason, it is necessary to discuss each criterion further.

### **Absolute Population Number**

The absolute population number criterion is straightforward. The absolute number is a population ceiling. The selected figure creates a maximum over which population should not be increased. The numerical ceiling can be measured in a number of ways. For example, resident population counts or total population figures which include tourists may be used.<sup>9</sup> Another measure which more explicitly relates population numbers to land resources is a density index. Such a measurement of density could take the form of persons per square mile.<sup>10</sup> No density limitation has been proposed for Hawaii.<sup>11</sup> The most important thread tying this group of measures together is rigidity. Being absolute in nature, the ceiling number would remain fixed and not change over time.

The rationale underlying this criterion is simple. Hawaii, with its limited natural resource supply, can only accommodate a finite number of people.<sup>12</sup> More people consume more and under this line of reasoning, the limitation of resources sets how much can be consumed.<sup>13</sup> Environmental pollution, a related concern, is the by-product of that consumption process.<sup>14</sup> The driving force behind this approach is the focus on a "natural" limit to growth after which all social and biological systems collapse.<sup>15</sup> Before the threshold to such natural limits are reached, growth must be stopped.<sup>16</sup> The population ceiling reflects the threshold to such limits.

Reliance on a maximum population number is intuitively appealing. It provides a simple description to what is a complex series of social, economic, and environmental relationships in the world around us. Closer analysis of the interrelationships and the rationale behind adoption of a population maximum reveals many shortcomings.

First, focus on population numbers alone presume that more people cause undesirable effects. This presumption is too simple an understanding of the

## DEFINING A POPULATION GROWTH PROBLEM

causes of resource depletion, environmental pollution, urban sprawl, and crime.<sup>17</sup> It is now well established that population consumption patterns are major causes of reductions of environmental quality.<sup>18</sup>

This point is most easily made by example. Hawaii's resident population grew by a total of 22 per cent between 1964 and 1974.<sup>19</sup> During that same ten-year period, the acreage devoted to residential use on Oahu grew by 60 per cent.<sup>20</sup> The number of motor vehicles in the State also increased during that period. Registered motor vehicles grew by 69 per cent between 1964 and 1974. To the extent that residential acreage indicates consumption of land resources and that number of vehicles suggests air pollution and congestion, population growth is not the key component for understanding reductions in Hawaii's environmental quality. Instead, the evidence indicates that per capita consumption of resources has increased. This means that ignoring increases in total population, the average person in Hawaii is increasing the rate of resource consumption.

### RESIDENTIAL LAND USE AND MOTOR VEHICLE NUMBERS GREW FASTER THAN RESIDENT POPULATION 1964 to 1974

	<u>Per Cent Increase</u>
Residential population growth	22.03%
Growth of Oahu's residential land use (acres)	60.01%
Growth of registered motor vehicles	69.06%

Source: Hawaii, Department of Planning and Economic Development, The State of Hawaii, Data Book, A Statistical Abstract, for the Years 1974-77 (Honolulu: 1974-77).

It must be acknowledged, however, that increases in population numbers do raise the total amount of resources, e.g., water, consumed.<sup>21</sup> This is because given a per capita consumption level, more people mean a greater total consumption. Nevertheless, the rising per capita consumption level indicates

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that even if population growth were to be stopped immediately, concerns about the Hawaiian quality of life would not disappear.<sup>22</sup>

If population stopped growing today, given continued growth in per capita consumption, Hawaii's natural resources would become scarce. Environmental pollution also would occur as a by-product. This process is exacerbated by growth in population numbers. This is because population increases reduce the time available before the finite supply of resources are completely depleted.

The important point to recognize is that stopping population growth would not eliminate the prospect for an ever decreasing environmental quality. Given current preferences for how our natural resources are used, depletion of Hawaii's natural resources is theoretically inevitable. Stopping population growth only affects when it would happen.<sup>23</sup>

A second shortcoming of the absolute population number approach is the difficulty of specifying that figure.<sup>24</sup> Theoretically, there is a finite limit to growth because resource pools eventually become depleted. Determining how much population is enough, however, is difficult both conceptually and practically.

Conceptually, setting a population ceiling is elusive because the manner in which our resources are consumed changes over time. That is, changes in technology affect the rate at which resources are used up and the type and amount of by-products, i.e., pollution generated. For example, Hawaii's natural water supply has frequently been the focus of much discussion as a mechanism for limiting population growth. It is not true, however, that there will be a time when we "run out" of water.<sup>25</sup> This is because water is recyclable and alternative sources, e.g., desalinization of seawater, can be developed.

On the practical level, many socio-economic forces must be accounted for before a population ceiling can be specified. Hard trade-offs are associated with setting a fixed ceiling on population. For example, larger urban areas offer a wider variety of occupational and social opportunities.<sup>26</sup> A larger urban

setting permits greater diversity of people and life-styles. The availability of such opportunities reflects an enhanced quality of life to many persons. Limiting population means foregoing such opportunities. Within Hawaii's democratic decision-making processes, such lost occupational and social opportunities are translated into which groups bear the loss of such opportunities. To the extent that such groups are organized and are able to influence the decision process, agreement on the number limiting population which maximizes the public welfare becomes elusive.

### **Population Increase Rate**

Like the absolute population number, the rate of increase is relatively straightforward as a criterion. It is represented as a percentage rate of increase of the total population. Each component to the total population offers alternative methods for how such increases are measured. They may be expressed as the percentage change in each component's growth from year to year. Data indicating the rate of growth experienced in recent years are presented in chapter I. As a growth criterion, the population increase rate would be expressed as a numerical percentage. The per cent figure would represent a maximum rate above which faster growth would not be desired. Being a standard for growth, it would not change over time.<sup>27</sup>

There are two different rationale supporting the limitation of growth rate. One line of thinking is similar to that justifying the absolute population number.<sup>28</sup> It accepts the proposition that continued consumption results in a depletion of limited resources. However, it also recognizes the severe limitations on predicting the demographic future and man's ability to manipulate the kind and amount of resources used. As such, there is no way to predict when resources will be depleted or what a population ceiling might be. Under this line of thinking, a lower growth rate is a cautious strategy for maximizing the number of options available in the future. A slower growth allows choices for future action to be kept as open as possible.

A second line of reasoning involves the ability of the social and physical structures to adapt to increases in size.<sup>29</sup> Rapid growth does not permit proper



facilities planning. For example, if population increases exceed housing construction, then there is a short-term shortage and housing prices rise disproportionately to other goods.<sup>30</sup> Rapid growth decreases the ability of existing systems to adapt to new population levels and short-term instabilities result.

The drawbacks to the rate of growth criteria are the same as for setting an absolute population number. Just as there are difficulties in fixing an optimum size for the population, there are problems inherent in trying to find an acceptable growth rate figure. Furthermore, the percentage rate focuses only on population and ignores the consumption practices of the existing population.

### Carrying Capacity

A carrying capacity is the maximum population that can be accommodated by the physical and social environment before there is an overload.<sup>31</sup> A system overload occurs when the total resources used exceed the total resources available.<sup>32</sup> There are four types of variables that determine whether that overload point is reached.<sup>33</sup> They are the amount of resources available in the geographical setting, the technological capacity to efficiently use those resources, the consumption rate of the population, and the size of the population. Since each of the four variables may affect when the overload point is reached, the carrying capacity for an area may vary. As any of the other variables change, so does the carrying capacity.

Under the carrying capacity concept, the maximum population for an area is not rigid. The carrying capacity can change over time and also for any point in time. Over time, the carrying capacity may increase because of technological advances and changes in consumption patterns. For example, if the per capita water consumption rate decreased, more persons can be accommodated by a set water supply.<sup>34</sup>

Moreover, for any point in time, the population carrying capacity may be adjusted by altering how resources are used. For example, agricultural land

uses and population both require water. If agricultural uses were decreased, more water would be available to increase the population carrying capacity.<sup>35</sup>

As a result, the carrying capacity at any point in time is more appropriately expressed as a range of population that can be accommodated. Such ranges are generated by using quantitative models and sensitivity analysis techniques.<sup>36</sup> The simple example of water consumption points out that the carrying capacity framework identifies the types of trade-offs associated with recognizing how people interact with the environment.

The reasoning behind the carrying capacity criterion is sophisticated.<sup>37</sup> It recognizes that certain systems, especially environmental and resource systems, have limited capacities. Abuse of such limited capacity systems lead to overloads or breakdowns of those systems. To prevent such overloads and to plan accordingly, it is necessary to better understand those limited capacity systems. Carrying capacity provides an understanding of those systems.<sup>38</sup>

Population is only one variable contributing to an overload of a limited capacity system. Consequently, other variables are considered. Because those other variables, like population size, are not fixed and can be changed, the resulting carrying capacity for an area takes the form of a range of population maxima. For example, water can be recycled and its supply increased. The level of the recycling effort determines the total supply available for consumption. In turn, the recycling effort determines how many persons can be accommodated by a setting.<sup>39</sup>

Each possibility within the carrying capacity range represents a different set of trade-offs among the factors leading to the overload point. Such a carrying capacity range does not set one fixed ceiling for population. What it does is provide decision-makers with packages of trade-offs with different margins for additional growth. One of the components in each package is a carrying capacity figure. The decision-maker must choose the package of trade-offs that most enhances the quality of life in Hawaii.

The limitations to the carrying capacity criterion are numerous.<sup>40</sup> First, the carrying capacity concept is a new tool for managing population growth.

The general theory and model for thinking about carrying capacity are well established.<sup>41</sup> However, there are different methodologies for performing carrying capacity analyses.<sup>42</sup> The various methods have been developed within the past few years as prototypes or studies designed to show the practical workability of differing carrying capacity methods.<sup>43</sup> The different methodologies currently are being analyzed and evaluated. In short, the tools necessary for doing carrying capacity analysis, although highly sophisticated, are still in their infancy of development and will require more time for testing and critique.<sup>44</sup>

Second, and beyond the currently developing state of the art, is whether the type of carrying capacity analysis envisioned is ever possible.<sup>45</sup> Studies undertaken to date have isolated certain major systems and examined their interrelationships.<sup>46</sup> The task is relatively easier when physical resources and systems are selected for study.<sup>47</sup> However, the analytical task becomes infinitely more difficult as focus turns away from physical to social systems. Theoretically,<sup>48</sup> the carrying capacity notion covers human as well as environmental factors impinging on quality of life.<sup>49</sup>

Third, whether carrying capacity information can be consumed by decision-makers may be a real practical restraint on implementation of the criterion.<sup>50</sup> The types of information generated by the carrying capacity analysis are difficult to understand. The techniques used in the analysis are sophisticated and the resulting information cannot be used by the lay person. Decision-makers would need to be trained in how to use the carrying capacity information.<sup>51</sup> To the extent that the information is simplified, some of the trade-offs associated with a given carrying capacity figure would be ignored.

Furthermore, assuming that carrying capacity analysis accounts for multiple systems simultaneously, there would be too much information to be digested. This is because each system examined would have a range of carrying capacity figures associated with varying levels of that system's utilization. As more and more systems are examined, the number of combinations for each carrying capacity figure multiplies. Decision-makers would be inundated with alternatives. To the extent that the number of alternatives is limited, the information overload problem would be averted. On the other hand, when the

options presented to decision-makers are so limited, decision-makers are shielded from considering potentially desirable trade-offs.<sup>52</sup>

Finally, and perhaps most importantly, carrying capacity designations of acceptable growth margins tend to foster growth.<sup>53</sup> After a carrying capacity is identified, there is a tendency to fill that capacity. Since, over time, a region's carrying capacity may increase due to technological improvements in how resources are consumed, it is not difficult to envision an ever increasing carrying capacity whose capacity is never filled. The carrying capacity then becomes a sophisticated way to plan for growth. Growth is assumed and the only question becomes how to accommodate and distribute it.

## Employment Availability

An altogether different approach to examining population growth involves employment opportunities. This criterion looks to economic conditions for setting the population limit.<sup>54</sup> One approach to measuring the relationship between the economy and population is to look at the annual number of new jobs created by the economy.<sup>55</sup> Under this measure, population increase should only occur at a rate commensurate with increases in total jobs. Such employment availability measures provide a flexible criterion for examining population growth. Because the state of the economy varies from year to year, so would the desired population optimum.

The underlying basis for the employment availability criterion is to ensure the economic well-being of the State's residents. There is a relationship between the size of the labor force as measured by population, unemployment, and the economy. The economy can be represented by the number of available jobs. As the economy grows, the labor force must grow with it. If the labor force grows slower than the economy, then persons migrate to the area to take those jobs.<sup>56</sup> This is because unemployment is low and migrants are attracted to the area. If unemployment is too low, then more migrants are attracted than the number of jobs available. On the other hand, if the labor force grows faster than the economy, then unemployment results. The relationship among these forces points to the necessity for a balance between the growth of

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employment opportunities and the labor force.<sup>57</sup> Movement away from such a balance leads to unemployment and a loss of economic well-being.<sup>58</sup>

The employment availability criterion, on the other hand, is very limited. As a guide for controlling population growth, tying the maximum number of persons to the performance level of the economy is unidimensional. It only looks to one dimension of quality of life--economic well-being. While population numbers or the growth rate alone is a faulty indicator for resource protection and environmental quality, relating population only to the economy ignores those factors.

Historically, economic growth has been associated with decline in environmental quality.<sup>59</sup> To the extent that this continues to be true in the future, economic well-being in the form of low unemployment will be at the expense of Hawaii's natural environment.<sup>60</sup> So far as economic well-being is related to an increase in population levels, the situation is aggravated.<sup>61</sup> Moreover, the measure does not deal with congestion or other social effects which are also consequences of combined economic and population growth.

### Popular Sentiment

The popular sentiment criterion is based on public opinion.<sup>62</sup> It is straightforward and is easily comprehensible. Public opinion can take the form of citizen surveys or formal public referenda. There are countless other forms through which such collective popular sentiment can be expressed in a democratic political system like Hawaii's. A commonly used tool is the public opinion poll.<sup>63</sup> Through such a mechanism, the number of persons with a preference can be determined.<sup>64</sup> Changes in public sentiment over time are detectable by conducting a similar survey at a later date. Because public sentiment can change over time, the popular sentiment criterion does not set any fixed standard for how much population is too much.

The rationale for this criterion is rooted in the democratic process. It recognizes that quality of life is relative and dependent on how people feel about the environment around them at a given period in time. Under this rationale, it

makes no difference whether one believes in "natural limits" to growth or not.<sup>65</sup> It makes no difference what the perspective is regarding the role of technological advances in alleviating problems of resource limitations.<sup>66</sup> The reasons underlying the sentiment are relatively unimportant.<sup>67</sup>

Instead, this criterion assumes that each person whose opinion is sought is equal. Each is equal in intelligence and access to information. As such, the uncertainty inherent in predicting the future requires that reliance be placed on the collective wisdom of the citizenry. Through this process, all issues associated with population growth are focused. For example, congestion and job opportunities are associated with increases in population.<sup>68</sup> Both bear on quality of life. Through the opinion gathering process, it is assumed that the collective popular sentiment is a reflection of the trade-off desired in public policy. To the extent that such public opinion is accurately represented, the quality of life of the total community is enhanced.

Reliance on this criterion has a number of disadvantages. First, it is debatable whether all members of the public are equally endowed with intelligence or access to information.<sup>69</sup> Without the assumption that information is equally accessible and comprehensible, there is a risk that the popular sentiment expressed would lead to undesirable trade-offs. If this is true, then the collective quality of life would be decreased.

Second, the opinion poll technique assumes that the opinion sentiment expressed is not myopic. That is, it assumes that the sentiment expressed now might adequately account for the future welfare. Concerns with present quality of life do not necessarily provide for future quality of life. For example, a present decision to limit the construction of high-rise condominiums has a future effect on the total number of housing units available and exerts pressure on committing resources to more land intensive forms of residential development, i.e., single-family dwellings. It might well be that present preferences for what constitutes quality of life also will be held by future generations. However, technological advances as well as changes in taste make this likelihood slight. When such uncertainty about future preferences is combined with the possibility that popular sentiment does not recognize the associated trade-offs, the overall effect is a decline in community welfare and alienation from democratic institutions.<sup>70</sup>

## Economic Welfare

The economic welfare criterion measures the wealth of the population.<sup>71</sup> One way to measure wealth in the community is by per capita gross state product.<sup>72</sup> The per capita gross state product<sup>73</sup> is derived by dividing the total gross state product by population. Under the economic welfare criterion, population growth is a problem if per capita economic welfare decreases from one year to the next.<sup>74</sup> The economic welfare measures impliedly embody the types of trade-offs that are beneficially and detrimentally related to population growth.<sup>75</sup>

The basis for this criterion is that the economy measures the quality of life. The economy is a system for managing and developing resources.<sup>76</sup> People use the resources around them. In using those resources, preferences are shown concerning their use. The ordering of preferences reflects the advantages and disadvantages of each use.

When two persons get together, they find that their preferences differ. In fact, they may find that each would be better off if they traded resources. Such a trade would be consistent with individual preferences. After the trade is completed, both persons are happier. Such trading enhances the quality of life.<sup>77</sup>

In a community of more than two persons, the trading can become vigorous. To make such trading easier, money is used. This is because money substitutes for the resources that can be exchanged. As a consequence, the more money or dollars that a person has to trade, the happier the person is and the higher the person's quality of life.<sup>78</sup> Viewed in this manner, wealth provides a measure for quality of life.

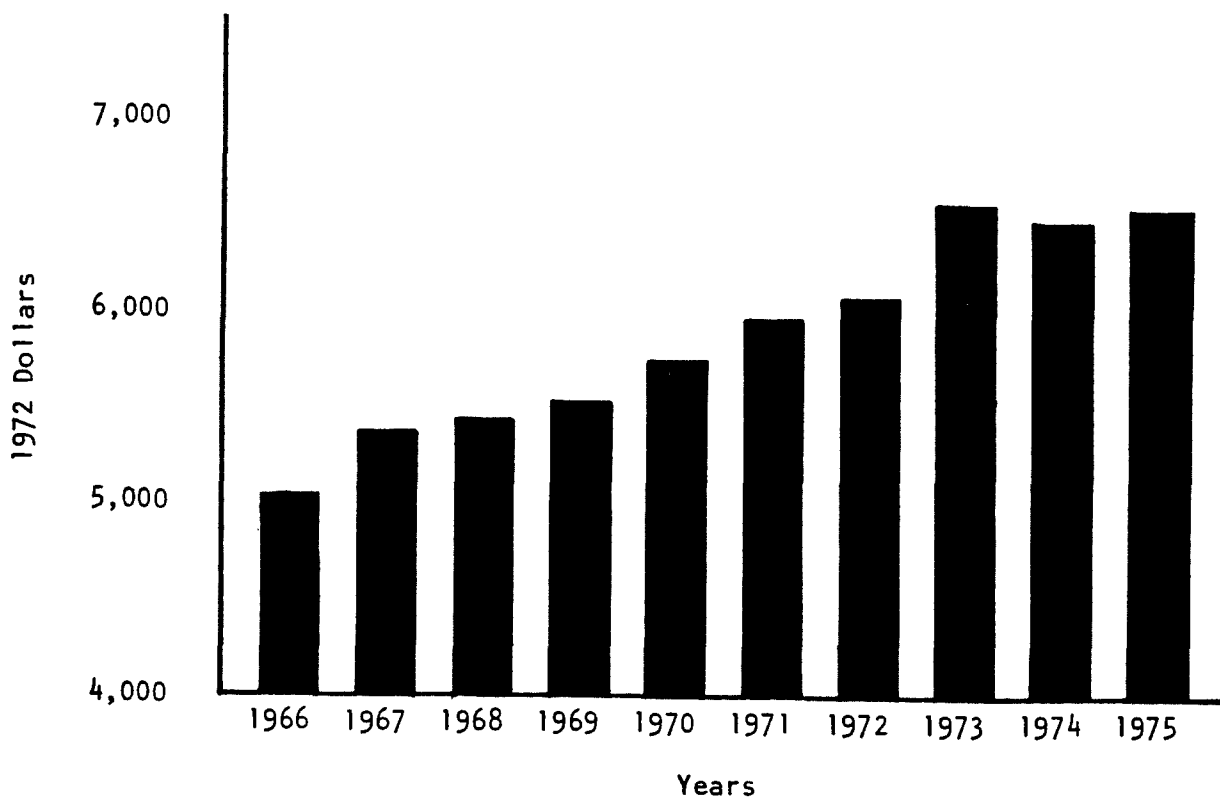
This thinking translates into the economic welfare criterion. The quality of life decreases if the per capita economic welfare declines from one year to the next.<sup>79</sup> Using one such measure, per capita gross state product, this means that the figure would be lower in a succeeding year.

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This standard is not currently applicable in Hawaii because this measure shows that economic well-being has increased in the last few years. This means that along with population growth during the last decade, Hawaii's residents have become better off rather than worse off. Per capita gross state product increased from \$5,000 to \$6,600 between 1966 to 1975.

### THE ECONOMIC WELFARE OF HAWAII'S RESIDENTS HAS INCREASED IN RECENT YEARS

(Per Capita Gross State Product)



Source: *Hawaii, Department of Planning and Economic Development, The State of Hawaii Data Book 1977, A Statistical Abstract (Honolulu: 1977), Table 182.*



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On the one hand, if economic welfare is a valid measure of quality of life, population growth cannot be said to be a problem. On the other hand, it may well be that the economic welfare of Hawaii's residents would have risen even higher had there not been population growth. This means that the observed increase in economic welfare did not rise fast enough. Population growth then is defined as a problem because economic welfare is increasing too slowly.

The economic welfare criterion is limited in two regards. First, the trade or exchange process does not take externalities into account.<sup>80</sup> Externalities are the costs or disadvantages associated with how a resource is used that are not considered by the two persons exchanging it. For example, both the new car buyer and the seller are happier after the sale. However, when the buyer uses the car, it emits pollutants into the atmosphere. Other persons are affected by these pollutants. Since neither the buyer nor the seller considered that pollution, it is considered an external cost associated with the car. Historically, neither party was concerned about those pollutants. Present law attempts to make the buyer and seller internalize those external costs. Emission control devices are now required of new cars being sold. However, it is not clear that all such externalities associated with the exchange have been identified and dealt with.<sup>81</sup> To the extent that many other such externalities exist in the community, the economic welfare criterion is not an accurate measure of quality of life.

A second drawback involves the concept of public goods.<sup>82</sup> Public goods are resources whose beneficial use does not only accrue to the owner. When an owner of a resource is not the only person benefitted by its use in a particular manner, there is a public goods shortage. Since the owner cannot capture all the benefits of a particular use, the owner may change the use in order to acquire more benefits than presently received. If the combined benefits of the prior use for both the owner and others was greater than the new use, the quality of life for the community declines.

This point is better made by an example involving agricultural land. An owner may decide to build a multiple story hotel on that land because of the higher economic return. However, other persons may have valued the agricultural use for open space or scenic view purposes. Those persons are

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disadvantaged by the decision to build the hotel. While the owner receives more benefits in the form of increased revenues, the balance of the community would suffer a loss of benefits and arguably the quality of life would decline. The governmental function of land use regulation is to alleviate such detrimental effects.<sup>83</sup> Modern trends in public policy are to compensate the owner for the benefits that other persons are receiving from the agricultural use.<sup>84</sup>

### Towards Identifying the Problem

When available data are coupled with each criterion, it is possible to determine what standards are being used in defining population as a present problem for Hawaii. The alternative measures under each criterion and their current empirical status are displayed in the table below:

DEFINING THE POPULATION PROBLEM IN TERMS OF  
HAWAII'S PRESENT SITUATION

<u>Criterion</u>	<u>Measure</u>	<u>Standard</u>
Absolute population number	Resident population (1977)	894,700
	Total population (1977)	981,500
	Population density (1977)	152.8/sq. mile
Population increase rate	Total population growth (1970-76)	2.71% annually
	In-migrant population	NA
	Immigrant population	NA
	Natural increase population	NA
	Military population (1970-76)	1.73% annually
	Tourist population (1970-76)	12.27% annually
Carrying capacity	NA	No data
Employment availability	Number of new jobs	8,000/year

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<u>Criterion</u>	<u>Measure</u>	<u>Standard</u>
Popular sentiment	Public opinion that there are too many people in Hawaii (1977)	47%
	Public opinion that Hawaii's population is growing too fast (1977)	61%
Economic welfare	Per capita gross state product	Increasing too slowly

NA = Data not available.

While the entries in the table, taken singly or collectively, describe what might represent a population problem, they really ignore the hard question of what the standards should be for defining a population problem. What the table attempts to do is point out implied standards underlying the assertion that Hawaii has a population problem.

The limitations to such an approach become very obvious when the question is asked, "Will Hawaii have a population problem in the future?" If the answer is yes, then it should be possible to define such a future problem in terms of the measures used in the above table. To date, there have yet to be designed sound, nonarbitrary definitions for such a future problem. Whether conceptually sound standards can be developed in the future is a major challenge for Hawaii's planners and social scientists. Whether they will be successful provides a key ingredient in the basis for implementing a defensible legal and moral basis for limiting, restraining, or redirecting population growth.

## Chapter IV

### BUILDING POSITIVE STRATEGIES FOR MANAGING GROWTH

#### Introduction

There is widespread popular sentiment that population growth is a problem in Hawaii. This is understandable. Since statehood in 1959, the resident population of Hawaii has grown by almost 300,000 people. Moreover, the dynamic growth of the tourist industry during the last decade has meant rapid growth of the number of tourists competing with residents for use of the islands' limited physical resources. Associated with such population growth have been many of the ills generally accompanying a transition from a primarily agrarian to an urban social structure. In addition, higher density of land use has caused increasing concerns about erosion of the aesthetic and environmental setting that has traditionally represented the quality of life dear to the people of Hawaii. It is understandable that population growth is viewed as the cause of a decline in quality of life.

It is not clear, however, that all of the problems generally associated with population growth can be said to be caused solely by increases in population. The previous chapters indicate that the task of defining the population growth problem is more elusive than appears on its face. Instead, the previous chapters have suggested that the phenomenon of population growth and its concomitant effects are intricately linked to other basic variables affecting the quality of life of Hawaii's peoples.

The purpose of this chapter is to make more explicit what some of those linkages are. In doing so, a number of factors generally associated with popular notions of quality of life are identified. They are then compared against a number of proposals that are commonly offered as mechanisms for controlling Hawaii's population growth. The chapter closes by pointing to some initial strategies for dealing with population growth in a positive way.

## Population Is One Variable Affecting Quality of Life

A basic understanding of the growth phenomenon provides a starting point for anticipating the impact of managing population growth. What is the role of population size in determining quality of life? How does population growth relate to other factors affecting the public welfare? The answer to these questions provides the context for prudent state policies aimed at attacking Hawaii's growth in population numbers.

To place the role of population growth in relation to the many other indicators symptomatic of the "growth problem" in proper perspective, it is only necessary to look at data from recent years. The following table contains data regarding some of the types of resources the depletion of which is usually attributable to population growth.<sup>1</sup> They indicate that the role of population growth in causing perceived declines in quality of life has been overstated.<sup>2</sup> Evidence from recent years indicates that the amounts of resources being used increased at a faster rate than did population growth.<sup>3</sup> This means that over time, consumption of resources in Hawaii has risen faster than population growth.

### RESOURCE USAGE GREW FASTER THAN POPULATION

<u>Resource</u>	<u>Time Period</u>	<u>Growth in Resource Use</u>	<u>Total Population Growth</u>
Water (million gallons/day)	1960-75	69%	43%
Energy (British Thermal Units)	1960-74	143	41
Motor vehicles	1966-76	66	32
Oahu residential acreage	1964-74	60	29*
Housing units	1967-77	40	31

## BUILDING POSITIVE STRATEGIES

Source: Hawaii, Department of Planning and Economic Development, The State of Hawaii Data Book 1977, A Statistical Abstract (Honolulu: 1977), Tables 3, 81, 99, 251, 261, and 323; The Population of Hawaii 1977 (Honolulu: 1978), Table 1.

\*Increase observed for entire State.

For example, it is true that the total amount of water being consumed has increased since 1960. It is also true that population increased during the same period. However, when the increase in water consumption is compared to the increase in population, it is misleading to conclude that population growth causes more water to be consumed.<sup>4</sup> If in 1975 the amounts of water attributable to each person were the same as in 1960, the total gallons consumed would have been less by 515 million gallons each day. In 1975, the average person was using more water. Per capita water consumption was 2,500 gallons a day in 1960. By 1975, per capita water usage rose to 3,140 gallons each day.<sup>5</sup> That per capita consumption has increased holds true for many other types of resources like energy and motor vehicle usage.

This pattern of resource consumption is not unique to Hawaii. It is generally acknowledged by social scientists that a deteriorating environmental quality is a by-product of increased consumption of resources.<sup>6</sup> For example, between 1940 and 1970, the U.S. population increased by 50 per cent. At the same time, per capita electricity usage multiplied several times.<sup>7</sup> During that same thirty-year span, when population grew by 50 per cent, attendance in national parks increased by more than 400 per cent.<sup>8</sup> Such evidence indicates that environmental quality is not the only factor perceived to advance the quality of life.

The relationship between population growth and quality of life can be characterized as an indirect one.<sup>9</sup> The problems of changing environmental quality have arisen because our existing population has acted to pursue individual preferences for a better life. Hawaii's people are using an increasing amount of "goods", e.g., a second family car, to enhance their quality of life. But along with the usage of the "goods" evidencing individual measures of a

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better life, has been an associated "bad", e.g., traffic congestion. As Hawaii's residents have demanded increased numbers of "goods", along with them have come the "bads".

To illustrate this point, take, for example, Hawaii's current housing situation. A recent survey shows that the need for housing is viewed as the most pressing problem faced by residents of Honolulu.<sup>10</sup> Yet accompanying that call for more housing is a host of other concerns affecting other dimensions of quality of life. Developing units of single-family housing uses up land, e.g., agricultural, and raises claims of urban sprawl. The alternative housing structure, the multiple unit structure or the high-rise, is connected with high density land use, changes in life-style patterns, and destruction of natural views. If Hawaii's population stopped growing today, these concerns would not disappear.<sup>11</sup> Hawaii's population would continue to demand housing. To meet those demands, more land would have to be allocated for residential purposes. Even without population growth, there would be more single-family dwellings or high-rise structures demanded. The magnitude of this demand indicates that the role of population growth is not large relative to the role of resource consumption by Hawaii's peoples.

Population growth is only one of several variables that affect the quality of life, however defined.<sup>12</sup> Personal income, the state of technology, and the social and cultural diversity of population are others. Sheer numbers are not nearly as important in causing environmental deterioration as are the high levels of consumption and the by-products of technology.<sup>13</sup> It is a gross oversimplification to blame numbers of people alone for the set of problems confronting Hawaii today.<sup>14</sup> Moreover, it is impossible to isolate the effects of a single variable like population.<sup>15</sup>

Placing population growth in the context of a number of variables related to quality of life, however, does not eliminate the fact that population size does affect quality of life. Population growth does have an impact on our physical environment. It magnifies the effect of increasing per capita consumption patterns. Population growth tends to accelerate the decline in the quality of Hawaii's unique physical setting.

As a result, there are benefits to be derived from reductions in population growth. A slowdown of growth reduces the need for application of solutions with secondary consequences that are undesirable. It also buys time so that acceptable solutions can be found and reduces the risk that we may not find acceptable solutions.<sup>16</sup>

### **Population Growth Control Has Good and Bad Effects**

Nevertheless, in fashioning proposals for government action, it must be realized that the relationship between population growth and the problems generally attributed to it is not a one-way street. Population growth is associated with urbanization and other aspects of environmental decline. However, to say that they are associated is not to say that population growth causes such problems. Instead, population growth, like the factors evidencing environmental decline, is better viewed as a consequence of a complex interrelationship among many socio-economic forces.<sup>17</sup>

A simple manifestation of this interrelationship is in the choice made in defining the term "population". Defined as "resident population" which excludes the tourist component, examination of growth focuses attention on the principal increases due to natural increase and immigration. On the other hand, under the total "population" count, the sharp rise in the number of tourists in recent years warrants concern. The average daily number of tourists in Hawaii grows by 13 per cent a year.<sup>18</sup> Which population definition is selected implicitly suggests directions for policy action. But the choice also gives a flavor of the types of socio-economic relationships associated with the population growth phenomenon.

To go beyond this suggestion and to make clear the relationships between population growth and its impacts are difficult. Social scientists have yet to design a formula for producing a better quality of life. Some understanding of how the variables affecting quality of life are related, however, can be obtained by examining various proposed methods for controlling population growth.



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As population growth has emerged as a concern worthy of government action, so has the number of proposals for remedying the "problem". Although often touted as such by their advocates, no such proposal is a panacea for dealing with population growth. In fact, it is possible that the unintended consequences associated with any one answer to the population question may overshadow its positive aspects.<sup>19</sup>

To make this point more meaningful and to reflect the diversity among growth management proposals, focus turns to eight proposals commonly offered as workable courses for government action.<sup>20</sup> The alternatives considered here are: (1) the point system for development (Ramapo model), (2) the housing growth limit (Petaluma model), (3) land banking, (4) publicity campaign (Oregon and Alaska schemes), (5) impact taxes (California model), (6) tourism development licensing, (7) residency for public assistance, and (8) state land regulation. How these proposals deal with population growth is outlined below:<sup>21</sup>

The Point System. This is known as the Ramapo model. It involves scrutinizing proposed developments against a point system. Points are given for various elements in a development. The points are added up and if the sum does not meet a minimum standard, the development is not approved.

The Housing Growth Limit. This is better known as the Petaluma model. This scheme involves a maximum number of housing units that can be constructed each year. Proposals for construction are submitted in advance and rated according to a point system. Only the best, up to the allocated maximum number of units, are approved.

Land Banking. This requires that the State purchase land currently owned by private persons. As an owner the State would then determine how the land is used. The options for use are numerous.

Publicity Campaign. Different forms of this alternative were used by Oregon and Alaska. The approach is simple. The State conducts a publicity campaign either telling people not to move to the State or pointing out the disadvantages of residence in the State.

Impact Taxes. A number of states have begun to require that developments pay for themselves. This means that a tax on new development is imposed to require that newcomers pay for the negative fiscal effects they create.

Tourism Development Licensing. This involves the regulation of new hotel unit construction. Applications for hotel development are taken by the State. Depending upon the level of economic stimulation desired for the next year, a specified number of hotel units/rooms is approved.

Residency for Public Assistance.<sup>22</sup> Public assistance amounts vary from state to state. Hawaii's are among the highest amounts paid in the country. Residency for one year would be required before the Hawaii public assistance amount would be paid. Until that year passes, the amount paid would be the same as that of the recipient's preceding state of residence.

State Land Regulation. The permissible uses of the land are regulated by the state and local governments. This dual level system gives the local government power to determine permissible use types in areas designated as urban. The State retains power to control all other uses and to designate land as urban. This is known as the Hawaii land use model.

The impacts of the different proposals are summarized in the table below.<sup>23</sup> Viewed in this manner, one conclusion becomes inescapable. Controlling population growth is not costless. There is widespread uncertainty of how such proposals would affect many areas. Yet, some proposals may reduce population growth. In doing so, a few simultaneously act to preserve Hawaii's natural environment. However, no one proposal comprehensively deals with controlling all areas of population growth. In fact, those proposals promising some hope for managing population growth have little or no impact on two of its major contributors, natural increase and immigration.<sup>24</sup> While the population management tools examined tend to reduce growth, there is no evidence on their potential magnitude of effect.<sup>25</sup>

On the other hand, also associated with efforts to control population growth are negative effects on economic factors contributing to a better life. The types of proposals with the most potential for managing population size also have consequences of limiting employment and housing opportunities. Such findings are consistent with the notion that population size is only one variable in determining quality of life. Since population is related to other variables, an attempt to affect its rate of growth would necessarily have an impact on those other variables.<sup>26</sup> Controlling population growth would raise the quality of life in some areas and at the same time create undesirable effects in others.<sup>27</sup>

# CONTROLLING POPULATION GROWTH IS NOT COSTLESS

Selected Quality of Life Variables	Population Management Proposals	State land regulation	Impact tax	Land banking	Tourist development licensing	Limit housing development	Point system for development	Publicity campaigns	Residency for public assistance
Reduce net in-migration	u	u	u	u	u	u	o	+	
Reduce immigration	o	o	o	o	o	o	o	o	
Reduce birth rate	o	o	o	o	o	o	o	o	
Reduce tourist population	u	+	+	+	-	u	u	o	
Preserve environment	+	o	+	+	+	+	o	o	
Reduce traffic congestion	-	o	u	+	u	u	o	o	
Disperse development	-	u	+	+	o	u	o	o	
Protect individual freedoms	o	o	o	o	u	u	o	-	
Increase job opportunities	u	-	-	u	-	o	o	o	
Increase personal income	u	u	-	u	-	o	o	+	
Increase housing supply	u	-	-	o	-	u	o	o	
Reduce government costs	o	+	-	-	u	-	-	u	

+ = positive effect  
 o = no effect  
 - = negative effect  
 u = uncertain effect

Whether the resulting quality of life is viewed as desirable or undesirable, like our perception of beauty, depends on the eyes of the beholder.<sup>28</sup>

### **Identifying Positive Management Strategies— Recognizing Uncertainty and External Social Forces**

Recognizing that controlling population size involves trade-offs affecting other important components to social welfare is a starting point for managing growth.<sup>29</sup> Even given a desire to effectuate statewide public policies in this area, choosing among the various growth control alternatives is extremely problematical because little is known about their impacts. It is nonetheless possible to identify the types of policies desirable.

This can be done by explicitly recognizing the characteristics that describe the setting in which a population control mechanism would have to operate. The characteristics of the policy setting determine the types of strategies used to manage population growth. In turn, each specific proposal affecting population can be reviewed for its consistency with the appropriate type of strategy called for by characteristics of the policy setting.

How, then, can the policy setting surrounding population growth control be characterized? The preceding chapters point to two major characteristics.<sup>30</sup> First, there is high uncertainty as to the impact of managing population growth. Second, as a state, Hawaii has relatively little control over the social forces affecting population growth. These characterizations are further explained below:

Uncertainty of Impact. It is known that population growth is related to quality of life. It is also known that other variables affect the quality of life. However, it is uncertain how population and those other variables interact to affect public welfare. This means that the positive effects of population control are accompanied by other negative consequences. It is not known what all those quality of life variables are and how severely they are affected.<sup>31</sup> If the undesirable consequences overshadow the benefits of population control, then government action would be counterproductive. Because of this real potential, dealing with population growth can be said to involve a high degree of uncertainty.<sup>32</sup>

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Control of Social Forces. There are two types of forces that affect activities in Hawaii.<sup>33</sup> First, there are forces external to the State. As a state, there is little control that can be exercised on those forces operating from outside the physical setting of the State, e.g., U.S. Supreme Court decisions and federal military policies.<sup>34</sup> Second, are those forces internal to the State. As a governmental unit, the State can influence those forces operating within its geographical jurisdiction. For example, the State can influence the number of housing units in the islands. On the other hand, the State has relatively little influence<sup>35</sup> on people's decisions to move to Hawaii.<sup>36</sup> The military, immigration, tourism, and in-migration are all greatly influenced by forces external to Hawaii. Because each of those components greatly affect changes in Hawaii's population, it can be concluded that the State has relatively low control over social forces.

Both the control and uncertainty factors inherent in dealing with population growth can be taken into account in examining growth and control proposals. The uncertainty and extent of control in dealing with population growth can be reflected in the type of strategy used by the State.

In dealing with the uncertainty factor, two strategies are available. First, there is the strategy of adopting a substantive remedy. Such a remedy would deal with the substance of the problem by solving it. Substantive remedies are desirable in a policy setting characterized by low uncertainty. Low uncertainty means that the trade-offs associated with solving the problem are explicit and the risks of unintended consequences are minimal. In that situation, a proposal substantively dealing with the problem is appropriate.<sup>37</sup>

On the other hand, a setting characterized by high uncertainty calls for a different type of strategy. Where relatively little is known about the unintended consequences or their magnitudes, a process-oriented strategy is appropriate.<sup>38</sup> Unlike under the substance-oriented strategy, procedural type remedies do not attempt to solve a problem directly. Instead, they structure decision processes in a manner that permit the concerns associated with the problem to be explicitly addressed in public policies. The procedural strategy is desirable where there is high uncertainty because it provides an incremental approach to dealing with a problem. Such a strategy permits the consequences of undesirable side effects to be taken into account systematically and slowly; acknowledges change in social tastes and values; and minimizes the risk

associated with uncertainty. The procedural strategy is reflected by proposals that permit case-by-case assessment of growth impacts. For example, although it is known that certain land developments have environmental consequences, environmental impact statements are required prior to approval.

Like the uncertainty factor, there are two types of strategies associated with the level of control over the social forces affecting population growth. In its most general sense, the problems resulting from population growth reflect decisions on how resources are utilized.<sup>39</sup> Population growth caused by social forces internal and external to the State place pressures on how resources are used. The amount of control that can be exercised over such social forces determines the type of strategy employed in managing the State's resources.

On the one hand, where there is good control over both internal and external social forces, then a strategy designed to affect the demand for resources is workable. Such a demand-oriented strategy is appropriate because by controlling social forces it is possible to affect the amount and manner in which resources are used.<sup>40</sup>

On the other hand, where there is little control over external social forces, a supply-oriented strategy is appropriate.<sup>41</sup> To the extent that the State has control over the social forces internal to Hawaii, it can influence the supply of resources available for usage. This strategy relies on regulating the supply of resources available for consumption by the population. The strategy requires remedies involving internal determination of the amount of Hawaii's resources selectively offered to the world for consumption.

### **Identifying the Right Tools for Addressing Uncertainty and External Social Forces**

The characteristics of the policy setting require an appropriate type of population control strategy.<sup>42</sup> Because the strategies associated with the control and uncertainty characteristics are not mutually exclusive, both types are applicable. The relationship between the characteristics of the setting and their related strategies for controlling population growth is contained in the following table.

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### CHARACTERISTICS OF POLICY SETTING REQUIRE APPROPRIATE TYPE OF STRATEGY

		Uncertainty of Impact	
		Low	High
Control of Social Forces	High	Substantive Demand Oriented Strategy	Procedural Demand Oriented Strategy
	Low	Substantive Supply Oriented Strategy	Procedural Supply Oriented Strategy

The uncertainty factor associated with the tools for controlling population has been described as "high". This is because relatively little is known about the negative side effects associated with the available tools for population management.<sup>43</sup> In contrast, the amount of control over the social forces at work in pushing population numbers upward has been identified as "low". There are many external forces contributing to the population growth experienced by Hawaii in recent years.<sup>44</sup> When both these characteristics are taken into consideration, the desirable types of strategies for controlling growth are identified. In a setting where uncertainty is high and control is low, the appropriate types of policies can be described as both process-oriented and supply-oriented strategies.

Recognizing that the policy setting for managing population growth calls for both process-oriented and supply-oriented strategies reduces the number of proposals considered appropriate. This is because to be considered appropriate, a proposal for action must be described as both process-oriented and supply-oriented. To be appropriate, a proposed program must be consistent with the procedural-supply strategy demanded by the setting.

## BUILDING POSITIVE STRATEGIES

The eight growth management proposals considered above can be categorized in this manner. The table below indicates that four of the eight proposals discussed earlier fall within the procedural-supply oriented strategy.<sup>45</sup> Proposals that act to license tourism development, regulate

MATCHING PROPOSALS TO THE PROCEDURAL-SUPPLY STRATEGY

	Substantive Remedy	Procedural Remedy
Remedy Affecting DEMAND for Hawaii's Resources	Publicity campaign Residency requirement for public assistance	Impact tax
Remedy Affecting SUPPLY of Hawaii's Resources	Limit housing construction	Land banking Point system for development State land regulation Licensing tourism

land use, establish a development point system, and public land banking function to affect the supply of Hawaii's resources available for use and establish procedures for doing so. The remaining four proposals--a publicity campaign, imposition of a residency requirement, impact taxes, and housing construction limitations--are considered inappropriate because their adoption is associated with either a high uncertainty of impact or a small likelihood of effectiveness. Categorizing population management alternatives in this manner identifies the proposals that are desirable. Once the field of alternatives has been narrowed in that manner, each must be assessed further on the basis of its benefits to be achieved relative to its disadvantages. Limiting consideration to those alternatives which reflect the strategies demanded by the setting minimizes the risks and costs of governmental action where all available choices are marked by great uncertainty.<sup>46</sup>



## Chapter V

### CONCLUSIONS AND RECOMMENDATIONS

#### Where Growth Has Occurred

Since statehood, Hawaii's population has grown by approximately 300,000 persons. Reference only to that aggregate increase in population overlooks the influence various components of the State's population exercise upon that growth. The military component can be characterized as highly variable from year to year, yet its overall effect on population growth has been small. Contrary to public impression, the impact of the net in-migration component to Hawaii's population can also be described as small. This is because available data indicate that out-migration has kept pace with increases in in-migration.

On the other hand, consideration of recent population figures reveals that three components have made notable contributions to population growth. Natural increase due to childbirth presently contributes 7,900 new persons to Hawaii's population each year. Although birth rates have fallen during recent years, growth due to natural increase still represents one-third of the total population growth each year. Moreover, it is expected that the birth rate will rise in the next few years.

Another component, immigration, adds approximately 5,000 persons to the State's population each year. Immigration is noteworthy because it currently contributes 20 per cent of the State's annual increase in population. Recent increases in alien arrivals reflect the major change in U.S. immigration policy in 1965. The rate of alien arrivals appears to have stabilized because the immigration quotas established in 1965 have been filled since 1970. However, family and dependent exemptions to the quotas indicate that the number of arrivals may not remain stable. There are currently no projections for alien immigration to Hawaii.

The tourist population is the third component making an important contribution to growth. Tourists must be included in the population count because, like residents, they require services and facilities affecting the State's

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resources. Measured by the average daily census, tourism currently adds 6,200 persons to Hawaii's population each year. This figure represents one-fourth of the State's population growth. Although the history of projecting the future growth of the tourist population has been poor, it is expected that the next two decades will continue to bring a steady increase in the tourist population each year. This indicates that the tourist component will continue to be a substantial part of Hawaii's population growth.

### **400,000 More People by the Year 2000**

Hawaii's population future is dependent upon many factors. Absent catastrophic events or radical changes in public policy, however, it can be expected that Hawaii's total population in the year 2000 will range between 1.4 to 1.5 million persons. This represents an increase of 400,000 to 500,000 persons in the next twenty years. Although presently it is not possible to break down those forecasted increases for each of Hawaii's population components, approximately one-fourth of the aggregate increase will be attributable to tourist population growth.

### **Population Numbers Standing Alone Have No Meaning**

Whether such data indicate that there is a problem requiring state action depends upon how a "population growth problem" is defined. This is because the numbers evidencing growth cannot stand alone. In order to have meaning, the numbers must relate to some criteria, standards, or sets of values explaining why growth is undesirable. For example, the fact that the State's population is growing at an annual rate of 2.39 per cent can be compared to the 3.55 per cent annual rate experienced between 1920 and 1930. To be meaningful, such numbers must be linked to the social and economic setting in which they occur.

## **No Single Population Criterion Reflects the Quality of Life**

Various alternative criteria are applicable to the present context of population growth. Application of each of the various criteria reflects differing facets of Hawaii's physical, social, and economic setting. In making such application, each focuses on different dimensions of the quality of life. No one criterion, however, captures all aspects of the quality of life. For example, if an environmental preservation criterion to population is applied, any growth may be undesirable. Population growth tends to add to the pressures for land development. On the other hand, to the extent that population growth is related to economic welfare, then an increased population size may be desirable. Tourist industry growth increases the number of jobs available for residents.

## **Our Population Problem Is Being Defined in Terms of Public Opinion**

Whether there is a population problem depends, then, on which criterion relating to the quality of life is chosen to be reflected. The fact that there is no comprehensive measure for relating population size to the public welfare suggests that popular sentiment may be the primary criterion for defining population growth as a problem. Although it supplies incomplete information about the quality of life, popular opinion does offer a practical basis for initiating short-term governmental actions. Given the changeable nature of public sentiment, however, it may be unwise to rely on that definition as the basis for implementing policies designed to achieve long-term and wide-ranging effects, e.g., limiting housing construction.

## **Singling Out Population Components**

Nonetheless, the first step in developing alternative government actions should be the identification of the population components which become the target for state policies. The table below illustrates some of the considerations in selecting among the five components making up Hawaii's total population.

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### SINGLING OUT POPULATION COMPONENTS IS NOT PAINLESS

Population Component	Positive Considerations	Negative Considerations
NATURAL INCREASE	*Contributes largest amount of growth	*Disregards human needs of residents  *Difficult to influence
IN-MIGRATION	*Most popularly identified source of population problem	*Difficult to control legally  *Contributes small amounts of net growth  *Difficult not to affect residents
IMMIGRATION	*Contributes large amounts of growth	*Disregards human needs of residents  *Difficult to influence
MILITARY	*Only temporary residents  *Represents large proportion of existing population	*Difficult to influence  *Contributes little to growth in long run  *Large economic impact
TOURIST	*Dynamic growth component  *Some control through facilities	*Large economic impact

Assuming state actions can control population growth, when the State singles out a population component it makes a basic public choice in meeting either the human or the material needs of its citizenry. Growth of some components is more strongly attributable to social, psychological, and personal needs. Other components are generally associated with economic forces and the advancement of material values. For example, growth of the natural increase

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and immigration components are strongly influenced by emotional needs to bear children and reunite families. The familial and human needs of those already residing in the islands may be disregarded if the natural increase or immigration components were selected as targets for growth control. On the other hand, the in-migration, military, and tourist components are generally associated with the economic conditions of the islands. Their growth is usually related to economic development and stability. The ability to meet the material needs of Hawaii's residents may be undermined by actions to limit their growth.

### **Acknowledging There Are Trade-Offs**

Beyond specifying the target components for population management is the broader issue of concentrating on population as the common denominator causing the environmental, economic, and social concerns expressed by Hawaii's citizenry. Population growth is only one of several variables that affect the quality of life. Preliminary assessments of proposals commonly offered as growth management tools indicate that population growth controls raise the quality of life in some areas and at the same time create undesirable effects in others. This is because sheer numbers are not nearly as important in causing environmental deterioration as are high levels of consumption. For example, the Department of Planning and Economic Development reports that while the State's population grew by 43 per cent between 1960 and 1975, the total amount of water used increased by 69 per cent, more than one and a half the rate of population growth.

### **Population Growth vs. Economic Growth**

By recognizing that forces more powerful than population growth may provide the bases for the present concerns over how Hawaii's resources are used, it is possible to reflect and question whether or not the energies directed at controlling population growth may be misfocused. An alternative way to relate environmental and resource allocation concerns is to recognize that economic growth is a fundamental source of those concerns. By restating the issues in terms of economic growth and by viewing population growth as an

effect rather than a cause, it is possible to ask different questions regarding the preferred amount, type, rate, and location of development in the State. Such a restatement also tends to make more explicit the basic trade-offs required when considering population control proposals: how much economic growth is Hawaii willing to sacrifice in order to limit population growth?

### **There Are High Risks and Few Controls in Limiting Population**

In addressing that fundamental question, Hawaii's decision-makers must be cognizant of the setting in which growth management tools operate. First, there is high uncertainty involved with controlling population growth; relatively little is known about the negative side effects associated with available population management mechanisms. Second, as a State, Hawaii has relatively little control over the social forces influencing population growth. This is because many external forces, e.g., federal constitutional law and immigration policies, have affected the population growth experienced by Hawaii in recent years. The fact that there is little control over and high uncertainty involved with controlling population growth must be viewed in combination with the widespread popular sentiment calling for government action. This situation accentuates the role of leadership that must be displayed by Hawaii's public officials.

### **Identifying Positive Strategies for Action**

In approaching that situation, a strategical framework is helpful. A process-oriented strategy minimizes the risks associated with uncertainty. This strategy calls for remedies that deal with decision-making procedures and that incrementally permit the consequences of undesirable side effects to be systematically and continuously reviewed. At the same time, a supply-oriented strategy considers making the most of the few population growth controls available to the State. This approach pays attention to those areas in which the State is able to exercise control in an effective manner and relies on regulating the supply of, rather than the demand for, resources available for consumption

by the population. These strategies are described more fully in chapter IV. Specific proposals that match both descriptions embody a procedural-supply oriented strategy for growth management. By limiting consideration to proposals fitting that description, it is possible to minimize negative unintended effects and increase the chances for limiting population growth.

## Recommendations

The desire to control growth in Hawaii reflects the new mood that has swept through the nation during the last decade. By questioning the assumption that growth is desirable, Hawaii's peoples are raising doubts about the benefits generated by development and economic growth. Such growth has brought about many physical changes to Hawaii's island setting. There are now building structures where previously there were none. Older structures are being replaced with newer, larger, or more elaborate buildings. Increases in population numbers have added to the pressures for bringing about such changes. More important, however, has been and will continue to be the desire of Hawaii's people to advance their material well-being. Because changes to Hawaii's physical setting are related to forces more powerful than the changing number of people, it is understandable that any effort to control those numbers would require hard trade-offs. The types and magnitudes of those trade-offs are not currently known. Yet, the coming of this new mood signals a willingness to make those hard decisions in the face of great uncertainty. To facilitate those decisions, the following recommendations are offered:

Recommendation: LIMIT CONSIDERATION OF GROWTH MANAGEMENT PROPOSALS TO THOSE EMBODYING THE PROCEDURAL-SUPPLY ORIENTED STRATEGY

By categorizing growth control proposals by the strategy they represent, it is possible to eliminate those with the greatest potential for generating negative unintended consequences. Proposals characterized as within the procedural-supply strategy most fully take into account the fact that population size alone does not explain changes in quality of life. They recognize that there are major unknown trade-offs associated with attacking the size of Hawaii's

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population. The strategy calls for actions restricting the supply of Hawaii's resources available for development but in a piecemeal, incremental manner.

Recommendation: RETAIN THE PRESENT LAND REGULATION STRUCTURE AS THE PRIMARY GROWTH MANAGEMENT TOOL

The existing state land regulation program falls within the procedural-supply oriented strategy. The recent adoption of the Hawaii State Plan can be seen as containing the standards for how Hawaii's resources are to be allocated in the future. Land use regulations may indirectly affect the population size by restricting the location of land developments. Changes in land utilization involve a public decision process in which many public interest groups contribute. By doing so, such groups account for changes in taste and values over time. Emergence of new attitudes toward growth suggests that the land decision process will provide the forum for resolving many conflicts regarding the utilization of Hawaii's resources in the future. The State Plan may serve as the guide for resolving many such conflicts. The combination of increased public awareness and the formal plan establishing standards for future development provides safeguards for preserving and enhancing the quality of life of Hawaii's peoples.

Recommendation: ADOPT A POINT SYSTEM FOR MAKING DECISIONS ON STATE LAND USE DISTRICT BOUNDARY AMENDMENTS

Notwithstanding the present strengths of the state land regulatory scheme, supplementary actions may be taken to further insure that the types of developments associated with population growth do not occur at a great cost to Hawaii's people. To further set baseline standards on the types of land use changes permitted, a point system like that adopted in Ramapo, New York, and Petaluma, California, and recommended by the Department of Budget and Finance is recommended. While it cannot be said with certainty that such a system would reduce population growth, it does "fine-tune" the present regulatory system by insuring that land developments resulting from economic growth meet minimal standards of quality control. Although the point system



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may tend to push housing costs upward, it is a trade-off associated with further specifying the criteria for decision-making in the land regulation process. The magnitude of such a trade-off is mitigated by the fact that the point system reflects the procedural-supply oriented strategy which has been described as most likely to diminish the effect of such trade-offs.

Recommendation: CREATE SEED-MONEY INCENTIVES FOR COUNTIES CHOOSING TO DEVELOP A POINT SYSTEM FOR REGULATING LAND USE

Parallel to the State's efforts to "fine-tune" its land regulatory system are those that may be undertaken by Hawaii's local governments, the counties. Like the State, the counties also may choose to implement a point system for land use within their regulatory jurisdiction. It is recommended that the role of the State be that of providing incentives to the local governments to adopt such a system. Participation should be at the option of the local government. The State would pay for the initial design and implementation stages of establishing the point system within the county, as well as provide technical assistance during the developmental stages. By electing to develop a point system for regulating development, a county would begin to meet the 1978 constitutional amendment's mandate that each county "plan and manage the growth of the population".

Recommendation: DEVELOP ALTERNATIVE PROPOSALS FOR LICENSING TOURIST DEVELOPMENTS

In addition to contributing one-fourth of the population growth within the next twenty years, increase of the tourist population's size implies many changes to the physical landscape of Hawaii. One way to control the rate at which such physical changes take place is to license the supply of physical resources allocated for accommodating that growth. Regulation of the maximum increase permitted on the supply of resort-hotel type developments can be implemented independent of fluctuations in tourist arrivals caused by external economic forces. The licensing program would work to protect new and existing tourist industry developments from unnecessary competitors and at the same

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time establish long-term industry quality control. One such proposal for licensing tourism development has been offered by the Governor's Growth Management Task Force. However, because such a regulatory mechanism is inextricably linked to the State's economic structure, similar alternatives should be compared before serious discussion regarding implementing a program begins. It is recommended that the State's Department of Planning and Economic Development design workable alternative proposals for licensing future tourist developments.

### Recommendation: DEVELOP PROJECTIONS FOR IMMIGRATION

Available evidence indicates that immigration currently accounts for approximately 5,000 new Hawaii residents each year. However, there is currently little information regarding the number of immigrants Hawaii can anticipate in the near future. While population increases attributable to immigration appear to have tapered off since the 1965 change in federal quotas, exemptions to the immigration quotas present a great potential for future numbers of new immigrants to rise sharply. Such exemptions permit aliens with family members in Hawaii to immigrate without being counted in the quota. Although the exemptions only apply to relatives of U.S. citizens, a large proportion of recent immigrants has acquired such citizenship upon completion of the five-year waiting period. As increasing numbers acquire U.S. citizenship, the potential for quota exemptions multiplies. Since regulating immigration is the domain of the federal government, projected immigration numbers would provide the basis for future state recommendations for congressional action in providing financial assistance and amending immigration laws.

### Recommendation: CONSIDER ADOPTION OF PUBLIC LAND BANKING

Another alternative with the potential for regulating the pace and direction of development is public land banking. Through public acquisition and holding of properties, the bank may provide short-term benefits in restraining growth of the tourist population and preserving the environment.

However, the potential negative consequences of implementing such a banking scheme are numerous and may be of magnitudes outweighing the anticipated benefits. Because the trade-offs associated with public land banking are currently unknown, more work is necessary in identifying alternative structures for a land bank, specifying the permitted long-term uses of banked lands, and comparing their relative impacts. A recent amendment to the state constitution authorizes the establishment of a public land bank, but before a recommendation for adopting a specific land banking program can be made, the associated trade-offs must be made more explicit.

## FOOTNOTES

### Introduction

1. William K. Reilly, *The Use of Land: A Citizen's Guide to Urban Growth* (New York: Thomas Y. Crowell Co., 1973), p. 33.
2. *Ibid.*, p. 13.
3. Hawaii, Department of Budget and Finance, *Growth Management Issues in Hawaii* (Honolulu: 1977), p. 3. One survey conducted by the State Commission on Population and the Hawaiian Future indicates that over 80 per cent of Hawaii's residents feel that population is growing too fast. Hawaii, Commission on Population and the Hawaiian Future, *Population Growth Policies and Strategies; A Public Opinion Survey* (Honolulu: 1977), p. 13.
4. Morrison frames the setting for understanding population changes in the United States. On a nationwide basis, population growth has stabilized. While national growth rate has declined, migration accounts for radical changes in distribution over the national territory. Over the last few years, patterns of population movement from one locality to another have changed. Urban areas as well as sunbelt states, e.g., Florida, Arizona, Texas, and Hawaii, have become popular destination areas for migration. From a nationwide perspective, the "population problem" takes two major forms: locations of migration origin are facing a decline in population and destination areas of migration are experiencing population increases. Hawaii's "population problem" takes the latter form. Peter A. Morrison, *Dimensions of the Population Problem in the United States*, prepared for the Commission on James L. Sundquist, *Dispersing Population* (Washington: The Brookings Institution, 1975), pp. 1-6.
5. The resident population of Hawaii has grown from 632,772 in 1960 to an estimated 894,700 in 1977. Hawaii, Department of Planning and Economic Development, *The Population of Hawaii, 1977*, Statistical Report 125 (Honolulu: 1978), Table 1. These figures, however, include both military residents and their dependents.
6. Hawaii, Department of Planning and Economic Development, *Revised Population and Economic Projections 1975-2000* (Honolulu: 1978), p. 7. Reference here is to the E-2 series of projections developed by the department of planning and economic development (DPED) in 1974. This series was the basis for state planning until 1978. In that year, a new II-F series was developed by the DPED. The new II-F series forecast a lower population figure for the year 2000. The II-F projections will serve as the basis for future DPED planning activities. These projections are discussed in greater detail below.
7. "We hear constantly of the headaches caused by growing population: not just garbage in our environment, but overcrowded highways, burgeoning slums, deteriorating school systems, rising crime rates, riots, and other related problems. The causal chain of the deterioration is easily

followed to its source. Too many cars, too many factories, too much detergent, too much pesticide, multiplying contrails, inadequate sewage treatment plants, too little water, too much carbon dioxide--all can be traced easily to too many people." Paul R. Ehrlich, *The Population Bomb* (New York: Ballantine Books, 1968), pp. 66-67. The changes attributable to population growth by Ehrlich are reported in Nordyke. See, Eleanor C. Nordyke, *The Peopling of Hawaii* (Honolulu: East-West Center, 1977), pp. 84-121. See also, Hawaii, Department of Budget and Finance, pp. 3-6.

8. In his 1977 State-of-the-State Address to the Hawaii Legislature, Governor George R. Ariyoshi said:

*The problem of excessive population seems to be central to nearly every problem in our State.*

*Too many people means too few jobs and too much competition for them; too many people means too little land for agriculture, and parks, and scenic vistas; too many people means too much crime and too much erosion of possibly our single most important commodity, the aloha spirit; too many people means too much pressure on all our governmental and private institutions.*

*In short, too many people can spell disaster for this State.*

Hawaii, Department of Budget and Finance, p. 3.

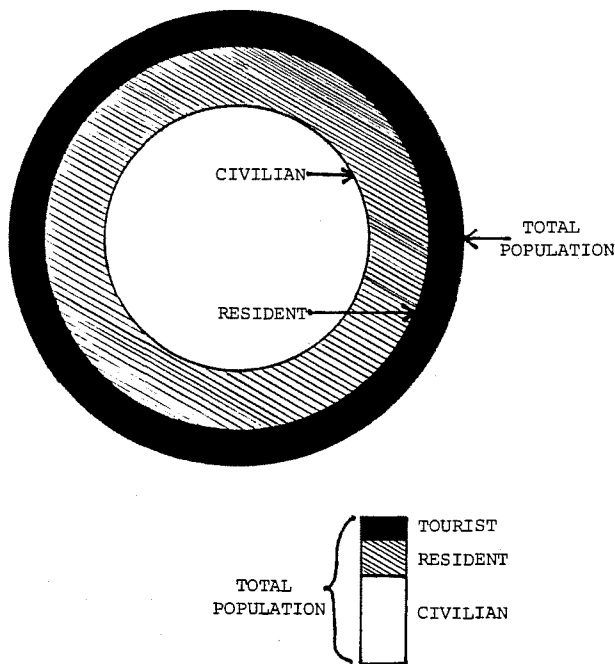
### Chapter I

1. Much of the current literature on Hawaii's population growth concerns make superficial reference to population statistics. This is understandable given the underlying complexity and uncertainties of estimating population. Notwithstanding the herculean efforts of Mr. Robert Schmitt and other members of the department of planning and economic development (DPED) staff, all available population figures serve as approximations for actual population. For example, a factor contributing to the measurement problem is reliance on estimates. While the estimation techniques produce aggregate population totals that are reasonably close to the theoretically more accurate count of the federal decennial census, the margins of error in the estimates prove troublesome when growth is analyzed. This is because manipulation of the estimates is necessary to produce growth rates. In that manner, the error in each estimate is compounded. The error factor is increased further by the fact that each estimate relied on is an estimate generated by averaging the outputs of three estimation models. See footnote 9 below.
2. The terms "in-migration" and "immigration" should not be confused. "In-migration" refers to the interstate movement of U.S. citizens to Hawaii. On the other hand, "immigration" reflects the

movement of aliens from foreign countries to the United States. Eleanor C. Nordyke, *The Peopling of Hawaii* (Honolulu: The University Press of Hawaii, 1977), p. 189.

3. As used in this discussion, the term "immigration" more accurately refers to net immigration. Net immigration takes into account the number immigrating, the number emigrating or leaving the country, as well as other factors. "Immigration" is used as a shorthand to lessen confusion with "net in-migration".
4. When applied to Hawaii, the term "population" is usually discussed in the alternative. This can best be understood through illustration. The total number of persons in Hawaii can be grouped by three concentric circles. Each circle represents an alternative definition of the term "population". Figure 1 depicts the relationship between the three groups. The population groupings used here are similar to those used by DPED for state planning purposes. For our purposes, however, reference to a "civilian population" is more restrictive than that employed by DPED. Our use of the term "civilian" is limited to those who are not military dependents. The DPED definition of "civilian population" includes both military dependents and nonmilitary-related civilians. Since military dependents generally exercise considerably less "choice" as to whether to reside in Hawaii than other civilians, and since the number of military dependents present is a function of armed forces stationed in Hawaii, the more exclusive definition used here is appropriate.

Figure 1



At this initial juncture, it also is useful to calibrate our definitions with those used in the Hawaii DPED publications. The term "tourists" here means "visitors". "Military-related persons", as used above, refer to the sum of members of the armed forces and civilian military dependents. See, Hawaii, DPED, *The Population of Hawaii, 1976* (Honolulu: 1977), Table 1.

The outer perimeter of the largest circle is the "total population". This term is not to be confused with "de facto population" as used by DPED. De facto population is less than the total population figures given below. The difference is the estimated number of "residents absent". It is interesting to note that since statehood, the number of residents absent has increased. *Ibid.* The total population technique used here was relied upon in the Hawaii State Plan. Hawaii, DPED, *The Hawaii State Plan: Population* (Honolulu: 1977), chapter 2. From the standpoint of resource management, it is important to include this class of residents in the population count. This is because although these residents are not present, infrastructural commitments, like housing and streets, have been made based on their presence. The term "total population" refers to all persons physically accommodated by the State and includes tourists, military-related persons, and civilians.

The outer perimeter of the middle circle demarks the "resident population". This group includes civilians and military-related persons. The space between the outer and middle circles indicate the number of tourists added to the resident population to form the total population. The smallest circle represents "civilian population". This population group includes only those civilians who are not dependents of those in the armed forces. The civilian population is comprised of both United States citizens and aliens. The area between the middle and innermost circle represents the number of military-related persons in the State.

5. Technically, this is true even if federal census data are involved. Even the figures produced by the U.S. Census Bureau have methodological problems and are subject to adjustment.

It should be noted at the outset that the estimates used in this study are not those most recently determined to be "official" by the DPED. There are two reasons why the unofficial DPED estimates were used. First, the conclusions to be drawn from either set of estimates are the same. Second, and more importantly, the new "official" estimates do not permit a component breakdown of growth sources for the purposes of developing the types of comparisons desired.

The fact that recent "official" population estimates do not include the types of component breakdowns reported here raises an interesting policy dilemma. If it is true that the breakdowns to be desired from available data may be inaccurate, the DPED could either provide no data evidencing what is perceived to be a public policy problem area, or, in the alternative, report information of relatively poor quality. The DPED has solved the dilemma by choosing the former alternative. This means that there is currently no information systematically produced regarding the relative magnitudes of growth contributed by the population components.

This study takes the latter approach to that informational dilemma. To offer Hawaii's legislators with an opportunity to assess and to disaggregate what has been widely accepted as a population problem, a component by component approach is preferable. From a problem-solving perspective, it is desirable to isolate particular segments to a problem in order to fashion rational public policies. In addition to characterizing the critical subparts to population growth, available estimates for components indicate that the limitations on the quality of data that may be the basis for reserving their publication, may be overstated. See footnote 18 below.

6. An extreme example of the problems in this area is reflected in the most recent population report for Hawaii. Hawaii, DPED, *The Population of Hawaii, 1977* (Honolulu: 1978). In that report, all the population estimates since 1970 were changed. *Ibid.*, Table 1. One example of the changes that were made is illuminating. For 1976, the report estimated Hawaii's civilian population not including military dependents to be 758,800. The comparable report from the prior year estimated that same category to be 763,700. Hawaii, DPED, *The Population of Hawaii, 1976*, Table 1. The change decreased the population estimate by 4,900 persons.

Perhaps, the most telling factor in understanding the process for estimating population is indicated by how the 1978 adjustments were generated. The only new data used in creating the new estimates were number of households. All other data remained the same. More important than the new data input was the fact that the data observed and utilized in previous years were re-manipulated. It was not that new information would have drastically altered the figures but rather that the existing information was manipulated in a different way. To the extent that technique in analyzing the information was based on valid theoretical and methodological grounds, little is added by the changes. Furthermore, to the extent that the relative merits of one estimation method compared to another is open to academic debate, there is little difference in the reliability of the estimates used.

7. For example, the number of deaths each year are determined from public records. However, such records do not account for persons who are missing and who may in fact be dead.
8. An appropriate example here involves the estimate for net migration. To arrive at this figure, the number of births from public records is added to the estimated population total for the preceding year. The number of deaths, again from public records, is subtracted from the resulting sum. The figure that is generated is then compared against the total population estimated for the year. The difference between the two estimates represents net migration, the population increase due to movement into the area. While this description grossly simplifies how this estimate is obtained, it does make the point that a key fact in the population control area, i.e., how much growth is attributable to people moving into the State, is based on a relatively indirect estimation technique.
9. See Appendix A for a discussion on calculating the average annual growth rate. Under the three

population groupings described in footnote 4, it yields the same conclusion. Civilian population rose from 522,100 in 1960 to 763,700 in 1976. During the same period, resident population grew to 886,600 persons, an increase of 245,100 people. Total population, the most inclusive of the three definitions, neared one million persons at 965,200 in 1976. While use of any of the definitions leads to the conclusion that the State's population has increased, the actual count of persons varied by over 200,000 people in 1976. Assuming that there is a point after which any increase in population number is "excessive", the wide variation in population estimates make the choice of the population definition used critical.

The figures used in the analysis that follows are population estimates published by DPED. They can be found in DPED's annual *Data Book*. The estimates have been described as follows:

*The estimates presented in this report were prepared by the U.S. Bureau of the Census, the Hawaii State Department of Health, and Hawaii State Department of Planning and Economic Development as part of the Federal-State Cooperative Program for Local Population Estimates. Estimates of total resident population were computed by averaging the results of estimates by three different techniques: Component Method II, the Ratio-Correlation Method, and the Administrative Records Method. Brief descriptions of these methods appear in one of the Bureau of the Census reports (Series P-25, No. 640) cited earlier. Annual averages for visitors present and residents absent were based on sample surveys conducted by the Hawaii Visitors Bureau; methodology for these elements is presented in greater detail in the appendix to DPED Statistical Report 102.*

Hawaii, DPED, *The Population of Hawaii, 1976*, p. 3.

Data on population growth show how the three definitions differ. The average annual rate of growth during this same period was over 2 per cent under each of the three definitions. However, when the sixteen-year period is broken down into three time segments, suggestions of a growth trend appear.

Using both the resident and total population definitions, the growth rate increased steadily over the three time periods. In contrast, when defined by civilian population figures, the growth rate rose between the first and second periods but then dropped back down for the third period. Depending upon which population measure is relied upon, a different conclusion results.

# GROWTH RATE TRENDS DIFFER ACCORDING TO POPULATION DEFINITIONS

## Average Annual Growth Rate\*

Period	Civilian Population	Resident Population	Total Population
1960-64	2.26%	1.85%	1.97%
1965-69	2.53	1.91	2.37
1970-75	<u>2.35</u>	<u>2.26</u>	<u>2.88</u>
1960-75 ave.	2.38%	2.02%	2.44%

Source: Hawaii, Department of Planning and Economic Development, *The Population of Hawaii, 1976* (Honolulu: 1977), Table 1.

\*Calculated using first year of period as base figure.

Reliance on such gross growth rates tends to misconstrue the growth phenomenon. This is because the definitions are cumulative and the grouping comprising the total population count vary greatly in size. When the three groups are isolated, a different picture emerges. Civilian population totals are four times greater than the military-related and tourist groups combined. Displaying the population figures in that manner also reveals that the different groups constituting Hawaii's total have grown in dramatically different ways.

The components of Hawaii's total population show differing trends of growth. The number of civilian persons rose steadily during the sixteen years following statehood. The average growth per year was 2.38 per cent. Growth was fastest during the four consecutive years between 1968-69 to 1971-72 when the civilian population increased an average of 3.64 per cent. See Appendix A. The growth in this period is attributable to the strong performance of the Hawaiian economy during this period. Hawaii, DPED, *The Hawaii State Plan: Population*, pp. 4-6 to 4-15.

## GROWTH RATES DIFFER FOR VARIOUS SUBPOPULATIONS OF HAWAII'S TOTAL POPULATION

### Average Annual Growth Rate\*

Period	Civilian Persons	Military-Related Persons	Visiting Persons
1960-64	2.26%	-0.03%	7.65%
1965-69	2.53	-1.46	15.52
1970-75	<u>2.35</u>	<u>1.72</u>	<u>12.27</u>
1960-75 ave.	2.38%	0.18%	11.84%

Source: Hawaii, Department of Planning and Economic Development, *The Population of Hawaii, 1976* (Honolulu: 1977), Table 1.

\*Calculated using first year of period as base figure.

The differences in growth rates show that the three groups have disproportionately affected Hawaii's total population growth. The civilian component grew steadily. The military component erratically changed from year to year leaving a small net increase at the end of the sixteen-year period. The tourist component, on the other hand, experienced a sharp and sustained rate of growth.

The relative sizes of the components, together with their growth trends, explain the different growth rates observed under the three population definitions. Civilian population growth averaged 2.38 per cent annually since statehood but exceeded 3.64 per cent between 1968 and 1972. Although the military component of Hawaii's population had a negative rate of change during the 1965-69 period, the presence of the civilian component in the resident population count as well account for the 1.91 per cent growth rate for the period.

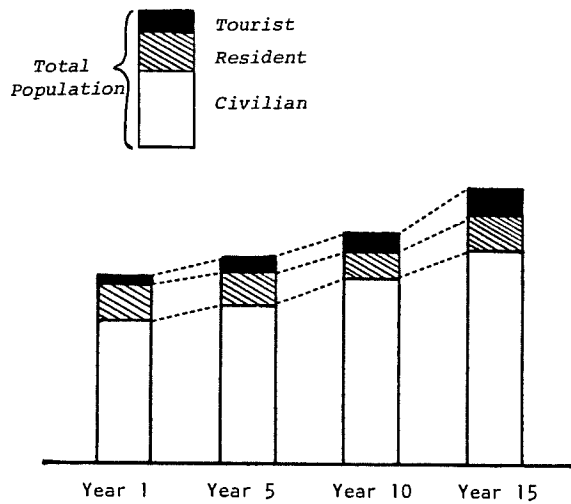
The following period, however, showed a high growth rate because both the civilian and military components to resident population increased. The civilian component grew 2.35 per cent while the military increased an average of 1.72 per cent. They combine for a resident population growth rate of 2.26 per cent. That rate reflects the civilian component's growth rate because the military component is so much smaller than its civilian counterpart.

The cumulative illusion created by lumping both components into the resident population figure is that Hawaii's population growth rate is accelerating. A similar illusion results when the civilian, military, and tourist components are added to create the total population figure. The total population growth rate rose slowly from an average 1.97 per cent in the early 1960's to 2.88 per cent annually by the mid-1970's. Aside from the effects of the military-related persons included, the fast growth of the tourist industry since statehood contributed greatly to pushing up the overall total population rate of growth. While the civilian population grew at 2.38 per cent annually between 1960 and 1976 and the number of military-related persons grew by less than 1 per cent, the tourist component averaged a growth rate of 12 per cent. This high growth rate had tended to make the total population growth rate rise over time because the size of the tourist component became a larger proportion of the total population.

Tourists accounted for only 2 per cent of the total population in 1960. In contrast, they totaled over 8 per cent in 1976. However, civilians still represented over 79 per cent of the total population in 1976. Notwithstanding the 12 per cent growth rate of the tourist component, the large size of the civilian population pulled the total population growth rate closer to that of the civilian component. The growth trends of the population components explain the differences in changes in growth rates under the three population definitions over time. Figure 2 provides a graphic explanation.

Figure 2

GROWTH REFERS TO BOTH THE SIZE OF THE POPULATION AND HOW FAST IT CHANGES



Between 1960 and 1976, the size of the innermost circle representing civilian population in figure 1 of footnote 4 grew slowly but constantly. The area of the circle was almost 1.5 times greater at the end of the period. During that same period, the resident population circle also got larger. However, the total area (amount of space covered) between the resident and civilian circles remained relatively constant. That is, while the resident circle size grew slowly, the civilian circle inside it appeared to be pushing it outwards. By 1976, the distance between the civilian and resident circles had decreased sharply as a relatively stable number of military-related persons were spread around an ever increasing circumference. Meanwhile, outside the resident circle, the total population circle also was growing in size. It grew steadily and, in the aggregate, seemed to expand at an accelerating rate till its area covered 1.5 times its original space. The area between the resident and total increased. However, because of the relative sizes of the tourist group to the resident population, it is unclear whether the distance between the two circles increased, decreased, or remained constant. The area of space represented by the tourist group rose sharply over the period studied but it is ambiguous whether the gains in area were large enough, when spread over the increasingly large perimeter of the resident circle, to push the distance between the circles apart.

The growth trends within the total population count focuses attention on the civilian and tourist components of Hawaii's population. When the term "population" is defined to mean "civilian population", a growth rate problem would have to mean that a population increase at 2.3 to 2.4 per cent annually is too high. Under the "resident population" definition, the growth rate problem

decreases in magnitude because the number of military-related persons has not grown significantly in spite of its radical fluctuations. As a result, resident population growth rate does not appear much in excess of 2 per cent a year. This is not the same result as under the civilian population definition. On the other hand, if the "total population" definition were used, three possibilities occur. The civilian component might be growing too fast. In the alternative, the number of tourists, which grows annually at an average rate of 11.8 per cent, may be increasing too fast. A third possibility is that both the civilian and tourist groups simultaneously are growing at excessively high rates. Depending upon which population definition is selected, the growth rate problem may be reformulated in different ways. Whichever reformulation is accepted should have some meaning for which course of state action is most appropriate.

10. The term "population growth" indicates that numbers of persons is changing over time. Implicit in the term are two things. First, the absolute number of persons is changing. In figure 1, found in footnote 4, the number of people is represented by the size of each circle. Second, the rate of growth measures how fast those changes are taking place. The growth rate reflects the changing size of the circles in the diagram over time. Figure 2 in footnote 9 illustrates the dynamics of growth. Reference to a population growth problem can be to either or both those phenomena. Couched in this manner, the population growth concern can take one of three forms: (1) the population number is too large (or small), (2) the rate of growth is too fast (or slow), or (3) both the inappropriate number of people and rate appear together. Recognizing that there could be a growth problem in only those three situations is important in one valuable regard. That is, either there is a concern over the number or the rate in order for there to be a problem. If neither exists, then there is no problem.
11. For example, medical breakthrough in contraceptive technology tend to decrease the birth rate. On the other hand, some religions, e.g., the Catholic church, have traditionally discouraged the use of such contraceptive devices. On the other side of the life cycle, medical technology also has worked to extend the average life span. Social welfare programs, like medicaid, tend to further increase the average life by making such technology available to those who would otherwise not receive it for economic reasons.
12. If the number of births continued to decrease past that point, but deaths remained constant, then population would not be replacing itself. That this is a possible scenario for natural increase is supported by a look at Hawaii's population profile. See, Robert W. Gardner and Eleanor C. Nordyke, *The Demographic Situation in Hawaii* (Honolulu: East-West Center, 1974), Papers of the East-West Population Institute, no. 31, p. 15. Hawaii's population is not evenly distributed by age groups. As pointed out above, different social forces separately affect birth and death rates. As "bulges" in the population distribution get older and die, the death rate will increase. If the birth rate does not adjust



accordingly, the death rate would exceed it, thereby dropping natural increase to below replacement levels. As such, the population problem becomes redefined to one of having too few people. One way that such a problem would manifest itself would be a prior overcommitment of public resources, i.e., having empty public facilities like schools.

13. There are other possible scenarios for natural increase. The two used above are injected to make the point that the rates of birth and death need not be dependent. That is, the social forces at play in whether women have children and how long people live are very different. It may be noted in passing, however, that births and deaths are related to the extent that if many are born now then many must later die. The intervening factor is how long people live. This point is discussed again below.
14. It is this decrease in the proportion of natural increase to total increase that has lead Nordyke to conclude:

*The continued inflow of population from the United States mainland and abroad resembles a running faucet. City planners and legislators have been drafting measures to cope with resultant increased population and migrant problems, but they have not attempted to close the open tap.*

\* \* \*

*In summary, migration dominated the problem of population growth in Hawaii in the 1970s. The quality of life that has made the Islands attractive to its inhabitants also attracts new residents. Hawaii's civilian population has reached low fertility, through birth control, education, and changed social and economic attitudes toward small families. If slow growth of the population of Hawaii is to be realized, migration looms as the primary area in which to attempt to reduce the rate of population increase.*

Nordyke, pp. 81-83. Nordyke's analysis tends to lump net in-migration and immigration together under the broad heading of migration impacts. *Ibid.*, pp. 78-83. While such a simplified categorization is useful for distinguishing between internal, i.e., natural increase, and external, i.e., migration forces behind population growth, it is of little value from the perspective of shaping public policy. The forces at work in generating citizen in-migration from the mainland and alien immigration from abroad are very different. Likewise, the political and social "levers" for dealing with each also differ markedly. Hawaii, DPED, *The Hawaii State Plan: Population*, chapter 4. As such, in-migration and immigration are treated separately.

15. Even if the number of births had increased, the birth rate could have declined. This is because the size of the population has increased every year. The number of births and natural increase reported here do not include the births or natural increase from military-related residents. See, Hawaii, DPED, *Components of Change in Hawaii's Population Growth, 1960-75* (Honolulu: 1976), Research Report 76-1, Table 2 (hereinafter referred to as *Components of Change*).

16. The data show a slight tendency for the death rate to decrease over time. With the birth rate declining along with the death rate, it becomes important which is decreasing faster. If the birth rate decreases faster than death rate, there will be a point at which there is zero natural increase.
17. Americans have traditionally been a migrating people. However, there has been relatively little done to study migration until the last few years. One such study produced for the U.S. Commission on Population Growth and the American Future identified a number of characteristics tending to describe those Americans who migrate. Peter A. Morrison, *Population Movements and the Shape of Urban Growth: Implications for Public Policy* (Santa Monica: Rand Corporation, 1972). Movers are younger in age; the highest mobility rates occur among those in their early twenties. Changes in marital status also accompany mobility. Marriage, separation, or divorce, all precipitate migration. Highly skilled or specialized white-collar workers have higher migration rates and educational attainment, i.e., at least some college education, directly reflects propensity to migrate. Such characteristics describe likely migrants. However, they say little about the motivation behind such movement. Research up to the early 1970's focused on economic opportunity as the key factor explaining migration. See, *ibid.*, pp. 19-28. More recently, it has been suggested that such an explanation does not apply to current migration trends. It has been suggested that more important than economic considerations is that of life-style choices. For example, one study concluded that Hawaii's physical assets, her climate and beauty, and a "relaxed pace of life" are generally the most important attractions for migrants coming to Hawaii to live. Hawaii, State Commission on Population and the Hawaiian Future, *Migration in Hawaii: A Survey of the Motivations and Mobility Patterns of Civilians Migrating to and Within the State* (Honolulu: 1978), p. II-2. Whether the type of migration currently under way is different from that traditionally occurring in American history is open to academic debate. For example, data regarding Hawaii's in-migration patterns show that population grew faster during a period of economic growth. Hawaii, DPED, *The Hawaii State Plan: Population*, pp. 4-2 to 4-7. Such questions require more study.

What is clear, however, is that national characteristics of those who migrate match up well with those in-migrating to Hawaii. They are between 20 and 30 years old, they have professional or technical occupations, highly educated, and have higher divorce rate. Hawaii, DPED, *The Hawaii State Plan: Population*, pp. 4-5 to 4-6; Hawaii, State Commission on Population and the Hawaiian Future, chapter IV; Hawaii, DPED, *Hawaii's In-Migrants, 1977* (Honolulu: 1978), Statistical Report 123, Tables 6-9.

18. As noted in footnote 5, above, new population estimates for past years have been produced in recent years. Although it has been speculated that such new data show net in-migration to be of a larger magnitude than previously reported, a closer examination of such estimates indicates that net in-migration figures previously reported were of the appropriate magnitude.

One series of statistical reports produced by the Department of Health (DOH) indicate that the

number of nonmilitary-related persons in-migrating annually from other states each year averaged 17,580 persons between 1970 and 1977. For the same period, Hawaii Visitors Bureau (HVB) records estimate that number to average 20,772 a year.

#### NONMILITARY-RELATED CIVILIAN IN-MIGRATION FROM THE MAINLAND

Year	Old DPED <sup>a</sup>	DOH <sup>b</sup>	HVB <sup>b</sup>
1971	25,000	22,333	23,501
1972	24,800	16,948	23,873
1973	22,600	16,762	21,329
1974	19,100	13,402	20,123
1975	16,500	13,886	16,399
1976	21,400	20,176	21,421
1977	--	19,555	18,758
Average	21,600	17,580	20,772

Source: a. Appendix A, Table 10.

b. Memorandum from Robert C. Schmitt to Commission on Population and the Hawaiian Future regarding Migration Data from the Hawaii Health Surveillance Program, Hawaii Visitors Bureau, and Immigration and Naturalization Service (January 16, 1979), Tables 4 and 5.

These estimates are lower than the 21,600 persons annually reported in earlier Department of Planning and Economic Development documents for the 1970-74 period. If a constant out-migration figure were assumed, an estimate of net in-migration produced by those earlier in-migration figures would be higher than that resulting from reliance on the newer estimations of in-migration. Other estimates that take into account such out-migration lead to the same conclusion.

Recently available estimates of net in-migration tend to support the conclusion that the magnitude of the annual net in-migration figure previously reported is not too low. Estimates of annual net in-migration for the 1970s range from a low of 1,349 to 3,145 persons a year.

#### COMPARISON OF NET IN-MIGRATION ESTIMATES

Estimate (DPED)	Total Net Migration	Net Immigration	Net In-Migration
1970-75 <sup>a</sup>	7,600	4,900	2,700
1973-76 <sup>b</sup>	6,880	5,531	1,349
1970-77	8,200 <sup>c</sup>	5,055 <sup>d</sup>	3,145
1970-78	6,568 <sup>e</sup>	5,055 <sup>d</sup>	1,513

Source: a. Appendix A, Table 1.

b. Hawaii, Department of Planning and Economic Development, "Migration, Nativity and Citizenship, 1973-1976," Statistical Memorandum 78-5 (August 22, 1978), p. 2.

c. Hawaii, Department of Planning and Economic Development, *The Population of Hawaii, 1977*,

Statistical Report 125 (Honolulu: 1978), Table 4.

d. Annual average for 1970-76 period by adjusting immigrants admitted for alien deaths and other components; from Hawaii, Department of Health, "Immigration Trends in Hawaii," Population Report No. 10 (Honolulu: 1978), Table 7.

e. Memorandum from Robert C. Schmitt to Samuel B. K. Chang regarding Population Distribution and Components of Change, 1977 and 1978 (January 24, 1979), Table 3.

Although the most recent Department of Planning and Economic Development figures suggest that annual net in-migration may be as low as 1,513 persons, the previously estimated net in-migration figure of 2,700 was relied upon. While it is not the highest estimate reported in recent years, the 2,700 figure does establish the magnitude of the contribution to population growth by net in-migration relative to the net immigration, natural increase, and tourist components.

The figures for net in-migration include the numbers for "military separations less inductions". The net change military status was included in order to account for 100 per cent of the net increase in population. The change of status was included with net in-migration because those remaining in Hawaii can be likened to immigrants. See footnote 29 below.

19. As with using any estimate, there are questions that could be asked regarding the reliability of the figures used in this analysis. Footnote 9 describes the methodologies used in deriving the estimates. Aside from the general methodological problems briefly described in footnote 1, there are more serious concerns to recognize when dealing with subgroups the size of those studied here. For example, the difference between the federal census total and the estimate generated by the Federal-State Cooperative Program for Local Population Estimates for the nonmilitary-related civilian population was almost 10,500 in 1970. Compare this figure with the 21,300 total increase of that population measured by the estimation technique for the 1969-70 year. The problems become apparent when the figure for civilian net in-migration figure of 5,600 for that year is considered. On the other hand, consistent use of the same estimation techniques would tend to mitigate such concerns because focus of the analysis here is on the changes of the estimates from year to year. A further complication arises, however, because a residual method is used to estimate out-migration. Under this method, the out-migration figure is determined by subtracting the estimated in-migration from the estimated net increase. Out-migration is not directly estimated. To the extent, however, that the figures giving rise to residual out-migration are reasonably accurate, the resulting difference would be a good reflection of out-migration. Expression of concern over the validity of the out-migration estimate leads the inquiry directly back to questioning the estimation methodology employed by DPED for generating all the population figures relied on for state planning purposes. To the extent that the

estimates for net in-migration are invalid, there are no data to support the proposition that there is an in-migration "problem". If the net in-migration figures are valid, then there may be little justification behind the call for state action in this area.

20. A further caveat should be injected here. Assuming that the traditional economic opportunity explanation does not describe the motivation for moving to Hawaii, it may well be that the traditional model does explain out-migration from Hawaii. Morrison points out that "persons with a history of past moves show a disposition to move again". Morrison, p. 14. Furthermore, one survey of in-migrants reveals that many plan to eventually return to the mainland to seek employment opportunities. Hawaii, State Commission on Population and the Hawaii Future, p. VI-16. To the extent that this is true, the acceleration trend in out-migration becomes reasonable. Decreases in economic opportunity leads to increases in out-migration. Hawaii, DPED, *The Hawaii State Plan: Population*, pp. 4-7 to 4-15. However, the evidence indicates that there is not a linear relationship between decreasing economic opportunity and out-migration. *Ibid.*, p. 4-14. This means that unemployment rate changes from 7 to 8 per cent does relatively little to push people to out-migrate. However, reliance on those conclusions can be tentative, at best, because the model underlying the analysis focused on economic forces pushing people away from Hawaii rather than those pulling them to other destinations. Notwithstanding the impact of those forces, it could be argued that a portion of those in-migrating will not out-migrate. This is not due to economic conditions but rather because they have chosen Hawaii as a desirable permanent residence. One analysis has estimated this group to add 2,000 new residents to Hawaii a year. *Ibid.*, p. 4-14.

21. A large proportion of the aliens in Hawaii become U.S. citizens. As a result, although the cumulative number of aliens who have arrived in Hawaii is large, the total figure for aliens in the State on a given day is relatively small. Among other things, the table below shows that although almost 8,000 aliens arrived in Hawaii during 1976, the total number of aliens in the State only increased by 1,600. In that same year, over 3,000 aliens became citizens. This indicates that even at the federal level, alternatives for dealing with immigrants after they arrive are very limited.

# LARGE NUMBERS OF ALIENS IN HAWAII BECOME CITIZENS

Year	Aliens present, June 30 <sup>a</sup>	Components of change, years ended June 30		
		Net change	Immigrants admitted	Aliens naturalized
1960	50,708	-1,144	1,619	2,377
1961	49,648	-1,060	1,762	1,668
1962	48,610	-1,038	2,048	1,534
1963	47,820	-790	1,767	1,629
1964	46,984	-836	1,623	1,542
1965	46,073	-911	1,721	1,319
1966	46,396	+323	3,070	1,625
1967	47,440	+1,044	3,825	1,902
1968	48,762	+1,322	4,693	1,601
1969	51,322	+2,560	5,199	1,607
1970	55,095	+3,773	9,013	2,658
1971	59,042	+3,947	6,055	2,135
1972	61,966	+2,924	6,765	2,389
1973	63,732	+1,766	6,881	2,099
1974	64,884	+1,152	6,549	2,833
1975 <sup>b</sup>	66,752	+1,868	9,012	3,094
1976	68,366	+1,614	7,789	3,130
1977	(NA)	(NA)	(NA)	(NA)

Source: Hawaii, Department of Health, "Immigration Trends in Hawaii," *Population Report*, Issue No. 10 (Honolulu: 1978), Table 7.

NA Not available

a. Interpolated from January data.

b. Admissions total adjusted to include 2,000 Vietnamese refugees in parole status.

22. As set forth in footnote 21, reference here is only to arrivals, not total number present. The actual proportion of alien population in the State is the highest in the country. Hawaii, DPED, *The Hawaii State Plan: Population*, p. 4-21. In 1976, 9 per cent of the civilian population were aliens. Moreover, the alien population present grew by an average of 2,400 persons a year between 1970 and 1976. However, it is also noteworthy that that number had tended to fall. See table in footnote 21. Given the increasing number of immigrants admitted each year, this is because the number of aliens being naturalized has risen.
23. There have been sharp increases in immigration since 1965. In that year, a change in the immigration laws permitted many more Asians to immigrate to the United States. Prior to that time, the law favored immigration from Europe and the Americas. The number of immigrants rose dramatically between 1965 and 1970. Since 1970, that number has remained relatively constant. This is because the Philippines and Korea, the major sources of immigration to Hawaii, have reached their annual immigration quotas. It is not anticipated that the number of alien arrivals a year will increase. Hawaii, DPED, *The Hawaii State Plan: Population*, pp. 4-15 to 4-19.
24. It has been suggested that the flow of immigrants to Hawaii does not depend upon economic conditions. Hawaii, DPED, *The Hawaii State Plan: Population*, p. 4-20. This is supported by the fact that aliens immigrating to the United States generally regress in occupational status and

earnings. *Ibid.*, p. 4-19. Moreover, in the case of Hawaii, the dominant motivation for moving given by immigrants is family ties. One survey found that "ties to friends and relatives in the State and other family-related reasons, such as to join a spouse or parents, were the two most frequently mentioned categories of reasons". Hawaii, State Commission on Population and the Hawaiian Future, p. VI-6.

25. The same types of methodological limitations identified in footnote 19 apply here.
26. As pointed out above, this group includes those in the armed forces and their civilian dependents. Data for the sixteen-year period indicate that there are 1.17 civilian dependents for each member of the armed forces stationed in Hawaii. To the extent that there are radical changes in the number of service personnel stationed in Hawaii, the ratio tends to deviate from the average. However, the changes in the past few years have been steady and consistent with the service personnel to civilian dependent ratio hovering closely to the average 1.17. This suggests that even though the number of service personnel generally is not within the control of the State of Hawaii, given a set number of service personnel stationed in the State, the total number of persons contributing to the total population in the long run is reasonably predictable.
27. See Appendix A. The figures reported here for the military can be said to represent the sum of natural increase and net migration. *Components of Change*, p. 4.
28. *Ibid.*
29. The presence of service personnel in Hawaii might be said to greatly contribute to population growth. This is because those stationed in Hawaii may decide to later make it their home. That this is a real possibility is evidenced by the fact that there was an annual average of 562 more military separations than inductions between 1970-75. Hawaii, DPED, *The Hawaii State Plan: Population*, Table 1. However, a closer look at that statistic reveals that the number varies widely from year to year. See, *Components of Change*, Table 2. Moreover, the same argument could be used regarding tourists and those among them who eventually move to Hawaii. It is no surprise that many who come to Hawaii like it. If population growth from that source is undesirable, two policy options immediately come to mind. One involves keeping people away from the islands so that they do not know what they are missing. Another strategy is to not let them like it here once they arrive.
30. Generally, little regard is placed in the size of the tourist population. There is good reason for doing so given the transient nature of their visits. However, often thrown into the discussion regarding population controls is a concern for congestion, consumption of natural resources, e.g., water and other ills associated with having too many people in one place at one time. Given such concerns, including tourists in the population count is appropriate. On a day-to-day basis, tourists swell the ranks of those on the streets, at the beaches, and on the highways. While it can be said that they are concentrated

in the Waikiki area, it cannot be ignored that transportation in the form of bus or rented automobile is easily accessible and that tourists consume natural resources like water.

31. Each of the five components to Hawaii's population is affected by different types of social forces. However, there is relatively little information available about what those forces might be. For example, there is relatively little known about the motivations of Hawaii's in-migrants. See, David R. Hood and Bella Z. Bell, *In-Migration as a Component of Hawaii Population Growth: Its Legal Implications*, Legislative Reference Bureau, Report No. 2 (Honolulu: 1973), pp. 18-19. Moreover, even less is known about the relative importance of each social force. Even if there is agreement as to which population component is identified for management by the State, without knowing which social forces affect its growth, it is difficult to fashion an effective and legally defensible program. Some of the social forces often associated with the population components are outlined in the table below.

#### DIFFERENT SOCIAL FORCES AFFECT POPULATION COMPONENTS

<u>Component</u>	<u>Social Forces</u>
Natural Increase	Lower death rate Desire for children and families birth control availability economic well-being of parents
In-Migrant	Out-migration Life-style preference Climate and geographical preference Economic opportunities Federal laws
Alien Immigrant	Economic opportunity Standard of living Family relationships Similar culture and climate to original country Emigration interstate migration Immigrant death Federal immigration laws
The Military	Military orders Family relationships Climate and geographical preference
Tourists	Climate and geographical preference Vacations State and tourist industry publicity

## Chapter II

1. The "E-2" series was developed in 1974 and the "II-F" series followed in 1978. Hawaii, Department of Planning and Economic Development (DPED), *The Population of Hawaii, 1958-2025: Recent Trends and Projections* (Honolulu: 1976) (hereinafter referred to as *Trends and Projections*);

Hawaii, DPED, *Revised Population and Economic Projections 1975-2000* (Honolulu: 1978) (hereinafter referred to as *Revised Projections*).

2. A complete listing of available population forecasts for Hawaii is contained in Appendix A. Other Department of Planning and Economic Development (DPED) forecasts are found in the Hawaii State Plan. Hawaii, DPED, *The Hawaii State Plan: The Economy* (Honolulu: 1977), chapter 14. The U.S. Bureau of the Census also is involved in developing population forecasts for all the states. U.S., Bureau of the Census, "Projections of the Population of the United States: 1977 to 2050," *Current Population Reports*, Series P-25, No. 704 (Washington: 1977). The forecasts developed by the Bureau of the Census are not examined in great detail in this study. This is because the models used for forecasting Hawaii's population are based on factors governing population changes for all other states. The methods used by DPED are generally not similar to those used by the Bureau of the Census and they also have the advantages of taking into account more "local" forces affecting population changes, e.g., the workings of the Hawaiian economy. Moreover, recent forecasts for the year 2000 developed by the Bureau of the Census compactly bracket those resulting from the DPED projection methods. See memorandum from John F. Long, Chief of Populations Projections Branch, U.S. Bureau of the Census, October 2, 1978.
3. Forecasts depend on assumptions because projections are based on knowledge of the present and past. Variables that affect the present or recent past are used for assumptions. Assumptions of the future are then made on the basis of those variables. Thus, a key consideration in developing forecasts is the process of choosing the variables used as assumptions.
4. There are other assumptions that are used in the forecasting series. For example, it is necessary to make assumptions about mortality, or the rate at which people die. However, such other variables are not expected to fluctuate greatly. As a result, those with potential for wide variability tend to drive the forecasting model.
5. Gardner and Nordyke point out that:
 

*In American demographic usage, fertility, defined as the actual production of children, is contrasted with fecundity, the physiological ability to have children. This usage is exactly the reverse of that employed by the biological sciences and also of that found in the Romance languages of Europe.*

Robert W. Gardner and Eleanor C. Nordyke, *The Demographic Situation in Hawaii*, Papers of the East-West Population Institute, No. 31 (Honolulu: 1974), p. 37, fn. 4. This study defines fertility as the tendency to bear children in recognition of the method used in projecting the total fertility rate for the future. Future fertility takes into account present survey data of married women regarding their expectations regarding childbirth. Their present expectations may or may not materialize.
6. The analysis that follows is based on present knowledge about the world. Furthermore, it implicitly embraces the view that there will be no radical changes in fertility or migrating behavior. The overall effect is a forecast based on what might happen if there were little or no additional government intervention on those social processes. The question of whether government can act to have an impact on those processes is discussed in chapter III.
7. There are different ways to measure fertility. Gardner and Nordyke, pp. 38-45. This analysis uses the total fertility rate to indicate fertility. It is a "measure of the number of children a hypothetical cohort of 1,000 women would have if they lived to the end of the childbearing years and experienced a given set of age-specific fertility rates." *Ibid.*, p. 43, fn. 7. The total fertility rate is most often used in popular debate about population growth.
8. The total fertility rate refers to 1,000 women but to simplify the discussion, the figures used in this study are translated into per capita woman.
9. *Trends and Projections*, pp. 4-5; Hawaii, DPED, *Long-Range Population and Economic Simulations and Projections for the State of Hawaii* (Honolulu: 1978), p. 54 (hereinafter referred to as *Long-Range Population*).
10. Many reasons are given as to why this has occurred. Women prefer fewer children; they marry later in life; birth control and abortion services are available; and economic forces discourage large families. U.S., Bureau of the Census, "Projections of the Population of the United States: 1975-2050," *Current Population Reports*, Series P-25, No. 601 (Washington: 1975), p. 5; June Sklar and Beth Berkov, "The American Birth Rate: Evidences of a Coming Rise," *Science*, 29 August, 1975, pp. 693-695.
11. Sklar and Berkov, pp. 693-695; Campbell Gibson, "The Elusive Rise in the American Birthrate," *Science*, 29 April, 1977, pp. 196-197; *Current Population Reports*, Series P-25, Nos. 601, 704; Series P-20, No. 308.
12. "As demographers discovered long ago, forecasting the American birth rate can be a precarious undertaking. This is especially true when the nation is faced with social, economic, and political uncertainties and when significant changes apparently are occurring in sexual attitudes and behavior, women's roles, and the family. Given current attitudes which question the value of marriage and the family, it is tempting to assume that birth rates will remain low. But attitudes that are in fashion at a particular time tend to change with the times. The negative attitudes toward marriage and reproduction that characterized the late 1920's and 1930's were replaced by more favorable attitudes in the period following World War II and then turned more negative again in the 1960's. A swing back could occur again in the near future." Sklar and Berkov, p. 699.
13. In the present demographic setting, it is important that a large number of women born during the

- "baby boom" following World War II are currently nearing the end of their childbearing years. Yet, these women expect to have approximately two children each. *Ibid.*; *Current Population Reports*, Series P-25, Nos. 601, 704; Series P-20, No. 308.
14. Sklar and Berkov, p. 699; *Current Population Reports*, Series P-25, No. 601, Table E.
  15. *Current Population Reports*, Series P-20, No. 308, Table A.
  16. *Current Population Reports*, Series P-25, Nos. 601, 704. The 2.1 fertility rate is the primary assumption used in developing forecasts for the year 2000. The Hawaii DPED has also adopted this assumption. *Revised Projections*, p. 2.
  17. Sklar and Berkov, pp. 693-695; *Current Population Reports*, Series P-25, No. 601, p. 5.
  18. *Current Population Reports*, Series P-25, No. 601, pp. 5-7.
  19. Campbell, p. 502.
  20. *Revised Projections* and memorandum by Hideto Kono, Director, DPED.
  21. There may be forces at work in Hawaii that might account for a lower fertility than for the nation in the future. Persons in Hawaii are concerned about population growth and receptive to family planning efforts. See, Hawaii, Department of Health, *Results of a Family Planning Survey on Oahu* (Honolulu: 1968), pp. 2-3. Moreover, data indicate that Hawaii's newest residents arriving from the mainland are well-educated and with professional careers. Hawaii, Commission on Population and the Hawaiian Future, *Migration in Hawaii* (Honolulu: 1978), p. IV-1. Such persons tend to have smaller families. On the other hand, immigrants tend to have larger families and a large proportion of the women in Hawaii will be reaching prime childbearing years in the near future. Hawaii, DPED, *The State of Hawaii Data Book 1977, A Statistical Abstract* (Honolulu: 1977), Table 10. On balance, the forces tending to keep fertility low appear to be of a larger magnitude than those of the nation as a whole.
  22. *Trends and Projections*, p. 5.
  23. *Ibid.*
  24. *Ibid.*
  25. *Long-Range Population*, Appendix A.
  26. *Ibid.*, pp. 6-18.
  27. This is not a normative statement. It does not describe how things should be. Instead, it is an attempted description of how the Hawaiian economy, in fact, behaves. This description is generally accepted by local social scientists and is currently the basis for the State's planning efforts. Hawaii, DPED, *The Hawaii State Plan: The Economy*, pp. 15-1 to 15-3.
  28. *Ibid.*, p. 2-3.
  29. Prior to 1978, the "E-2" forecast was the official DPED population projection. It was the forecast used for statewide planning purposes. This forecast assumed that increases in population due to net migration would double by the year 2000. Because of the limitations listed here and the availability of the new II-F series, the E-2 projection has been superseded. *Revised Population*, memorandum by Hideto Kono, Director, DPED.
  30. The DPED publications describing these migration assumptions are silent as to the theory behind them. However, the proportional articulation of the assumption indicates that the net migration is related to the total U.S. population.
  31. This was the assumption used in the old E-2 projection.
  32. See footnote 29.
  33. The difference between the assumptions labeled "1" and "2" is how quickly net migration numbers increase. Under the "1" assumption, the annual population increase resulting from net migration approximates 8,000 in the year 2000. The "2" assumption projects an annual increase of 24,000 persons by 2000. The series E-2 projection adopted by DPED as the official forecast for policy planning purposes used this latter "2" assumption. *Trends and Projections*, pp. 6-8. The series E-2 was selected because it produced population forecasts most consistent with the State's input/output model. *Ibid.*, p. 6. However, the rationale for retaining this projection is now obsolete given the development of the more sophisticated series II-F in 1978. *Revised Projections*, pp. 1-3. There has been no justification raised for supporting the contention that net migration numbers will triple in amount by the year 2000. Instead, data generated by variations on the series II-F technique indicate that annual net migration numbers will more closely reflect the "1" rather than "2" assumption. Hawaii, DPED, *The Hawaii State Plan: Population*, chapter 8. For these reasons, the "2" assumption cannot be considered a sound expectation for the rate of increase in net migration numbers.
  34. The development of the approach has been explained by the DPED.  

...major methodological advances and the availability of new information have demonstrated an obvious need for extensive revisions. The HWRRS analysis was largely based on national demographic projections published in 1972. Since that time, results of the 1976 Hawaii population survey, and 1975 vital statistics, have been issued, as well as national projections not completed until mid-1977. Equally important, DPED econometricians have devised procedures for linking the State input-output model (previously developed by DPED) directly to the demographic analysis. The linkage between demographic and economic models in the earlier (E-2) projections was largely indirect and judgmental.

*Revised Projections*, p. 1.
  35. Hawaii, DPED, *The Hawaii State Plan: Population*, p. 4-20.

36. To date, very little work has been done in the area of estimating the numbers of aliens immigrating to Hawaii in the future. See, Hawaii, DPED, *The Hawaii State Plan: Population*, chapter 4.
37. U.S., Commission on Population Growth and the American Future, *Population Distribution and Policy*, Sara Mills Mazie, ed., Vol. V of Commission Research Reports (Washington: 1972), p. 35; Hawaii, Growth Management Task Force, *A Program for Selective Growth Management in Hawaii* (Honolulu: 1978), p. 3.
38. Peter A. Morrison, *Population Movements and the Shape of Urban Growth: Implications for Public Policy* (Santa Monica: Rand, 1972), pp. 8-18; *Migration in Hawaii*, pp. IV-1 to IV-2.
39. Low net migration estimates related to slow growth in the economy in a given year reflect out-migration of those less able to compete in the labor market. Highly qualified immigrants tend to substitute for those less able to compete for jobs. The total number of in-migrants would be offset by the departure of those unable to compete. The result is a low net migration figure. Thus, a slow rate of economic growth would push those already in the State to out-migrate. On the other hand, there is some evidence that the tendency to out-migrate given bad economic conditions is not symmetrical to in-migration. Hawaii, DPED, *The Hawaii State Plan: Population*, p. 4-23. However, to the extent that some persons are pushed to out-migrate due to conditions of the labor market, it is likely that those considered "young locals" would be among that group.
40. DPED's attempts to validate this forecasting method have yielded good results. However, such results were for variables related to the input-output model. Since population is an exogenous variable, it was not possible to directly analyze its forecast. *Long-Range Population*, pp. 18-21.
41. Hawaii, DPED, *State Tourism Study, Proposal for a Hawaii Tourism Functional Plan* (Honolulu: 1978), p. 20.
42. Hawaii, DPED, *Data Book 1977*, Table 109.
43. *Long-Range Populations*, pp. 2-3, 65.
44. Hawaii, DPED, *The Hawaii State Plan: The Economy*, p. 15-4; telephone interview with John Kelsh, Office of Tourism, DPED, October 10, 1978.
45. Hawaii, DPED, *State Tourism Study, Economic Projections* (Honolulu: 1978), pp. 16-18.
46. *Long-Range Population*, Table B-3.
47. Hawaii, DPED, *The Population of Hawaii, 1977*, Statistical Report 125 (Honolulu: 1978), Table 1.
48. The growth rate for the Hawaiian tourist industry, measured by visitor arrivals, is contained in the following table:

<u>Year</u>	<u>Growth Rate</u>
1964-65	21.8%
1965-66	36.2
1966-67	34.6
1967-68	16.9
1968-69	16.1
1969-70	14.4
1970-71	4.1
1971-72	23.4
1972-73	17.2
1973-74	5.9
1974-75	1.5
1975-76	13.8
1976-77*	6.6

Source: Hawaii, DPED, *The State of Hawaii Data Book 1977*, A Statistical Abstract (Honolulu: 1977), Table 109.

\*Bank of Hawaii, *Hawaii 78* (Honolulu: 1978), p. 4.

49. Compare table in footnote 48 with chart on Index of Business Activity, Bank of Hawaii, *Hawaii 78* (Honolulu: 1978), p. 9.
50. This assumption has been deemed the "most likely" course of growth for Hawaii's tourist industry. Even if it is accepted that the rate of tourism growth will decline in the coming years, it is still necessary to determine the speed at which the decline will take place. To date, little work has been done in trying to specify how quickly the growth rate will fall and all current projections are speculative. For example, there is little reason to believe the scenario represented by assumption "E" is less likely to occur than that called for by "F". Suffice it to recognize, however, that the assumptions calling for declining growth rates for the industry do not create large variations in population for the year 2000.
51. Hawaii, DPED, *State Tourism Study, Economic Projections*, p. 25.
52. The tourism projections for the year 2000 have been forecasted by the State DPED. The forecasts and their underlying assumptions are contained in the following table:

TOURISM FORECASTS FOR THE YEAR 2000  
DIFFER BY 600,000 PERSONS

<u>Assumption</u>	<u>Tourist Component in Year 2000</u>
Zero growth in tourism	80,700
"Most likely" tourism growth	181,800
Five per cent annual tourism growth	210,500
Declining from current to 3 per cent tourism growth in 1990	210,900
Ten per cent annual tourism growth	722,600
Zero net migration	116,300

Source: Hawaii, DPED, *Long-Range Population and Economic Simulations and Projections for the State of Hawaii* (Honolulu: 1978), Table B-3.

The most recent projections for the average daily number of tourists in Hawaii have been developed by the State Office of Tourism. However, no attempt was made to estimate the tourist population beyond the year 1985. The forecasts are contained in the table below:

HAWAII'S POPULATION WILL INCLUDE  
107,000 TO 127,000 TOURISTS IN 1985

<u>Assumption</u>	<u>1985</u>
5% annual tourist industry growth	107,000
7% annual growth from 1975-80 and 5% annual growth from 1980-85	116,000
7% annual tourist industry growth	127,000

Source: Hawaii, DPED, *State Tourism Study, Economic Projections* (Honolulu: 1978), Table V-9, and *State Tourism Study, Proposals for a Hawaii Tourism Functional Plan* (Honolulu: 1978), Table 10.

The forecasts yield a range from a low of 107,000 and a high of 127,000 tourists. These figures represent the expected number of tourists in the islands on an average in 1985. Since the estimated tourist count in 1977 was 87,000, these forecasts indicate that industry growth will increase Hawaii's population by twenty to forty thousand persons in seven years.

### Chapter III

1. The fact that the criteria discussed are treated separately should not be taken to mean that each must be considered to the exclusion of others. In the discussion that follows, each alternative criterion is examined individually for the purposes of isolating and clarifying the theory behind and limitations to each criterion.

Although a multiple-criteria approach is desirable, there are serious limitations to fashioning such a problem definition. In addition to the shortcomings associated with each contributing criterion, two related points can be made. First, assessing the comparative validity or reliability of each criterion is problematic. Second, integrating the separate criterion for a multi-criteria approach requires weighting each criterion on a subjective basis.

2. It could be said that future data can indicate a present problem in that present action must be taken to avoid a future problem. Such thinking is based upon assumptions of the future. Even if such a present problem existed, there are other variables, e.g., time, which determine when state action becomes desirable.

There are three key factors to consider in whether to take present action on a future problem: when it will arise (time), how severe the problem will be (expected loss), and how likely the problem is to arise (probability).

3. Eleanor C. Nordyke, *The Peopling of Hawaii* (Honolulu: The University Press of Hawaii, 1977), p. 124.
4. Study Committee of the Office of the Foreign Secretary, National Academy of Sciences, *Rapid Population Growth: Consequences and Policy Implications*, Vol. I, Summary and Recommendations (Baltimore: Johns Hopkins Press, 1971). Hawaii, Department of Planning and Economic Development (DPED), *The State of Hawaii Growth Policies Plan: 1974-1984* (Honolulu: 1974) (hereinafter referred to as *Growth Policies Plan*).
5. *Growth Policies Plan*; Hawaii, Growth Management Task Force, *A Program for Selective Growth Management in Hawaii* (Honolulu: 1978), p. 12; Hawaii, Governor's Steering Committee on Carrying Capacity Studies, *Carrying Capacity Concepts and Criteria* (Honolulu: 1975), p. 1 (hereinafter referred to as *Carrying Capacity Concepts*).
6. Hawaii, DPED, *The Hawaii State Plan: Population* (Honolulu: 1977), pp. 4-21 to 4-25 (hereinafter referred to as *The Hawaii State Plan: Population*).
7. Hawaii, Commission on Population and the Hawaiian Future, *Population and Hawaii's Future* (Honolulu: 1977).
8. U.S., Commission on Population Growth and the American Future, "Resource and Environmental Consequences of Population Growth in the United States: A Summary," *Population, Resources, and the Environment*, Ronald G. Ridker, ed. (Washington: U.S. Government Printing Office, 1972), pp. 20-22. The six criteria relied on in this discussion are not exclusive. There may be others associated with population growth. However, the six listed here have been selected because of their breadth of scope and because of the frequency with which they are associated with population and quality of life issues.
9. One maximum figure advocated for Hawaii is one million residents. Pat Gee, "The Problems of Population," *Honolulu*, May, 1974, pp. 52, 54. However, selection of that figure and population definition appears to be arbitrary. Earl R.



Babbie, *The Maximillion Report* (Honolulu: Citizens of Hawaii, 1972), pp. 42-43.

10. Nordyke provides the following table:

**Table 14. Population Densities in Selected Areas of the World<sup>a</sup>**

Area	Persons per Square Mile
<i>State of Hawaii</i>	143
City and County of Honolulu	1,251
Oahu	1,231
Northwestern Hawaiian Islands <sup>b</sup>	17
County of Hawaii	20
County of Kauai	59
Island of Kauai	66
Island of Niihau	3
County of Maui	53
Island of Kahoolawe	0
Island of Lanai	16
Island of Maui	75
Island of Molokai	21
<i>United States (1974)</i>	60
Alaska	1
Arizona	19
California	134
District of Columbia	11,848
Florida	150
New Jersey	974
New York	379
Oregon	24
Rhode Island	893
Washington	52
Wyoming	4
<i>Countries (1973)</i>	
Canada	5
China, People's Republic of	221
China (Taiwan)	1,111
Egypt	94
France	247
Germany, Federal Republic of	647
India	455
Israel	400
Japan	757
Korea, Republic of North	325
Korea, Republic of South	868
Mauritius	1,102
Mexico	13
Netherlands	855
New Zealand	29
Philippines	348
Singapore	9,779
Sri Lanka	525
Switzerland	406
United Kingdom	595
USSR	29
<i>Cities</i>	
Calcutta (1971)	17,578
Hong Kong (1972) <sup>c</sup>	10,221
Honolulu (1975)	4,440
London (1971)	11,544
Los Angeles (1970)	6,073
Macao (1972)	44,667
Manhattan (1970)	67,808
New York City (1970)	26,343
San Francisco (1970)	15,764
Tokyo (1973)	23,891
Washington, D.C. (1970)	12,321

Sources: Hawaii (State) DPED 1975 Statistical Report 106, Table 3. United States Bureau of the Census, 1975 Statistical Abstract, Tables 11, 25, 1391. Bose 1965(9) 251

a Figures for Hawaii represent the de facto population July 1, 1975; those for other states are for 1974, and countries represent 1973; the dates of city populations are as noted

b From Nihoa to Kure Atoll, excluding Midway

c Includes Kowloon and New Territories

11. The problems with devising a conceptually sound criterion using a density measure is illustrated by the discussion of the carrying capacity criteria below. The table in footnote 10 indicates that a population density more than ten times that of Honolulu's is possible. However, it might still be determined that density on the order of Manhattan is undesirable. Such a determination would be made on the basis of other social and economic factors contributing to values regarding quality of life rather than physical limitations.

12. Nordyke, p. 124; Gee, p. 52; Paul R. Ehrlich, *The Population Bomb* (New York: Ballantine Books, 1968), pp. 1-80; Dennis L. Meadows and others, *The Limits to Growth* (New York: Universe Books, 1972), pp. 45-87.

13. Focus on physical resources and their continued consumption leads to the rational conclusion that there is a fixed maximum population figure. This form of analysis is somewhat misleading when applied to the Hawaiian setting. See discussion at footnote 21. The crux of the concern for population limits in the *world* setting where natural energy and productive resources are finite is *survival* of the human race. This analysis is not correctly applied to Hawaii where most energy resources are imported. Instead, concern regarding *Hawaii's* population is *quality of life* oriented. Hawaii, Department of Budget and Finance, "The Growth Issue in Hawaii: A Point of View," *Growth Management Issues in Hawaii* (Honolulu: 1977), pp. 3-6. The distinction is critical from the standpoint of severity of the impact expected from population growth.

14. Under the limited resource rationale, environmental pollution is important because it affects the productive potential of natural resources, e.g., agricultural land.

15. Meadows and others, pp. 142-145.

16. All scholars in the field of environmental sciences acknowledge that there is a theoretical natural limit to population growth on the planet earth. See, Bernard Berelson, "Toward a Policy for an Optimum Population," *Is There an Optimum Level of Population?*, S. Fred Singer, ed. (New York: McGraw-Hill, 1971), p. 302. However, they differ in their outlook as to how and when such limits will be reached. *Ibid.*, pp. 253-306; and Meadows and others, pp. 142-145. The late 1960's and early 1970's marked an era when a number of such population-environmental forecasters gained prominence as the "Prophets of Doom". They forecasted that "natural limits" to the earth's capacity would be reached within the near future. See, Meadows and others, and Ehrlich. More recent works in this field, however, have tended to discount those analyses. Larry E. Ruff, "The Limits to Growth: A Review," *Management & Control of Growth*, Vol. I (Washington: Urban Land Institute, 1975), pp. 314-319.

17. Barry Commoner, *The Closing Circle* (New York: Alfred A. Knopf, Inc., 1971), pp. 112-139.

18. U.S., Commission on Population Growth and the American Future, *Population, Resources, and the Environment*. See also, debate between Commoner and Ehrlich and Holdren, "The Closing Circle," *Environment*, April, 1972, p. 24. Berelson has stated the position as follows:

Many of our deplored and deplorable social problems would not disappear if population growth stopped now. The greater multipliers of undesirable consequences have been technological development and economic productivity, and the associated desire for GNP or per capita income or affluence. A distinguished American demographer recently wrote:

"It is clear that the consumption of non-renewable resources is not proportional so much to total population as it is to total expenditure (total income). Gross national product is also gross national consumption (and, since what goes up must come down, gross national excretion)... Thus the perils of the population explosion, so-called, would still exist even if populations were stabilized, but we would then be forced to ascribe those perils to the production explosion.... The Doomsday thesis, and the associated insistence on a zero rate of growth, seem to be a simple-minded misunderstanding of the nature of the long run problem--which is indeed the same ecological problem man has always faced."

In any case, population factors are responsible for enough, but they are not responsible for everything.

Berelson, pp. 302-304.

19. The resident population figures used here includes civilians, military dependents, and those in the armed forces. Military personnel and their dependents are not restricted to housing on military bases.
20. One factor bearing on this growth is the rise in number of households established. Between 1970 and 1975, the total number of households in the State grew by 21 per cent. During the same period, the total number of housing units grew by 20 per cent. However, the resident population only grew by 13 per cent during the same five-year span. This suggests that increased residential acreage reflects the demand for housing caused by household formation as well as population growth. To the extent that the growth in housing units caused by household formation is composed of single-family dwelling type urban sprawl, population growth in the form of net migration is not the problem. Moreover, if such housing units take the form of high-rise condominiums which destroy natural views instead of consuming acreage, housing demand generated by household formation is more the culprit than net migration.

#### POPULATION GREW SLOWER THAN HOUSING OR HOUSEHOLD TOTALS

	1970	1975	Growth
Total households	203,088	246,000	21.13%
Total housing units	216,774	260,740	20.28
Resident population	769,913	868,400	12.79

Source: Hawaii, DPED, *The State of Hawaii Data Book 1977, A Statistical Abstract* (Honolulu: 1977), Tables 3, 19, and 323.

21. It is necessary to point out that the concept of resource depletion is not very appropriate for Hawaii. The literature in the area of natural resource management focuses on mineral and other energy producing resources that may be depleted by economic exploitation. See, U.S., Commission on Population Growth and the American Future, *Population, Resources, and the Environment*. Hawaii does not possess such mineral resources and must rely on external sources for their production. The type of resource depletion discussed in the context of a global system is not truly applicable to Hawaii. Resources like water and land are generally categorized and discussed in the same manner as mineral type resource. See, Hawaii, DPED, *The Hawaii State Plan: Environmental Concerns* (Honolulu: 1977), p. 1. Such a practice is misleading. The water supply is expandable through use of more sophisticated and expensive technology and the amount of land has always been fixed and will continue to be available in the future. Instead, the real concern with water and land is how they are allocated. As such, the question for Hawaii becomes one of quality of life requiring decisions and trade-offs in how those resources are used. This point is explored in greater detail below.
22. This point is adapted from the works of the U.S., Commission on Population Growth and the American Future, "The Economy, Resource Requirements, and Pollution Levels," *Population, Resources, and the Environment*, Ronald G. Ridker, ed., Vol. III (Washington: U.S. Government Printing Office, 1972), pp. 56-57. See also, Ansley J. Coale, "Man and His Environment," *Science*, October 1970, p. 132.
23. Time is a crucial factor. It sets the framework within which potential options for dealing with the problem must be dealt. The shorter the available time horizons, the fewer options available. As such, the rate at which growth takes place determines the amount of time remaining. U.S., Commission on Population Growth and the American Future, "Resource and Environmental Consequences," p. 19; Berelson, pp. 302-306.
24. As noted above, the one million person mark is the population limit. Gee, p. 54.
25. Hawaii, Department of Budget and Finance, "Water as a Factor in Growth Management: A Case Study of Oahu," *Growth Management Issues in Hawaii* (Honolulu: 1977), pp. 95-96.
26. U.S., Commission on Population Growth and the American Future, "Resource and Environmental Consequences," p. 29.

27. One maximum rate for the total population has been recommended to be 1-2/3 per cent a year. *Growth Policies Plan*, p. 4.
28. Berelson, pp. 302-306. A common manner in which the concern over growth rate is expressed is in the form of the "doubling time". This measure indicates the number of years needed for a population size to double given a fixed annual rate of increase. Given Hawaii's current rate of population growth, the State's population can be expected to double approximately every thirty years. The rate of growth determines the length of time it takes for a population to double in size.

Rate of Growth Per Year (%)	Years to Double
0.5	140
1.0	70
1.5	47
2.0	35
2.5	29
3.0	24
3.5	20
4.0	17
5.0	14
6.0	11

Source: Eleanor C. Nordyke,  
*The Peopling of Hawaii*  
(Honolulu: The University  
Press of Hawaii, 1977),  
p. 85.

Reliance on such figures is arbitrary. The doubling time is a mathematical description of growth. As such, it is neutral. Whether the population doubles or not may be either good or bad.

29. *Growth Policies Plan*, p. 4. An example of the effect on the social structure involves economic welfare. Given a set level of economic activity in the community, a larger population means lower per capita income. Study Committee of the Office of the Foreign Secretary, National Academy of Sciences, p. 2.
30. Study Committee of the Office of the Foreign Secretary, National Academy of Sciences, pp. 46-47.
31. Hawaii, Office of Environmental Quality Control, *Carrying Capacity Analytical Methodology* (Honolulu: 1978), p. vii (hereinafter referred to as *Analytical Methodology*).
32. *Ibid.*
33. *Ibid.*, pp. 56-63.
34. *Ibid.*, pp. 59-60.
35. Hawaii, Office of Environmental Quality Control, *Carrying Capacity Prototype Investigations in the State of Hawaii* (Honolulu: 1976), Appendix A (hereinafter referred to as *Prototype Investigations*).
36. As noted below, there is still some question about what analytical techniques would be utilized. Alternative approaches have been employed in the prototype investigations. One approach

designed by the Hawaii Environmental Simulation Laboratory (HESL) is heavily quantitative. Another approach devised by INTASA, Inc., a private consulting firm, is less rigorous. *Analytical Methodology*, pp. 10-22. The HESL approach has the theoretical advantage of accounting for the interrelationships of many different factors but has the serious practical constraint of data availability. On the other hand, the INTASA approach bypasses the data limitation but has the disadvantage of being overly simplistic. A third approach, developed by the Hawaii Office of Environmental Control (OEQC) attempts to merge the advantages of both methods. This approach fixes the analysis within the existing capital structures. By doing so, it essentially eliminates the potential for technological development in activating more resources, e.g., forecloses possibility for desalinization of seawater regardless of how low per unit cost of production may drop. At this stage, however, the approach has yet to evolve beyond the conceptual stage. See, *Analytical Methodology*, pp. 23-35.

37. Indeed, under the approach devised by HESL, the carrying capacity analysis is another form for designing a quantitative model for all of the social as well as physical relationships in the world. However, the methodological and informational problems attendant with such an ambitious undertaking are alleviated by restricting the analysis to physical environmental factors and limiting the geographical area of study. Rick Odell, "Carrying Capacity Analysis: Useful But Limited," *Management & Control of Growth*, Vol. III (Washington: The Urban Land Institute, 1975), pp. 22, 27-28; *Analytical Methodology*, pp. 65-67.
38. *Carrying Capacity Concepts*, pp. 1.2 to 1.4.
39. *Prototype Investigations*, Appendix A.
40. Conceptually, the carrying capacity criteria is the most encompassing means for analyzing the effects of population growth. All the variables affecting quality of life can be included in the analysis. Knowing how the variables interact with population growth permits public decision-making to explicitly recognize the trade-offs associated with a proposed direction for growth. Carrying capacity analysis taking into account such multiple variables is called an integrated approach. *Prototype Investigations*, pp. 8-9. However, carrying capacity methodology for including a multiplicity of variables is still in its infancy.
41. The concept is particularly well established in areas of animal husbandry. See, *Hawaii Rev. Stat.*, sec. 171-1.
42. *Analytical Methodology*, pp. 3-21.
43. See, *Prototype Investigations*.
44. The most recent work in this area, *Analytical Methodology*, is a procedural guide for applying carrying capacity analysis. Although it synthesizes prior work in the area, it does not go very far beyond providing a conceptual framework for performing carrying capacity studies. It is important to distinguish here that focus to date has been on developing tools for analysis. This is different from saying that carrying capacity analysis presently can tell us what trade-offs

are required by decisions to manage population growth. The latter is the objective of carrying capacity analysis. While present work on designing the methodology is promising, it remains to be seen whether enough methodological problems can be overcome to make carrying capacity analysis a useful tool for decision-making.

45. Discussion here assumes adoption of an integrated approach to carrying capacity analysis.

46. See Appendices in *Prototype Investigations*.

47. This is because the environmental and natural systems are more accessible for the purpose of quantitative analysis. However, even such natural systems are sometimes elusive from the standpoint of empirical study. For example, hydrological experts do not agree about how much water presently exists on the island of Oahu. "The available water supply on Oahu has been variously estimated, but the uncertain nature of hydrologic science prevents us from having precisely reliable estimates. Only further efforts to physically explore Oahu's groundwater will demonstrate the actual optimal levels of withdrawal." Hawaii, Department of Budget and Finance, "Water as a Factor in Growth Management," pp. 95, 117-118.

48. *Analytical Methodology*, p. 4.

49. The difficulties associated with such an encompassing approach are exemplified by the fact that the social sciences can contribute relatively little to explaining the relationships among the variables causing crime. The carrying capacity approach is an attempt to model the numerous variables that affect the world for the purpose of predicting the future. The Governor's Steering Committee on Carrying Capacity Studies has pointed out:

...the interpretation of the carrying-capacity concept is very difficult and expensive to apply because of the complexity of the urban environment, because of our lack of knowledge about interrelationships of multiple factors, because of our lack of knowledge about future technology, and because of the need for numerous non-scientific value judgments.

*Carrying Capacity Concepts*, p. 1.4.

50. Odell points out that carrying capacity analysis provides few guidelines for which growth/development options are desirable. He says:

The ultimate drawback of the carrying capacity concept, perhaps, is its limited usefulness in making the ultimate land-use choices that are necessary--choices that must be framed not only in ecological terms but in social and economic terms as well. At this stage of development, at least, it can be only a partial guide to political choices. The main reason is the difficulty of relating carrying capacity to psychological factors and to personal evaluations of what constitutes quality in life. Personal evaluations involve perceptions of esthetics, community size, urban

design, cultural and historical attributes, recreational opportunities, noise and, not the least important, space.

Odell, p. 27. This limitation was also recognized by the Hawaii Governor's Steering Committee on Carrying Capacity Studies. *Carrying Capacity Concepts*, p. 1.4.

51. The emphasis of social science decision theory has traditionally been the marshalling of enough information for decision-making. Focus has been on obtaining enough information for making rational decisions. However, a body of literature in the decision sciences concerning information overloads has evolved. This concern arises when decision-makers are given too much information. In that setting, the difficulties of digesting information become so overwhelming that it is ignored.

52. It is yet unclear how carrying capacity information would be injected into the decision processes. See, *Prototype Investigations*, p. 42.

53. Any identification of an area's carrying or holding capacity is an invitation to use or fill that capacity. Carrying capacity thus becomes almost synonymous with "assimilative capacity." Dr. Robert H. Twiss of the University of California's Department of Landscape Architecture says that "a new kind of significance is being acquired by areas presumed to have high pollution absorption capacity..." A prime example is the clean Four Corners air shed which has enticed a number of power plants and other polluting operations. "Carrying capacity is a very dangerous concept," says Malcolm F. Baldwin, director of the Institute of Ecology's Environmental Impact Assessment Project. "It's the antithesis of nondegradation." Thus, use of the carrying capacity approach can lead to what has been called "accommodation planning," under which growth is assumed and the only question becomes how to accommodate and distribute it. Odell, p. 26.

54. This approach is implied by the analysis in *The Hawaii State Plan: Population*, pp. 4-21 to 4-25.

55. *Ibid.*

56. The traditional economic model for migration is the framework for this analysis. The reasoning behind this theory is simple: people migrate to where there are jobs. See, Peter A. Morrison, *Population Movement and the Shape of Urban Growth: Implications for Public Policy* (Santa Monica: Rand Corp., 1972), pp. 8-9. This migration assumption is a basic component of Hawaii's current population estimates under the II-F series, Hawaii, DPED, *Long-Range Population and Economic Simulations and Projections for the State of Hawaii* (Honolulu: 1978), pp. 9-10.

57. *The Hawaii State Plan: Population*, pp. 4-19 to 4-21.

58. This is a key consideration in formulation of the Hawaii State Plan. Hawaii, DPED, *The Hawaii State Plan: The Economy* (Honolulu: 1977), pp. 15-27 to 15-28.

59. The drawbacks associated with the economic welfare criteria discussed below are also applicable. The reasoning in the employment context, however, is attenuated. This is because given an imperfect market system, including externalities and an undersupply of public goods, some forms of employment would be over- or under-valued. Such misvaluation of labor results from the fact that the goods produced do not adequately incorporate externalities in their cost. The public goods aspect of goods also result in their over- or under-production. The consequence is socially suboptimal allocation of labor.
60. This need not be true. Garrett Hardin takes the position that economic growth should be maintained but that it should be redirected in a manner consistent with environmental considerations. Garrett Hardin, "How to Specify an Optimum Level of Population," *Is There an Optimum Level of Population?*, S. Fred Singer, ed. (New York: McGraw Hill, 1971), pp. 260, 263-264.
61. To achieve low levels of unemployment in the future, plans for economic growth require population growth due to net migration. Hawaii, DPED, *The Hawaii State Plan: The Economy*, chapters 14 and 15.
62. Consideration of an optimum population level must take account of the values and life-styles of those in the community. Community values influence population size. One position taken by population demographers is that in the long run, population will stabilize due to natural forces. Such stabilization would occur independent of government actions. Singer, pp. 253-308.
63. See, Hawaii, Commission on Population and the Hawaiian Future, *Population Growth, Policies and Strategies: A Public Opinion* (Honolulu: 1977).
64. Modern survey techniques are sophisticated and can measure the relative weights of preferences. See, *ibid.*, p. 13.
65. Reference here is to the works of the "Prophets of Doom." See Meadows and others, and Ehrlich.
66. This is the perspective of the study group commissioned by the U.S. Commission on Population Growth and the American Future, "Resource and Environmental Consequences," pp. 19, 22-24.
67. Levine has identified the key motivations behind the sentiment that growth be controlled. An attempt to control urban growth is likely to stem from a number of motives--not mutually exclusive. They may include: control of the presumed dollar and other costs for extension of public facilities that may be associated with rapid growth; control of various sorts of pollution of the physical environment that may be attributed to growth; aesthetic objectives--dislike of the jumbled sameness of "urban sprawl"; feared loss of the sense of community more easily associated with a small jurisdiction than a growing one; or simply a more general conservatism interpretable as a taste for the way things are now, and a fear of unknown change. Robert A. Levine, *Growth Control: Some Questions for Urban Decisionmakers* (Santa Monica: Rand Corp., 1974), p. 4.
68. Hawaii, Growth Management Task Force, pp. 3-9.
69. See, S. Fred Singer; James L. Sundquist, *Dispersing Population* (Washington: Brookings Institution, 1975); U.S., Commission on Population Growth and the American Future, *Aspects of Population Growth Policy*, Robert Parke, Jr. and Charles F. Westoff, eds., Vol. VI (Washington: 1972); Commoner; Hawaii, Growth Management Task Force.
70. The foregoing is a relatively theoretical and abstract discussion. It deals with the relationship between public opinion and public welfare. The foundations of democratic governance equate the two concepts. However, it is well established that governance processes take into account the intensity of sentiment held by the relevant interest groups in the community. See, Anthony Downs, *An Economic Theory of Democracy* (New York: Harper & Row, 1957). Acknowledging such differences in weight of sentiment is a factor in maximizing the public welfare. This means that sometimes the public welfare is increased if the intensely held preferences of the minority override the wishes of an ambivalent majority. The American political process implicitly incorporates this. Candidates for public office frequently campaign on the basis of their "courage" or "leadership" abilities. Both traits imply that it is sometimes desirable to do what is unpopular.
71. U.S., Commission on Population Growth and the American Future, "Resource and Environmental Consequences," pp. 20-22.
72. *Ibid.*
73. An alternative measure of wealth is per capita real disposable income. This is one of the planning concerns of the department of planning and economic development in their II-F series of forecasts. Hawaii, DPED, *Revised Population and Economic Projections 1975-2000* (Honolulu: 1978), p. 6. Data from recent years for Hawaii under this measure are not readily available.
74. Ideally, any measure would be standardized by adjusting for changes in valuation or inflation. Real advances in economic welfare is calculated by using constant dollars.
75. This is a similar single focus measure much like opinion poll results. Instead of opinions, economic welfare criteria measures dollars. However, economic welfare criteria offers the advantage of also incorporating intensity of preferences. This is because individuals can bid greater amounts if they feel strongly enough. On the other hand, it is noteworthy that regardless of their intensity of preferences, individuals are limited in their expression by the money available to them, i.e., how rich they are.
76. An argument for equating the quality of life with economic factors can be made by example. An often voiced complaint about the negative aspects of growth is traffic congestion. The DPED offers a counter perspective:  
  
...even with the best of planning there should be some congestion if resources are properly allocated. Land possessing high value (either because of its attractiveness to many as a place to live or visit, such as Waikiki; or

because of the benefits that result from close proximity to other activities, such as in or near downtown Honolulu) justifies intensive use of the land in terms of high densities and tall buildings. "But the conditions that justify intensive use of urban land for buildings also justify intensive use of land for transportation. Intensive use of land for transportation implies large numbers of vehicles per lane mile - that is, considerable congestion." [The Commission on Population Growth and the American Future, p. 391]

*The Hawaii State Plan: Population*, p. 9-12.

77. For a more formal discussion, see Walter Nicholson, *Microeconomic Theory, Basic Principle and Extensions* (Hinsdale, Ill.: Dryden Press, 1972), pp. 41-94.
78. *Ibid.*, pp. 403-437.
79. People are generally worse off with less money. This is because with greater wealth, they have options to consume presently or save for the future. They also have greater options as to what to consume.  
  
There are other measures of economic welfare that are applicable, e.g., per capita disposable income. However, current data adjusted to constant dollars were not readily available. See, Hawaii, DPED, *Data Book 1977*, Table 186.
80. Nicholson, pp. 513-530.
81. For example, emission control devices do not eliminate all particulate matter from being emitted to the atmosphere.
82. Nicholson, pp. 483-500.
83. William K. Reilly, ed., *The Use of Land: A Citizen's Policy Guide to Urban Growth* (New York: Thomas Crowell Co., 1973), pp. 103-144.
84. Donald Hagman and Dean Mischyski, *Windfalls for Wipeouts: Land Value Capture and Compensation* (Chicago: American Society of Planning Officials, 1978); see, *Hawaii Rev. Stat.*, sec. 246-12.

## Chapter IV

1. The term "resources", as used in this discussion, is a reference to resources in its most broad sense. As used here, the term refers to the fact that humanity, in its existence, interacts with the surrounding world. In doing so, humanity relies on physical things in the environment. Those things that are used by humanity for self-accommodation are resources.
2. Ansley J. Coale, "Man and His Environment," *Science*, October 1970, pp. 132, 135; Barry Commoner, *The Closing Circle* (New York: Alfred Knopf, Inc., 1971), pp. 125-139; U.S., Commission on Population Growth and the American Future, *Population, Resources, and the Environment*, Ronald G. Ridker, ed., Vol. III (Washington: 1972), pp. 37, 56.

3. The obvious message in this empirical fact--that consumption causes a greater impact than population--has been challenged by two noteworthy scholars. In the early 1970's, Ehrlich and Holdren conducted a vigorous debate with Commoner on this matter in the academic literature. The thrust of their argument was that the aggregate impact of population is greater than the sum of individual impacts. However, the debate is relatively academic and the general consensus of contemporary social scientists in the area emphasizes consumption trends of existing populations rather than numbers. Paul R. Ehrlich and John P. Holdren, "The Closing Circle," *Environment*, April 1972, p. 24; Barry Commoner, "The Closing Circle," *Environment*, April 1972, p. 25.
4. Population growth does in fact cause more water to be consumed given a fixed per capita usage. The point here, however, it is not the only cause of increased water consumption. Between 1960 and 1975, the total amount of water used each day rose 1-1/2 times as much as numbers of persons in Hawaii. Acknowledging this rising per capita usage is important for policy planning purposes. Current projections for Oahu's water need to take into account this increasing per capita consumption. The available forecasts assume that trends for rising per capita consumption will continue. Hawaii, Department of Budget and Finance, *Growth Management Issues in Hawaii* (Honolulu: 1977), pp. 95 and 104. Based on these patterns, quite independent of population growth, there will come a time when the amount of water demanded will exceed available supplies. The most obvious lever in influencing personal consumption patterns is through altering the existing pricing structure. Yet relatively little discussion regarding this alternative has taken place. Hawaii, Department of Budget and Finance, *Growth Management Issues in Hawaii*, pp. 95, 110-112.
5. Hawaii, Department of Planning and Economic Development (DPED), *The State of Hawaii Data Book 1977, A Statistical Abstract* (Honolulu: 1977, Table 81.
6. See citations at footnote 2.
7. Coale, p. 135.
8. *Ibid.*
9. *Ibid.*
10. The City and County of Honolulu is currently conducting a public opinion survey related to citizen perceived issues, concerns, and problems. The raw tabulations from that survey indicate that almost 80 per cent of those living in the primary urban center of Oahu felt that "not enough housing that people can afford" is an important problem. See, memorandum to Lead Neighborhood and Development Area Organizations, Ramon Duran, Department of General Planning, City and County of Honolulu, August 10, 1978.
11. This is true even if it were acknowledged that population growth increases the pressures leading to higher demand for housing. The trends in housing construction in the last decade indicate that, holding population growth constant, the high demand for housing would continue to exist.

Partial explanations to this phenomenon include the high rate of household formation, rising incomes, and the entry of nonresidents to the local housing market.

12. National Academy of Sciences, *Rapid Population Growth, Consequences and Policy Implications* (Baltimore: Johns Hopkins Press, 1971), p. 65.
13. U.S., Commission on Population Growth and the American Future, *Population, Resources, and the Environment*, p. 25; Coale, p. 135; Commoner, *The Closing Circle*, pp. 125-139; *ibid.*
14. An altogether different statement of the concerns regarding growth involves economic growth. Initial concerns regarding declining quality of life in the U.S. focused on population growth. However, study reports by the U.S. Commission on Population Growth and the American Future indicate that the workings of the economy have a dominant effect on changes in quality of life. The works of Commoner tie together the technological and economic forces affecting our quality of life. U.S., Commission on Population Growth and the American Future, *Population, Resources, and the Environment*, p. 339. It is Levine, however, who most cogently articulates what growth concerns are all about. He says:

...growth can be defined in a number of ways, but perhaps the most useful is in terms of physical change--building structures where previously there were none; replacing old structures with newer, larger, or more elaborate ones. Use of the physical definition makes it possible initially to bypass some difficult questions of causality--new building is ordinarily clearly an effect rather than a cause.... The primary cause of growth is economic (increase in available jobs) with population growth and secondary increases in population-serving jobs following....

Robert A. Levine, *Growth Control: Some Questions for Urban Decisionmakers* (Santa Monica: Rand Corp., 1974), p. 1.

15. Moreover, it is difficult to picture life in a world adjusted for a different value for a variable like population unless allowance for inescapably associated changes in other variables like family size or lower income is made. National Academy of Sciences, p. 65.
16. U.S., Commission on Population Growth and the American Future, *Population, Resources, and the Environment*, p. 56.
17. A relatively concise overview of some of these relationships is contained in the "Summary" to the U.S. Commission on Population Growth and the American Future's study on resources and the environment. U.S., Commission on Population Growth and the American Future, *Population, Resources, and the Environment*, pp. 19-33.
18. Hawaii, DPED, *Data Book 1977*, Table 109.
19. Like all public programs, there are costs as well as benefits to be anticipated from population control policies. Public policies are adopted

because of the benefits that are expected to result. However, there are two types of costs also expected to result. First, there are those costs that are explicitly accounted for, e.g., tax dollars to be spent. Second, are those costs that can be described as unintended consequences. Recognizing the potential for unintended consequences is important in two regards. The number and types of unintended consequences are uncertain. Also, the magnitude of each such unplanned for impact might be great. If collectively, the magnitude of the unintended impact is greater than the expected benefits, the proposed policy is undesirable.

20. The number of alternative proposals for affecting population growth is countless. The initial starting point for identifying proposals began with literature of an international scope. It quickly became clear, however, that growth control is typically treated as questions of land use rather than population. See, James L. Sundquist, *Dispersing Population, What America Can Learn from Europe* (Washington: Brookings Institution, 1975). Other population control mechanisms, like that employed in the People's Republic of China, which requires that government permits be obtained before residential moves are permissible are contrary to the cultural notions of individual liberty present in Hawaii and the United States. As a result, the proposals selected for review in this study were limited to those with some likelihood of viability and political feasibility.
21. For a more detailed examination of these proposals, see Appendix B.
22. Among the proposals reviewed here, the residency requirement for public assistance and the publicity campaign are the only alternatives that can be described as precise approaches to controlling population. In the discussion below, such strategies are described as substantive demand-oriented policies. They are described here as precise because the approach is to affect persons not yet in Hawaii while at the same time not affect those who are already in Hawaii.

In its most gross form, this direct approach can be characterized as an "us against them" strategy. All the other proposals examined in this study are more imprecise. They tend to influence people's decisions to locate in Hawaii. In doing so, both "old" as well as "new" residents are equally affected. (In a sense, birth control alternatives to population management can be categorized as both precise and imprecise.) Only two precise approaches are considered in this analysis because severe constitutional restraints have been placed on "us against them" type state actions by the U.S. Supreme Court. Calling such approaches "discriminatory", the court has struck down many applications of the chief tools of the "us against them" strategy, the residency requirement and distinctions based on alienage. See constitutional requirements set forth in Appendix B. Another form of precise control of population is discussed in footnote 26.

23. For a more detailed examination of these proposals, see Appendix B.
24. See chapter I.

25. There are real technical problems associated with establishing causal relationships between social policies and policy impacts. This difficulty is amplified by the paucity of programs in the area of land use control that can be described as "successful". Levine, p. v.

26. It must be acknowledged that this type of analysis would be less true if it were possible to precisely limit the number of persons physically present within the islands. This is because a more direct approach would tend to affect fewer other variables.

One such direct control of population numbers is a "medallion system". Picture an island setting where all persons were required to wear a medallion around their neck. The total number of medallions is fixed. Islanders wishing to have children would also have to obtain a medallion. Persons wishing to move onto the island also would have to find others willing to give up their medallion (usually for a price). Such medallions would become available because of an islander's death or an islander moved away from the island. See, Peter A. Morrison and Judith P. Wheeler, *Local Growth Control Versus the Freedom to Migrate* (Santa Monica: Rand Corp., 1974).

A modified version of this medallion system is represented by the scheme adopted by Petaluma, California, which is discussed above as "the housing growth limit" alternative. Under that model, instead of giving persons a medallion, housing units are the basis for award. Moreover, the number of available medallions refers to the housing units to be constructed rather than the total number in the jurisdiction.

Three points can be made about the medallion system in an island setting. First, it radically curtails the exercise of individual freedom. Second, within the island, growth problems arise if islanders tended to locate in certain areas and over time migrated to other locations. Third, if the islanders have tastes requiring increasing per capita consumption of island resources, environmental and other concerns regarding resource depletion arise.

27. The table here represents an attempt to identify potential unintended consequences. It estimates whether the resulting consequence would be positive or negative. However, its major shortcoming is its inability to anticipate the magnitude or size of these effects. While it is possible to qualitatively assess what the magnitude of those impacts might be, the theoretical and methodological constraints against doing so are severe and the production of such information would tend to mislead the hurried reader.

The reader might note that no consideration is given to the possibility of a Hawaii in which economic growth occurs in the absence of population growth. Many who discuss growth management issues would agree that such a future for the State is desirable. While such may be a worthy social goal at which state policies should be aimed, there are many questions that can be raised regarding whether such a goal is achievable. Two points can be made. First is the issue of whether population growth can be effectively controlled by the state government without radical changes to the economic system of the State. Second are the types of programs

necessary for the State to successfully control both the population and the economy simultaneously. This study can be viewed as addressing the first point. In reviewing a number of alternative growth control proposals, this chapter raises the issue of how much population growth can be discouraged and at what price. Serious consideration of the second host of issues regarding how the State can simultaneously control both the economy and its population is well beyond the scope of this study. Suffice it to say, however, that effective implementation for such a program would require basic restructuring in our form of governance and reliance on a market economy.

28. The science of survey research is able to determine the intensity of feeling expressed by a respondent. It does so by allowing the respondent to weigh the preferences reported. For example, a survey respondent is able to report that population growth is either a "very important" or "important" problem. However, in a situation where one problem is linked to another problem, the use of such survey information becomes suspect. This is because in a situation where one problem must be traded for another problem the methodologies for accurately communicating such trade-offs to the respondent and correctly interpreting answers is limited. For example, one question can take the following form: "Which would you prefer, reducing the annual number of mainland migrants to Hawaii from 3,000 to 2,500 per year or reducing the unemployment rate from 9.5 to 9.0 per cent?"

29. What is suggested here is a cost-benefit framework for analyzing population control mechanisms. However, in this context, it is critical to understand that the terms "cost" and "benefit" are used in their most broad sense and not restricted to their traditional economic meanings. These relatively "softer" valuations for costs and benefits are subject to varying assessments by different persons. In a sense, the function of government is to provide a brokering institution for such differing views. A governmental action dealing with population management, in this light, is an outcome of a consensus among persons with differing assessments of the costs and benefits of a proposed mechanism. At still another level of analysis, it is necessary to question the assumption that government can effectively manage population. If it cannot, then regardless of how well-intentioned the attempt, there will be little or no benefits flowing from government expenditures. Attendant with such expenditures are the risks of unintended consequences. It is not possible to speculate at this time on either the size or existence of the possible negative effects. Whether or not state government can effectively manage population growth is the basic question that cannot yet be answered. Within the context of the American experience, a preponderance of the analysis on this question is based on speculation and on little or no hard empirical data. If population growth negatively affects the public welfare, then a call for governmental action is justified where the disadvantages associated with a proposed policy do not exceed the gains to be derived.

30. There are other characteristics that are not considered here. For example, there is widespread popular belief that the State should take some action in controlling population growth.



One study found that the state government "is seen as the party responsible for taking the initiative in solving population problems. Almost three-quarters of the respondents [in a survey] wanted to see the State government take direct action to address the population problem." Hawaii, Commission on Population and the Hawaiian Future, *Population Growth* (Honolulu: 1977), p. 3.

This means that there are and will continue to be strong pressures placed on decision-makers in state government. Such pressures, in the political sense, evidence a need for presently adopting a solution for a pressing problem. Given the lack of control over external social forces and the high uncertainty of impact associated with growth control, it is unfortunate that the call will be for immediate state action.

It thus is incumbent upon such state decision-makers to exercise leadership in charting a responsible course of action. The discussion below identifies one formula for doing so.

31. An interesting attempt to quantify such relationships has been attempted by the department of planning and economic development (DPED). The technical studies supporting the Hawaii State Plan rely on a model of Hawaii's economy. By linking the employment needs of the state economy to population size, the model is able to provide estimates of how many new residents would be necessary to attain full employment. The approach is technically very sophisticated and provides good insights as to what might happen if certain events were to occur within the next few years. However, notwithstanding the complexity of the approach, it can be criticized for its simplicity and its tendency to mislead the uninitiated. In reviewing a computer model using the same type of approach relied upon by DPED, Ruff points out the limits to computer simulation modeling:

*The process of setting up and running a simulation model is so logical and so mechanical that it is a natural for computer programmers and engineers. But, obviously, there is no magic in it which gives the systems analyst any special insight into human motivations, social processes, or institutions, or the evolution of the world social system over time. And the process is "dynamic" only in the trivial sense that one of the mathematical variables is called "time" and not at all in the truly fundamental sense that social values, institutions, and processes change over time. Each behavioral relation must be specified, each feedback loop identified, each parameter value selected before the computer can do its mechanical thing; and once the computer has begun, the future is absolutely determined, with no possibilities for change except those which have been anticipated and built into the model by the analyst.*

*Simulation modeling, then, is limited by the same thing that limits other methods of analyzing and predicting social events: our knowledge of social and physical processes. If we understand how these processes operate over several generations*

*into the future and under new and unprecedented circumstances, then we are very wise indeed and we may, if we choose, display this wisdom in the form of a simulation model. But if we do not understand these things, then we had best be humble and refrain from making fools of ourselves by pretending to wisdom--in the form of a simulation model or in any other form. Models which summarize and integrate our limited knowledge, or which are designed to be tested by rigorous statistical techniques and thereby add to our limited knowledge are valuable and indispensable scientific tools. But models which try to hide our ignorance behind a facade of mathematical gimmickry or which imply that there is some clever substitute for understanding are dangerous toys.*

- Larry E. Ruff, "The Limits to Growth: A Review," *Management & Control of Growth*, Randall W. Scott, ed. (Washington: The Urban Land Institute, 1975), pp. 314, 315-316. Ruff's criticism is perhaps too harsh given the manner in which DPED has chosen to use the model. Ruff's comments, however, do point out that even our vast technical and analytical knowledge, humanity has relatively little understanding of how the forces interact in the surrounding world.
32. It is assumed here that population control mechanisms do control population growth. This may or may not in fact be true. Those mechanisms adopted in other jurisdictions have been in effect for too short a period for any firm conclusions regarding their effectiveness, e.g., Petaluma. However, some preliminary evidence indicates that some mechanisms do not work, e.g., Oregon's publicity campaign. Moreover, even if they do work there are serious methodological problems in concluding that any one mechanism caused population growth to decline.
33. Social forces can be categorized in a different manner. There are forces created by institutional, governmental actions and those created by individual choices for action. They are related but they need not be consistent. An example of an institutional action is a U.S. Supreme Court decision. On the other hand, an individual choice is exemplified by the decision of someone on the mainland to move to Hawaii. Note that both such forces are external to the State of Hawaii. However, there are examples of comparable internal forces. The State has been involved in funding family planning programs since the late 1960's. By providing birth control services in that way, the State has helped provide its residents with options to childbirth. On the individual level, women in Hawaii exhibited a large fertility decline since 1960. See chapter III. Such a decline can be explained, in part, because of changing social conditions and attitudes regarding family size and childbirth.
34. The line of federal judicial decisions discussed in Appendix B and the changes in federal policy in 1965 which raised the total quota for immigration are examples of governmental/institutional forces over which Hawaii has little control. A good example of external individual decisions affecting Hawaii involves regulation of the demand for Hawaii's tourist resources. The

State's planning efforts are based on the assumption that population growth is related to tourism growth. However, the State's Office of Tourism has pointed out that:

*Since Statehood, the growth in the number of visitors to Hawaii has averaged over 16 percent each year. This growth occurred concurrently with formal tourism planning documents and projects developed by the State and Counties, but a cause-effect relationship has not been established. For example, the General Plan of the State of Hawaii, 1960-1980, anticipated that wholehearted government tourism planning might increase the number of visitors arriving in 1980 to 1.5 million, fully 20 percent over the number likely to come if an active government role were not taken. More than double that projection came in 1977.*

*The independent nature of visitor demand in relation to government planning was dramatically illustrated again during the 1974-1975 recession when growth in the number of visitors slowed to 6.1 percent in 1974 and 1.2 percent in 1975, with a return of 13.3 percent growth in 1976. Basic government tourism policy and programs remained unchanged during this period.*

Hawaii, DPED, *State Tourism Study* (Honolulu: 1978), pp. 20-21.

35. The word "influence" is used judiciously here. The alternative is for the State to "determine" what decisions individuals make. This can be done by legal mechanisms which serve to eliminate the option to move to Hawaii, e.g., implementing the medallion system discussed in footnote 26. However, the federal constitutional safeguards for individual liberty severely curtail the implementation of this and other discriminatory types of tools. See Appendix B. On the other hand, it is true that the State can "influence" individual decisions to move to Hawaii by relying on incentives and disincentives.

For example, state actions regarding land use affect the price of housing. Persons on the mainland consider such housing costs in their decisions to relocate in Hawaii. However, most of the state actions to date and many of those proposed tend to provide incentives for people to come to Hawaii. Two of the most blatant examples include the present subsidy of the tourist industry, e.g., Hawaii Visitors Bureau appropriations, and proposals to preserve Hawaii's natural beauty. (Those who would be attracted to Hawaii become more attracted.) On the other hand, relatively little is known about the disincentives influencing such decisions. Traditionally, taxes have been used as the prime disincentive to certain behavior patterns. But the newness of population control concerns and the uncertainty of impact involved in its management are reflected by the scarcity of literature seriously considering the magnitude of trade-offs involved in managing growth. An interesting study attempting that ambitious task was performed by Gruen, Gruen & Associates for the San Diego region. Comprehensive Planning Organization of the San Diego Region, *Population Growth Policy*

*Study, Economic Impacts of Population Growth* (San Diego: 1974).

36. But once they arrive, the State has considerable power as to where they can settle.
37. Decision-making in the face of uncertainty is the rule rather than the exception for public leaders. However, some decisions involve greater degrees of uncertainty than others. How individuals deal with uncertainty is determined by their aversion to risk. This is more commonly viewed as a desire to gamble. Choosing a strategy in a setting marked with high uncertainty thus becomes a subjective undertaking dependent upon the aversion to gamble. Yet, it can be argued that public decision-makers should reflect more than their collective predilection for gambling. Notwithstanding the perceived severity of a problem, in a setting not involving human lives, public decisions selecting a policy option fraught with a highly uncertain impact on the public welfare over one with less uncertainty can be characterized as an unethical breach of their fiduciary public duties and irresponsible.
38. There are two types of process-oriented strategies. First, there is the purely procedural approach to problem solving. This involves a substantively neutral approach. An example of this type of remedy is the environmental impact information system. The system was adopted to address the problems of negative, unplanned, environmental consequences associated with land development. The solution was not to prohibit development but rather to provide decision-makers with information on what environmental impacts could be anticipated. The approach is neutral because it only requires that such information be taken into account, along with other information, in the decision on whether to permit the development.

A second type of procedural approach is similar to that of the substantive approach. It is similar to one described as substantive because its thrust is not neutral.

The difference is in its scope as a substantive remedy. While decision-makers often have at their disposal a number of proposed solutions to their problems, considerations of economy and prudence often result in their decision to test which substantive solution works best. Pilot programs and prototype models are often manifestations of such decisions. Although it is hoped that such "experiments" will solve the problem directly, the technique of developing a viable solution in an incremental manner permits information feedbacks of negative as well as positive impacts. By relying on small scale substantive remedies, decision-makers create a process for dealing with the whole problem at a later date. This piece-meal approach, albeit substantive in effect, develops a remedy as information becomes available rather than attempting to "solve" the problem with a major action leads us to classify this incremental type of strategy as process-oriented.

Recognition of this latter type of procedural approach leads to the understanding that the substantive-procedural distinction categorization of strategies is better viewed as a continuum rather than rigid and discrete classes. The use

of the distinction in the textual discussion is not intended to mislead the unwary reader, but rather to simplify the analysis and make clear that problems may be attacked or they may be approached.

39. As in footnote 1, the term "resources" here is used in a broad sense. It refers to the things that humanity uses to support and enhance existence.

40. Godschalk explains the different strategies for managing resources on the basis of our perceptions of resource availability. In a setting where resources are viewed as scarce, Godschalk points to the appropriate strategy for allocating resources. He says:

*Discovery of the real effects of the limits to growth has been one of the rudest shocks of this decade, leading to speculation that America is entering an era of scarcity in which our values and institutions must be radically changed if we are to survive....*

*If scarcity does become a way of life, what will this mean for those of us whose concern is with state growth policy? The most obvious effect, and one that is already apparent in some states, is a re-examination of the concept of growth and its place in our values and assumptions. Instead of an open-ended notion of growth in which the sky is the limit, current references to growth include qualifying phrases such as "limited," "managed," or even "no." For years the goals and policies of state government have revolved around the pursuit of economic growth, and millions of public dollars have been spent in advertising, persuasion, and assistance to new business and industrial firms willing to establish or relocate within the borders of a particular state. The degree to which state planning was dominated by a pursuit-of-growth policy is evidenced in the many state agencies of planning and economic development still in existence. Tension between the values of planning and those of economic development has always existed, but in states where growth limits are being approached, as in California or Florida, the tension is serious and the conflicts are demanding difficult choices....*

*A final characteristic of state growth policy in an era of scarcity involves looking at the other side of the coin of demand-based planning. When the prevailing ethic was based on growth, planning methods were geared to identify, encourage, and meet the demands of growth. Planners traditionally have studied business and population trends, estimated future levels of demand (which they hoped would grow steadily), and figured out how much land and services should be supplied to accommodate the projected growth. The starting point was demand; and land, energy, air, and water were seemingly infinite factors of production to be exploited. However, when these resources became scarce in certain areas, planning methods began to*

*turn toward supply as a starting point. Planners now are starting to study the capacity of the environment to absorb man-made uses before changing irreversibly, to estimate the amount of growth that could be accommodated before encountering limits of the ecological system, and to devise policies and regulations to manage the use of the finite stock of resources available.*

David R. Godschalk, "State Growth Management: A Carrying Capacity Policy," *Management & Control of Growth*, Randall W. Scott, ed., Vol. III (Washington: Urban Land Institute, 1975), pp. 328-329. Such strategies apply also to settings with differing levels of control of social forces.

41. Theoretically, in an island setting as geographically isolated as Hawaii's, it is possible to strictly regulate the inflow and outflow of people. To recognize that this is true, it is only necessary to look within the State at the island of Niihau and the relative degree of access available to other residents of the State. However, application of this general rule of strict control is not appropriate where the island is governed by principles found in the United States Constitution. This is because constitutional requirements like the equal protection clause and the commerce clause place strict guidelines on the types of regulations that can be implemented in controlling the island's peoples and relations with other jurisdictions. See Appendix B. Such constitutional restrictions on the types of control alternatives available to the island are described as external social forces above. The distinction between the strategies discussed above is important because it recognizes that such external forces should be dealt with and not fought. Considerable energy may be expended in trying to establish control over those types of external forces, e.g., adopting proposals of questionable constitutionality. However, since such external forces are usually governed by decision processes over which there is little power, it is more likely than not that such attempts would end in failure. The alternative is to deal with such external forces instead of fighting them. A manner for doing so is explained here.

42. To rely on a growth management tool that is inappropriate would be synonymous with using the wrong tool for a job. There are two possible consequences for using the wrong tool. First, the job may not get done. For example, if the State has little control over the movement of people to and from the U.S. mainland, then it could not have much impact on stopping such movement. Individual decisions made by persons on the mainland and the constitutional standards constraining the options for state action in this area together determine who and how many persons will be residents of Hawaii.

A second consequence may be even more undesirable. An artist may destroy a painting by using a brush too large for the finishing touches. In the same manner, using a growth control tool that is inappropriate might destroy the Hawaiian quality of life which called for use of the tool. Take, for example, the Petaluma approach to limiting housing construction to 500 units a year as a

means for controlling population growth. In Hawaii, where the existing housing supply is viewed as inadequate, such a severe constraint on the number of housing units available in the future would be associated with a decline in the quality of life.

43. See discussion above.

44. *Ibid.*

45. Among the four alternatives, land banking, tourism development licensing, state land regulation, and the point system, two have been found to have no effect on any of the contributing sources to population growth. Neither land banking nor the point system appear to have an impact on deterring growth in net in-migration, reducing immigration, reducing the number of tourists, or keeping the birth rate down. The tourism development licensing alternative would affect the amount of net in-migration, control the size of the tourist population, and tend to keep the birth rate down. The tourism development licensing alternative has undesirable side effects. However, it does address the population growth question in a positive way and is an appropriate type of strategy for minimizing the risks of state action in this area. It may be argued that the licensing program may be classified as substantive because it sets a maximum ceiling on the hotel units built. However, because the licensing scheme considered here is temporary and only applies to the year 1985, it was determined that the proposal also has incremental qualities that make it procedural. This alternative, along with other process- and supply-oriented strategies warrant further examination as mechanisms for managing Hawaii's future population growth.

46. Whether any population growth mechanisms are adopted as state programs will be determined by many factors. Interest groups in our communities may well disagree as to what factors contributing to the Hawaiian quality of life are most important. Environmental, aesthetic, and economic factors are sure to weigh differently in the minds of various segments of Hawaii's peoples. Such differences are sure to be great among people who have prided themselves with their diversity of ethnic and cultural values.

Yet, as these groups come together in Hawaii's political processes to resolve such disputes in values, the basic types of policy choices are clear. There are only two. Given the uncertainty inherent in managing the future, one choice calls for social experimentation. The State can adopt programs hoping that they will deter population growth without producing unintended consequences that are intolerable in magnitude. The other choice is to wait. Other jurisdictions in the United States and abroad are also concerned with population growth. A few are currently experimenting with growth control mechanisms but it would be premature to conclude that any of those social experiments have succeeded. The choice is to wait for the development and refinement of a tested growth control mechanism. Consideration of those choices will be guided by the risk we as a State wish to incur and the perceived number of years we have before the options for governmental action are severely constrained.

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## APPENDICES

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## Appendix A

### COMPONENTS OF POPULATION GROWTH

#### 1. COMPONENT BREAKDOWN OF POPULATION GROWTH ANNUAL AVERAGES

Actual Numbers (Ave.)

Component	1960-65	1965-70	1970-75	1960-75
Natural Increase	9,260	7,700	7,880	8,280.0
Net In-Migration	2,680	4,400	2,740	3,273.3
Immigration	600	3,660	4,860	3,040.0
Military	- 40	- 1,680	2,340	206.7
Tourist	1,100	4,060	6,240	3,800.0
Total	13,600	18,140	24,060	18,600.0

Source: Hawaii, Department of Planning and Economic Development, Components of Change in Hawaii's Population, 1960-1975 (Honolulu: 1976), Appendix.

#### 2. PER CENT OF POPULATION INCREASE CONTRIBUTED BY COMPONENTS

Component	1960-65	1965-70	1970-75	1960-75
Natural Increase	68.1%	42.4%	32.7%	44.5%
Net In-Migration	19.7	24.3	11.4	17.6
Immigration	4.4	20.2	20.2	16.3
Military	- .3	- 9.3	9.7	1.1
Tourist	8.1	22.4	25.9	20.4
Total*	100.0%	100.0%	99.9%	99.9%

\*Does not total to 100% due to rounding.

### 3. COMPONENT BREAKDOWN OF ANNUAL GROWTH OF TOTAL POPULATION

Total Increase						
Year	Natural Increase	Net In-Migration	Immigration	Military	Tourists	Total
1960-61	8,900	4,300	600	3,500	200	17,500
1961-62	9,900	- 4,900	500	19,300	1,100	25,900
1962-63	9,300	9,800	800	-21,200	2,200	900
1963-64	9,100	-13,400	700	21,300	700	18,400
1964-65	9,100	17,600	400	-23,100	1,300	5,300
1965-66	8,100	- 1,000	1,900	- 2,500	3,700	10,200
1966-67	7,700	900	2,900	600	6,700	18,800
1967-68	7,100	3,100	2,900	- 1,100	4,800	16,800
1968-69	7,000	12,600	4,200	- 8,100	4,900	20,600
1969-70	8,600	6,400	6,400	2,700	200	24,300
1970-71	8,600	7,000	6,100	2,100	4,300	28,100
1971-72	7,900	4,400	5,300	5,300	9,400	32,300
1972-73	7,800	900	3,900	10,200	10,300	33,100
1973-74	7,300	1,700	4,000	- 2,500	4,400	14,900
1974-75	7,800	- 300	5,000	- 3,400	2,800	11,900

Source: Hawaii, Department of Planning and Economic Development, Components of Change in Hawaii's Population Growth, 1960-1975 (Honolulu: 1976), Appendix.

### 4. COMPONENT BREAKDOWN OF ANNUAL GROWTH OF TOTAL POPULATION

Per Cent of Increase						
Year	Natural Increase	Net In-Migration	Immigration	Military	Tourists	Total
1960-61	1.36%	.66%	.09%	.54%	.03%	2.68%
1961-62	1.48	- .73	.07	2.88	.16	3.86
1962-63	1.34	1.41	.11	-3.04	.32	.14
1963-64	1.30	-1.92	.10	3.05	.10	2.63
1964-65	1.27	2.46	.06	-3.23	.18	.74
1965-66	1.12	- .14	.26	- .35	.51	1.40
1966-67	1.05	.12	.40	.08	.92	2.57
1967-68	.95	.41	.39	- .15	.64	2.24
1968-69	.91	1.64	.55	-1.06	.64	2.68
1969-70	1.09	.81	.81	.34	.03	3.08
1970-71	1.06	.86	.75	.26	.53	3.46
1971-72	.94	.52	.63	.63	1.12	3.84
1972-73	.89	.10	.45	1.17	1.18	3.79
1973-74	.81	.19	.44	- .28	.49	1.65
1974-75	.85	- .03	.54	- .37	.30	1.29

#### 5. ANNUAL AVERAGE OF NATURAL INCREASE ESTIMATES

Year	Births	Deaths	Natural Increase
1960-65	12,620	3,360	9,260
1965-70	11,380	3,680	7,700
1970-75	11,860	3,980	7,880

#### 6. ANNUAL AVERAGE OF NET IN-MIGRATION ESTIMATES

Year	In-Migration	Out-Migration	Net In-Migration
1960-65	11,620	8,940	2,680
1965-70	19,720	15,320	4,400
1970-75	21,600	18,860	2,740

#### 7. ANNUAL AVERAGE OF IMMIGRATION ESTIMATES

Year	Alien Arrivals	Deaths, Emigration, and Interstate Migration	Immigration
1960-65	1,780	1,180	600
1965-70	5,160	1,500	3,660
1970-75	7,060	2,200	4,860

Source: Hawaii, Department of Planning and Economic Development, Components of Change in Hawaii's Population Growth, 1960-1975 (Honolulu: 1976), Appendix.



## 8. ESTIMATES OF NATURAL INCREASE

### Actual Numbers

Year	In-Migration	Out-Migration	Net In-Migration
1960-61	11,700 <sup>1</sup>	7,400 <sup>1</sup>	4,300
1961-62	8,800	13,700	- 4,900
1962-63	11,300	1,500	9,800
1963-64	11,800	25,200	-13,400
1964-65	14,500	- 3,100	17,600
1965-66	12,600	13,600	- 1,000
1966-67	17,200	16,300	900
1967-68	16,600	13,500	3,100
1968-69	27,700	15,100	12,600
1969-70	24,500	18,100	6,400
1970-71	25,000	18,000	7,000
1971-72	24,800	20,400	4,400
1972-73	22,600	21,700	900
1973-74	19,100	17,400	1,700
1974-75	16,500	16,800	- 300
1975-76	21,400 <sup>2</sup>	(NA)	(NA)

Source: (1) Hawaii, Department of Planning and Economic Development, Components of Change in Hawaii's Population Growth, 1960-1975 (Honolulu: 1976), Appendix.

(2) Hawaii, Department of Planning and Economic Development, The Population of Hawaii, 1976 (Honolulu: 1977), Table 6.

## 9. ESTIMATES OF NATURAL INCREASE

Per Cent of Total Population

Year	Births	Deaths	Natural Increase
1960-61	1.87%	-.51%	1.36%
1961-62	1.95	-.48	1.48
1962-63	1.82	-.49	1.34
1963-64	1.81	-.50	1.30
1964-65	1.75	-.47	1.27
1965-66	1.61	-.49	1.12
1966-67	1.53	-.48	1.05
1967-68	1.45	-.51	.95
1968-69	1.42	-.51	.91
1969-70	1.56	-.47	1.09
1970-71	1.53	-.47	1.06
1971-72	1.42	-.48	.94
1972-73	1.35	-.46	.89
1973-74	1.26	-.45	.81
1974-75	1.28	-.43	.85
1975-76	1.27	-.44	.83

# 10. ESTIMATES OF CIVILIAN NET IN-MIGRATION

## Actual Numbers

Year	Births	Deaths	Natural Increase
1960-61	12,200 <sup>1</sup>	3,300 <sup>1</sup>	8,900
1961-62	13,100	3,200	9,900
1962-63	12,700	3,400	9,300
1963-64	12,600	3,500	9,100
1964-65	12,500	3,400	9,100
1965-66	11,600	3,500	8,100
1966-67	11,200	3,500	7,700
1967-68	10,900	3,800	7,100
1968-69	10,900	3,900	7,000
1969-70	12,300	3,700	8,600
1970-71	12,400	3,800	8,600
1971-72	11,900 <sup>2</sup>	4,000 <sup>2</sup>	7,900
1972-73	11,800	4,000	7,800
1973-74	11,400	4,100	7,300
1974-75	11,800	4,000	7,800
1975-76	11,900	4,100	7,800

Source: (1) Hawaii, Department of Planning and Economic Development, Components of Change in Hawaii's Population Growth, 1960-1975 (Honolulu: 1976), Appendix.

(2) Hawaii, Department of Planning and Economic Development, The Population of Hawaii, 1976 (Honolulu: 1977), Table 6.

# 11. ESTIMATES OF CIVILIAN NET IN-MIGRATION

Per Cent of Total Population

Year	In-Migration	Out-Migration	Net In-Migration
1960-61	1.79%	1.13%	.66%
1961-62	1.31	2.04	- .73
1962-63	1.62	.22	1.41
1963-64	1.69	3.61	-1.92
1964-65	2.03	- .43	2.46
1965-66	1.75	1.89	- .14
1966-67	2.35	2.23	.12
1967-68	2.21	1.80	.41
1968-69	3.61	1.97	1.64
1969-70	3.11	2.30	.81
1970-71	3.08	2.22	.86
1971-72	2.95	2.43	.52
1972-73	2.59	2.49	.10
1973-74	2.11	1.92	.19
1974-75	1.75	1.83	- .03
1975-76	2.28	(NA)	(NA)

## 12. ESTIMATES OF IMMIGRATION

### Actual Numbers

Year	Alien Arrivals	Deaths, Emigration, and Interstate Migration	Immigration
1960-61	1,800 <sup>1</sup>	1,200 <sup>1</sup>	600
1961-62	2,000	1,500	500
1962-63	1,800	1,000	800
1963-64	1,600	900	700
1964-65	1,700	1,300	400
1965-66	3,100	1,200	1,900
1966-67	3,800	900	2,900
1967-68	4,700	1,800	2,900
1968-69	5,200	1,000	4,200
1969-70	9,000	2,600	6,400
1970-71	6,100	-0-	6,100
1971-72	6,800	1,500	5,300
1972-73	6,900	3,000	3,900
1973-74	6,500	2,500	4,000
1974-75	9,000	4,000	5,000
1975-76	8,000 <sup>2</sup>	(NA)	(NA)

Source: (1) Hawaii, Department of Planning and Economic Development, Components of Change in Hawaii's Population Growth, 1960-1975 (Honolulu: 1976), Appendix.

(2) Hawaii, Department of Planning and Economic Development, The Population of Hawaii, 1976 (Honolulu: 1977), Table 6.

### 13. ESTIMATES OF IMMIGRATION

Per Cent of Total Population

Year	Alien Arrivals	Deaths, Emigration, and Interstate Migration		Immigration
1960-61	.28%	-.18%		.09%
1961-62	.30	-.22		.07
1962-63	.26	-.14		.11
1963-64	.23	-.13		.10
1964-65	.24	-.18		.06
1965-66	.43	-.17		.26
1966-67	.52	-.12		.40
1967-68	.63	-.24		.39
1968-69	.68	-.13		.55
1969-70	1.14	-.33		.81
1970-71	.75	-0-		.75
1971-72	.81	-.18		.63
1972-73	.79	-.34		.45
1973-74	.72	-.28		.44
1974-75	.98	-.43		.54
1975-76	.85	(NA)		(NA)

14. THE NUMBER OF PERSONS IN HAWAII HAS INCREASED SINCE  
STATEHOOD UNDER THREE DEFINITIONS OF POPULATION

Year	Civilian* Population	Resident Population	Total Population
1960-61	522,100	641,500	653,300
1961-62	535,800	658,700	670,600
1962-63	541,300	683,500	696,600
1963-64	561,200	682,200	697,600
1964-65	557,600	699,900	715,900
1965-66	584,600	703,800	721,100
1966-67	593,600	710,300	731,400
1967-68	605,200	722,500	750,200
1968-69	618,300	734,500	766,900
1969-70	642,100	750,200	787,600
1970-71	663,400	774,200	811,800
1971-72	685,100	798,000	839,900
1972-73	702,700	820,900	872,100
1973-74	715,300	843,700	905,300
1974-75	728,200	854,100	920,100
1975-76	745,900	868,400	937,200
1976-77	763,700	886,600	965,200

Source: Hawaii, Department of Planning and  
Economic Development, The Population  
of Hawaii, 1976 (Honolulu: 1977),  
Table 1.

\*Includes natural increase, immigration, and  
in-migration.

15. THE CIVILIAN POPULATION IS FOUR TIMES GREATER THAN THE  
MILITARY-RELATED PERSONS AND TOURISTS COMBINED

Actual Numbers

Period	Civilian	Military- Related	Tourists
1960-61	522,100	119,400	11,800
1961-62	535,800	122,900	12,000
1962-63	541,300	142,200	13,100
1963-64	561,200	121,000	15,300
1964-65	557,600	142,300	16,000
1965-66	584,600	119,200	17,300
1966-67	593,600	116,700	21,000
1967-68	605,200	117,300	27,700
1968-69	618,300	116,200	32,500
1969-70	642,100	108,100	37,400
1970-71	663,400	110,800	37,600
1971-72	685,100	112,900	41,900
1972-73	702,700	118,200	51,300
1973-74	715,300	128,400	61,600
1974-75	728,200	125,900	66,000
1975-76	745,900	122,500	68,800
1976-77	763,700	122,900	78,500

Source: Hawaii, Department of Planning and Economic  
Development, The Population of Hawaii 1976  
(Honolulu: 1977), Table 1.



16. MILITARY AND TOURIST COMPONENT GROWTH

Annual Increase

Year	Civilian*	Military- Related	Tourists
1960-61	13,700	3,500	200
1961-62	5,500	19,300	1,100
1962-63	19,900	-21,200	2,200
1963-64	- 3,600	21,300	700
1964-65	27,000	-23,100	1,300
1965-66	9,000	- 2,500	3,700
1966-67	11,600	600	6,700
1967-68	13,100	- 1,100	4,800
1968-69	23,800	- 8,100	4,900
1969-70	21,300	2,700	200
1970-71	21,700	2,100	4,300
1971-72	17,600	5,300	9,400
1972-73	12,600	10,200	10,300
1973-74	12,900	- 2,500	4,400
1974-75	17,700	- 3,400	2,800
1975-76	17,800	400	9,700

Source: Hawaii, Department of Planning and Economic Development, Components of Change in Hawaii's Population Growth, 1960-1975 (Honolulu: 1976), Appendix.

\*Includes natural increase, immigration, and in-migration.

# 17. MILITARY AND TOURIST COMPONENT GROWTH

Per Cent of Total Population

Year	Civilian*	Military- Related	Tourists
1960-61	2.10%	.54%	.03%
1961-62	.82	2.88	.16
1962-63	2.86	-3.04	.32
1963-64	- .52	3.05	.10
1964-65	3.77	-3.23	.18
1965-66	1.25	- .35	.51
1966-67	1.59	.08	.92
1967-68	1.75	- .15	.64
1968-69	3.10	-1.06	.64
1969-70	2.70	.34	.03
1970-71	2.67	.26	.53
1971-72	2.10	.63	1.12
1972-73	1.44	1.17	1.18
1973-74	1.42	- .28	.49
1974-75	1.92	- .37	.30
1975-76	1.90	.04	1.03

\*Includes natural increase, immigration, and in-migration.

# 18. MILITARY AND TOURIST COMPONENT GROWTH

Per Cent of Increase

Year	Civilian*	Military- Related	Tourists
1960-61	2.62%	2.93%	1.69%
1961-62	1.03	15.70	9.17
1962-63	3.68	-14.91	16.79
1963-64	-0.64	17.60	4.58
1964-65	4.84	-16.23	8.13
1965-66	1.54	- 2.10	21.39
1966-67	1.95	.51	31.90
1967-68	2.16	- .94	17.33
1968-69	3.85	6.97	15.08
1969-70	3.32	2.50	.53
1970-71	3.27	1.90	11.44
1971-72	2.57	4.69	22.43
1972-73	1.79	8.63	20.08
1973-74	1.80	- 1.95	7.14
1974-75	2.43	- 2.70	4.24
1975-76	2.39	.33	14.10

\*Includes natural increase, immigration, and in-migration.

# 19. COMPONENTS OF CIVILIAN POPULATION

## Total Increase

Year	Base Year Civilian Population	Natural Increase	Net In-Migration	Immigration	Total Increase
1960-61	522,100	8,900	4,300	600	13,800
1961-62	535,800	9,900	- 4,900	500	5,500
1962-63	541,300	9,300	9,800	800	19,900
1963-64	561,200	9,100	-13,400	700	- 3,600
1964-65	557,600	9,100	17,600	400	27,100
1965-66	584,600	8,100	- 1,000	1,900	9,000
1966-67	593,600	7,700	900	2,900	11,500
1967-68	605,200	7,100	3,100	2,900	13,100
1968-69	618,300	7,000	12,600	4,200	23,800
1969-70	642,100	8,600	6,400	6,400	21,400
1970-71	663,400	8,600	7,000	6,100	21,700
1971-72	685,100	7,900	4,400	5,300	17,600
1972-73	702,700	7,800	900	3,900	12,600
1973-74	715,300	7,300	1,700	4,000	13,000
1974-75	728,200	7,800	- 300	5,000	12,500

Source: Hawaii, Department of Planning and Economic Development,  
The Population of Hawaii, 1976 (Honolulu: 1977),  
 Table 1.

## 20. COMPONENTS OF CIVILIAN POPULATION INCREASE RATE

### Per Cent of Civilian Population

Year	Natural Increase	Net In-Migration	Immigration	Total Increase*
1960-61	1.70%	0.82%	0.11%	2.64%
1961-62	1.85	-0.91	0.09	1.03
1962-63	1.72	1.81	0.15	3.68
1963-64	1.62	-2.39	0.12	-0.64
1964-65	-1.63	3.16	0.07	4.86
1965-66	1.39	-0.17	0.33	1.54
1966-67	1.30	0.15	0.49	1.94
1967-68	1.17	0.51	0.48	2.16
1968-69	1.13	2.04	0.68	3.85
1969-70	-1.34	1.00	1.00	3.33
1970-71	1.30	1.06	0.92	3.27
1971-72	1.15	0.64	0.77	2.57
1972-73	1.11	0.13	0.56	1.79
1973-74	1.02	0.24	0.56	1.82
1974-75	1.07	-0.04	0.69	1.72

Source: Hawaii, Department of Planning and Economic Development, Components of Change in Hawaii's Population Growth, 1960-1975 (Honolulu: 1976), Appendix.

\*Rows do not add up due to rounding.

## 21. ESTIMATES OF NATURAL INCREASE RATE

Per Cent of Civilian Population

Year	Births	Deaths	Natural Increase*
1960-61	2.34%	-0.63%	1.70%
1961-62	2.44	-0.60	1.85
1962-63	2.35	-0.63	1.72
1963-64	2.25	-0.62	1.62
1964-65	2.24	-0.61	1.63
1965-66	1.98	-0.60	1.39
1966-67	1.89	-0.59	1.30
1967-68	1.80	-0.63	1.17
1968-69	1.76	-0.63	1.13
1969-70	1.92	-0.58	1.34
1970-71	1.87	-0.57	1.30
1971-72	1.74	-0.58	1.15
1972-73	1.68	-0.57	1.11
1973-74	1.59	-0.57	1.02
1974-75	1.62	-0.55	1.07

Source: Hawaii, Department of Planning and Economic Development, Components of Change in Hawaii's Population Growth, 1960-1975 (Honolulu: 1976), Appendix.

\*Rows do not add up due to rounding.

## 22. ESTIMATES OF CIVILIAN IN-MIGRATION RATES

Per Cent of Civilian Population

Year	In-Migration	Out-Migration	Net In-Migration*
1960-61	2.24%	-1.42%	0.82%
1961-62	1.64	-2.56	-0.91
1962-63	2.09	-0.28	1.81
1963-64	2.10	-4.49	-2.39
1964-65	2.60	0.56	3.16
1965-66	2.16	-2.33	-0.17
1966-67	2.90	-2.75	0.15
1967-68	2.74	-2.23	0.51
1968-69	4.48	-2.44	2.04
1969-70	3.81	-2.82	1.00
1970-71	3.77	-2.71	1.06
1971-72	3.62	-2.98	0.64
1972-73	3.22	-3.09	0.13
1973-74	2.67	-2.43	0.24
1974-75	2.27	-2.31	-0.04

Source: Hawaii, Department of Planning and Economic Development, Components of Change in Hawaii's Population Growth, 1960-1975 (Honolulu: 1976), Appendix.

\*Rows do not add up due to rounding.

## 23. ESTIMATES OF IMMIGRATION RATES

Per Cent of Civilian Population

Year	Alien Arrivals	Deaths, Emigration, and Interstate Migration	Immigration
1960-61	0.34%	-0.23%	0.11%
1961-62	0.37	-0.28	0.09
1962-63	0.33	-0.18	0.15
1963-64	0.29	-0.16	0.12
1964-65	0.30	-0.23	0.07
1965-66	0.53	-0.21	0.33
1966-67	0.64	-0.15	0.49
1967-68	0.78	-0.30	0.48
1968-69	0.84	-0.16	0.68
1969-70	1.40	-0.40	1.00
1970-71	0.92	-0-	0.92
1971-72	0.99	-0.22	0.77
1972-73	0.91	-0.43	0.56
1973-74	1.24	-0.35	0.56
1974-75	1.05	-0.55	0.69

Source: Hawaii, Department of Planning and Economic Development, Components of Change in Hawaii's Population Growth, 1960-1975 (Honolulu: 1976), Appendix.



## 24. RESIDENT POPULATION FORECASTS FOR HAWAII

Projection	1990	2000
D-0	932,800	993,100
D-1	1,126,600	1,328,700
D-2	1,150,000	1,400,500
E-0	922,400	967,700
E-1	1,109,200	1,282,600
E-2	1,131,700	1,349,200
F-0	913,700	940,900
F-1	1,096,000	1,247,900
F-2	1,117,900	1,311,200
I-A*	989,100	1,068,500
II-A*	972,900	1,021,200
III-A*	960,600	987,400
II-A	972,500	1,021,100
II-B	882,300	918,000
II-C	1,092,900	1,268,600
II-D	1,513,600	2,728,300
II-E	1,109,700	1,256,700
II-F	1,091,500	1,225,900
CII-A+	1,062,000	1,157,000
CII-B+	1,086,000	1,193,000
CII-C+	1,133,000	1,300,000

Source: Hawaii, Department of Planning  
and Economic Development, Trends  
and Projections and Revised  
Projections.

+Denotes most recent forecasts of the U.S.  
Bureau of the Census.

## THE AVERAGE ANNUAL GROWTH

A compound growth formula was used for determining the average annual growth rate. It was used because the population base for a given year is composed of the prior year's base and the prior year's growth. The basic formula is as follows:

$$P_2 = P_1 \times e^{rt}$$

where:

$P_2$  = the total population after  $t$  years

$P_1$  = the total population in the base year

$r$  = the average annual growth rate

$e$  = the base of natural logarithms

$t$  = the number of years  $> 1$ .

This translates into the average annual growth rate formula as:

$$r = \frac{\log_e \left( \frac{P_2}{P_1} \right)}{t}$$

See, Walter Nicholson, Microeconomic Theory, Basic Principles and Extensions (Hinsdale, Ill.: Dryden Press, Inc., 1972), pp. 139-141; and Eleanor C. Nordyke, The Peopling of Hawaii (Honolulu: The University Press of Hawaii, 1977), Table 2.

## **Appendix B**

### **SELECTED ALTERNATIVE PROPOSALS**

The purpose of this appendix is to compare eight alternative growth management techniques. The appendix is divided into three parts. Part I provides a general description of each of the eight proposals.

Part II discusses constitutional restrictions on the use of residency requirements as a tool for controlling population growth. The legal standards identified and summarized in that part provide a framework within which growth control proposals must be considered. In addition, they provide the basis for assessing whether the growth management proposals act to protect individual freedoms in Part III.

The third segment to this appendix considers how each of the proposals relate to a number of variables affecting quality of life. For the purposes of the analysis contained in that part, it was assumed that for any change called for by a proposal, all other variables were held constant. Such an analytical approach is required by the nature of the proposals and the context within which they are expected to operate. The discussion in this part provides the basis for strategies for dealing with growth management offered in chapter IV.

## PART I. THE EIGHT ALTERNATIVES

This part describes eight proposals frequently associated with the issues raised by advocates of population growth management. The alternatives differ in approach and breadth of impact. Some of the proposals reflect schemes presently in existence in other jurisdictions, e.g., land banking and the Petaluma scheme. Others, like the program for licensing tourism growth and the residency limitation on public assistance awards, are relatively new and have gained currency through recommendation by the Governor's Growth Management Task Force. One of the alternatives described here represents a model frequently discussed and considered in other jurisdictions--state land use regulation. Such a regulatory process is not new to Hawaii and has been in operation for numerous years. However, the state land regulation alternative is included in this analysis as the status quo proposal to dealing with the issues associated with controlling population growth.

### Impact Taxes

One type of growth management technique involves the use of taxation to influence the quality of growth and to raise revenues to meet fiscal needs. This section offers California's utilization of impact taxes as a framework for implementation.

Generally, impact taxes involve assessments against a developer to cover those costs of a development project that would otherwise be borne by local government.<sup>1</sup> Typically, impact taxes are added to development exactions and are most commonly utilized to induce the developer to install physical capital infrastructures; e.g., roads, drainage facilities, parks/recreation areas, actually needed on the subdivision site.<sup>2</sup>

While both impact taxes and exactions attempt to allocate public costs of new development to the development itself, impact taxes have several characteristics that distinguish them from exactions. Impact taxes provide an immediate source of revenue to help ease the burden new residents place on existing community facilities and services.<sup>3</sup> Further, exactions, especially

those for facilities provided by the developer, are unlikely to exceed the actual cost of those facilities whereas there is no such natural limit for impact taxes.<sup>4</sup>

To indicate how such impact taxes could be implemented, the rest of the discussion focuses on California's impact tax scheme as authorized by the Subdivision Map Act (hereinafter referred to as the "Map Act").<sup>5</sup> The provisions of the Map Act apply to subdivided homes,<sup>6</sup> condominiums,<sup>7</sup> and community apartments.<sup>8</sup> Leased apartments are explicitly excluded from its coverage.

The Map Act authorizes local governments to require by ordinance payment of fees for defraying the costs, actual or estimated, of constructing planned sewer facilities.<sup>9</sup> The fees must be fairly apportioned within the area to be benefitted either on the basis of benefits conferred or on the need for such facilities created by the proposed subdivision.<sup>10</sup> The fee may not exceed the pro rata share of the amount of the total actual or estimated costs of the facilities which would be assessable if such costs were apportioned uniformly on a per acre basis.<sup>11</sup>

The Map Act also provides that moneys collected for the construction of sewer and drainage facilities shall be used solely for the construction or reimbursement for construction of such facilities.<sup>12</sup> However, should there be a surplus after completion of the facilities, the local government may elect one of three courses of action:<sup>13</sup>

- (1) Transfer the surplus to a general fund provided such amount shall not exceed 5 per cent of the total amount expended;
- (2) Use the surplus for construction of additional facilities in the area;
- (3) Refund the surplus.

The Map Act further authorizes local ordinances to require payment of fees for defraying the actual or estimated cost of constructing bridges and major thoroughfares,<sup>14</sup> and to require payment of fees in lieu of dedication of land for park or recreational purposes as conditions to approval of the subdivision.<sup>15</sup> However, unlike the sewer and drainage fee, surplus moneys collected can be

used only for their collected purpose; there is no option to transfer the surplus to a general fund.<sup>16</sup>

While having developers "pay their own way" via impact taxes may result in fiscal and environmental benefits to local government and the community, impact taxes may also raise the cost of housing. It is argued that impact taxes become part of the cost of development and the consumers ultimately bear the burden of the taxes.<sup>17</sup> Other objections to impact taxes are (1) it is unfair to let new residents pay for services that benefit the entire community, and (2) impact taxes are based on the belief that increased cost of services are due to new residents, which may be faulty reasoning.<sup>18</sup>

### Public Land Banking

Hawaii has recently taken the first step towards establishing a land bank. The recently approved constitutional amendments include a section which provides as follows:<sup>19</sup>

The State shall have the power to acquire interests in real property to control future growth, development and land use within the State. The exercise of such power is deemed to be for a public purpose.

Public land banking has been defined as a "system whereby a governmental entity acquires land available for future development for the purpose of controlling the pace and direction of urban growth".<sup>20</sup> Thus, the government would make available for development those lands on which it deems development desirable and withhold those lands on which no growth was desired. Not only could the government control the rate and location of urban growth, it could also control the nature and quality of growth by allowing only development which conforms with the quality of growth by allowing only development which conforms with the government's planning scheme. Proponents of land banking contend that it is not meant to be a replacement for traditional schemes of land use control, but rather, its integration into existing planning systems would create a more effective total system.<sup>21</sup>

While proponents point to the Swedish experience as an example of the way land banking is supposed to work,<sup>22</sup> no such success story exists in America. This is due in large part to a long standing American tradition of private land ownership which speaks against public acquisition of land for anything other than specifically defined public purposes.<sup>23</sup>

Nevertheless, proponents assert two main objectives for which land banking is well suited: (a) the promotion of more orderly and rational patterns of development instead of sprawl; and (b) the reduction in the cost of land through a more "perfect" market and the elimination of land speculation.<sup>24</sup> To accomplish these objectives, a public corporation land bank must possess both the financial ability and legal authority to purchase or condemn land throughout a broad geographical area.<sup>25</sup> For these reasons, it is recommended that land banks operate on a statewide or metropolitan/regional basis.

In establishing land banks, the use of special purpose public corporations is recommended. A special purpose public corporation is a corporate body authorized by legislative action to function outside the regular structure of local government to finance, construct, and operate revenue producing enterprises.

The financing component of a land bank's enabling legislation would grant the power to borrow money and issue bonds for its corporate purposes and to secure its indebtedness by pledging its own revenues, encumbering its property, or by other means. The land bank should also be authorized to enter into agreements with state and federal governments so as to be able to accept their assistance.

The land bank also would be empowered to hold land in reserve for indefinite periods of time and to sell, lease, or otherwise dispose of land to private developers with appropriate use, development, and design restrictions.

#### Licensing Tourism

Based on the observation that the growth rate of tourism affects Hawaii's growth rate,<sup>26</sup> the Governor's Growth Management Task Force proposed a hotel

allocation and licensing scheme.<sup>27</sup> This scheme seeks to achieve the following growth management goals:<sup>28</sup>

- (1) Promote stable economic growth by managing the growth rate of tourism;
- (2) Reduce population growth caused by in-migration and immigration;
- (3) Encourage new economic growth on the neighbor islands under circumstances acceptable to residents already there;
- (4) To slow down the pace of growth on Oahu.

The proposal establishes an annual allocation of new hotel units for each county up till the year 1985.<sup>29</sup> The program provides for a fixed number of new hotel units to be allocated among the State's counties. The allocated number serves as a ceiling on the total number of new hotel rooms that may be constructed each year.

Within the allocations, the county councils determine the number of new units to be actually constructed taking into account the following factors:<sup>30</sup>

- (1) The number and rate of growth in the number of visitors to the county;
- (2) Forecasts of the future number of visitors to the county;
- (3) The current number of hotel units in the county;
- (4) The rate at which public facilities to accommodate visitor needs can be provided and with due consideration for the public costs of such facilities;
- (5) The availability of transportation facilities and services to accommodate the expected number of visitors to each county;
- (6) Existing and desired densities of hotel units in each visitor destination area in the county;
- (7) Existing and desired population densities in each visitor destination area; such densities shall include de facto and resident populations; and
- (8) Such other factors as are deemed relevant and appropriate, including, but not limited to, zoning and county general and development plans.



The proposed scheme also requires that a certificate of necessity be approved prior to the issuance of a building permit for a new hotel or other transient accommodation.<sup>31</sup> Application for a certificate of necessity is to be filed with the respective county agency and providing the application complies with county criteria and allocation, the certificate may issue. The county has 45 days from the filing date within which to act on applications. Reasons for denial must be made in writing to applicants and challenge of denials must be filed in the appropriate court of jurisdiction within 30 days of denials.

The certificate of necessity expires if the applicant has not filed a building permit application within one year of the issuance of the certificate.<sup>32</sup> The certificate may not be sold or transferred to any other person, partnership, corporation, or other legal entity.

#### Limiting Housing and Point System for Development - Petaluma and Ramapo

The city of Petaluma is located in California's Sonoma County, 35 miles north of San Francisco.<sup>33</sup> Petaluma's population numbered approximately 10,000 in 1950 and had increased to 14,000 by 1960.<sup>34</sup> A surge of new construction in 1968 added 1,000 persons to the city's population and an additional 1,000 persons the following year.<sup>35</sup> The population increased at an even faster rate in 1970 and 1971, resulting in a population of 30,000 people by the end of 1971.<sup>36</sup>

Concern over this rapid growth rate and its detrimental effects on Petaluma's small town character and environment resulted in the adoption of a series of resolutions hailed as "the beginning of a kind of development control this country has not yet seen".<sup>37</sup> Together they created a program for managing land use.

The first resolution, adopted in June 1971, was the Official Development Policy which sets forth, among others, the following goals:<sup>38</sup>

- (1) To protect the city's small town character and surrounding open space by controlling the city's future rate and distribution of growth.

- (2) To limit the growth rate to approximately 500 dwelling units annually.

The following March, the city council adopted the Environmental Design Plan (hereinafter referred to as the "EDP") which, among other things, called for the city to eventually establish a greenbelt park beyond which growth would not be permitted.<sup>39</sup>

In August 1972, the Residential Development Control System (hereinafter referred to as "RDCS") was adopted to provide a procedure for allocating the annual development quota.<sup>40</sup> The RDCS requires all proposals for the development of five or more units to be evaluated annually by the Residential Development Evaluation Board (hereinafter referred to as "Board"). Applications must be submitted by September of each development year which begins on May 1.<sup>41</sup>

The seventeen-member Board is composed of two members from the City Council, two members from the Planning Commission, one member from each of the four local school boards, three business and professional people, and six citizens at large.<sup>42</sup> The Board holds four regular meetings annually commencing the first Monday in October and continuing at two-week intervals. At the second meeting each year, the Board examines each application for conformity with the general plan and the EDP. Unless the application receives a two-thirds vote by the Board of compliance with the general plan and the EDP, the application cannot be further considered. No appeal lies from the Board's decision on this initial determination.

Following this initial determination, the Board rates each proposal. The rating system consists of two general categories, service availability and design quality, with a fixed minimum of points required in each category for final approval. This point system for rating proposals was modeled after that implemented in the form of Ramapo, New York. Each of the six criteria under service availability is assigned a maximum of five points and two-thirds of the Board must vote a full five points on any criterion or the application receives no votes on that criterion. To be eligible for final approval, an application must achieve a rating of at least 25 points for service availability.<sup>43</sup>

The next step in the rating process involves design quality under which there are eight criteria worth a maximum of ten points each. At least fifty points are required for approval. At this point, developers are granted fifteen-minute hearings before the Board.

Following the voting, results are published in a local newspaper and public hearings are scheduled to provide opportunities for developers to present additional information not known to the Board at the time of initial voting and to request a re-evaluation. A two-thirds vote of the Board is required for re-evaluation.

The Board's evaluations and decisions are then presented to the city council which awards the development allotments. The city council hears "appeals" from the Board's recommendations only from those who "appealed" the Board's original evaluation.

The constitutionality of Petaluma's 500-unit ceiling was challenged by the Construction Industry Association of Sonoma County (hereinafter referred to as the "Association") and the ceiling was upheld by the Ninth Circuit of Appeals.<sup>44</sup> The Court determined that the Association lacked the requisite standing to assert a right-to-travel argument and while it did possess standing to litigate claims personal to it, the Court held the plan was not arbitrary and therefore did not violate the Association's right to due process under the Fourteenth Amendment of the United States Constitution.

Petaluma's predecessor was the timed development plan of the town of Ramapo, New York. With the rapid development of the area, concern over public facilities' availability resulted in a plan, which like Petaluma, required obtaining a special permit for residential development. Approval of a special permit depends on whether standards are met for available facilities and services as measured by a point system.<sup>45</sup>

While Petaluma's plan and Ramapo's plan share many similarities, perhaps the primary difference is that unlike Petaluma, Ramapo did not impose an absolute ceiling on the number of units to be developed in any given year. Further, Ramapo's plan concerned itself primarily with service availability

whereas in Petaluma's plan, environmental and design concerns also played an important role.

### Publicity Campaign

Given the widespread use and effectiveness of advertising in American society, it has been suggested that a "negative" publicity campaign be conducted to deter in-migrants in an effort to control Hawaii's population growth. Such a campaign could take many forms.

One proposal was designed by the Governor's Growth Management Task Force. The Task Force recommended that letters be sent to other state directors of labor informing them of the problems of seeking employment in Hawaii.<sup>46</sup> Presumably, this information would then be disseminated among the states' residents. A supplemental strategy involves the development of a brochure or pamphlet addressing the employment problems and other concerns of potential residents such as the high cost of living and housing. Such a brochure would be made available to potential residents through the Hawaii Visitors Bureau, the Chamber of Commerce, Foreign Consulates, or through "satellite offices" in those states from which most of Hawaii's in-migrants come.<sup>47</sup> It would not be the aim of these programs to discourage tourist arrival in Hawaii.

Both the states of Oregon and Alaska have undertaken similar types of publicity campaigns in the past. The State of Oregon had an "unofficial" negative publicity campaign aimed at preventing more people from settling in Oregon. This campaign of sorts had its most visible proponent in the then Governor, Tom McCall. His plea, in speeches and other messages was "Come visit us again and again.... But for heaven's sake, don't come here to live."<sup>48</sup> McCall also recommended a reduction in the out-of-state tourist advertising budget.<sup>49</sup>

There are no data indicating that the campaigns in Alaska or Oregon had the desired deterrent effect. In fact, there is some feeling that it had the opposite effect of stimulating in-migration.<sup>50</sup>

## Public Assistance

The Governor's Growth Management Task Force proposed a measure that imposed ceilings on General Assistance (GA) benefits to be given to those residents who have been in Hawaii for less than one year.<sup>51</sup> Under this measure, residents of less than one year who applied and were eligible for GA could not receive benefits that exceeded the amount provided in their last place of residence. For example, a person who moved from California to become a Hawaii resident could not receive benefits that exceeded the amount provided in California for one year. If the amount of GA in the last place of residence exceeds the level of assistance in Hawaii, then Hawaii's GA amount would prevail.

There are three state programs which provide financial assistance to Hawaii's residents.<sup>52</sup> Of these programs, only the General Assistance Program is completely state-funded.<sup>53</sup> Under GA, recipients may be given a monthly shelter allowance and a monthly standard allowance. Additionally, recipients are given medical coupons and are eligible for the food stamp program.<sup>54</sup>

Assistance applicants are considered for GA only when they do not qualify for other assistance programs.<sup>55</sup> Additional eligibility requirements are that one be a bona fide resident of Hawaii<sup>56</sup> who is either disabled, at least 55 years of age, or has dependent children in the home.<sup>57</sup>

The purpose of this proposal is to create tax savings for the State while still providing benefits to needy residents. The purpose also is to discourage those persons moving to Hawaii for the relatively generous benefits available.<sup>58</sup>

For the fiscal year 1976, only Pennsylvania, Michigan, and Washington, D.C., exceeded Hawaii in their monthly allowance per recipient.<sup>59</sup> Thus, a person moving from Pennsylvania, Michigan, or Washington, D.C., would be eligible for the maximum GA amounts provided by Hawaii if otherwise eligible. All other persons moving to Hawaii would be limited to the amount available in their place of residence.<sup>60</sup>

## State Land Regulation - The Hawaii Land Use Model

The seven major islands in the Hawaiian chain consist of a little over four million acres, the majority of which are classified as nonurban.<sup>61</sup> Decisions affecting these four million acres are made at both state and county government levels. At the state level, the most important governmental mechanism affecting land use is the State Land Use Law (hereinafter referred to as "Land Use Law").<sup>62</sup>

The Land Use Law established the Land Use Commission (hereinafter referred to as "Commission"), administratively part of the Department of Planning and Economic Development.<sup>63</sup> The Commission consists of nine members, one member from each of the counties and the remainder at large. The members are appointed by the Governor for four-year terms and may not hold other public offices. The members receive no compensation but are reimbursed for actual expenses incurred in the performance of their duties.

The Commission's primary function is to classify all land in the State in one of four land use districts: urban, rural, agriculture, and conservation.<sup>64</sup> In establishing the boundaries of the various districts in each county, the respective county plans are taken into consideration.<sup>65</sup> Any department or agency of the State, including the Commission, any department or agency of the county in which the land is situated, or any person with a property interest in the land sought to be reclassified may petition the Commission for a change in the boundary of a district.<sup>66</sup> Six affirmative votes are required for any boundary amendment.<sup>67</sup>

To guide the Commission in its classification task, the Land Use Law enumerates acceptable activities for each land use district:<sup>68</sup>

- (1) Urban Districts -- include activities as provided by ordinances or regulations of the county within which the district is located.
- (2) Rural Districts -- include activities characterized by low-density residential lots of not more than one dwelling house per half acre and where "city-like" concentrations of people, structures, and services are absent; where small farms are intermingled with low-density residential lots.

- (3) Agricultural Districts -- include activities such as the cultivation of crops, orchards, forage and forestry, animal husbandry, aquaculture, and fish and game propagation.
- (4) Conservation Districts -- include those areas necessary for protecting watersheds, and water resources; protecting scenic and historic areas; providing park lands, wilderness and beach preserves; conserving endemic fish, plants and wildlife; preventing floods and erosion.

On a statewide basis, 1977 statistics show that 3.6 per cent of total area is classified as urban; 48.1 per cent is classified as conservation; 48.1 per cent is classified as agricultural; and only .22 per cent classified as rural.<sup>69</sup> 1964 statistics are not much different: 2.9 per cent classified as urban; 45.3 per cent classified as conservation; 51.7 per cent classified as agriculture; and .16 per cent classified as rural.<sup>70</sup>

In those areas designated as urban, land use regulation is controlled by the county in which they are located. This means that county ordinances specifying zoning, special permits, variances, and other restrictions on land use regulate how the land is used. As such, uses permitted in the urban district reflect local government decisions about land use planning and the trade-offs associated with any particular use permitted.

Use of land in nonurban districts must conform with those activities enumerated in the Land Use Law for the respective district in which the land is situated. Nonconforming uses are allowed only upon the approval by a special permit.<sup>71</sup> Obtaining a special permit is a two-step process, requiring approval by the respective County Land Use Commission and the State Land Use Commission.<sup>72</sup>

The first step in obtaining a special permit is to petition the County Planning Commission, which has the authority to permit certain unusual and reasonable uses other than those for which the district is classified.<sup>73</sup> Approval follows only when the proposed uses would promote the effectiveness and the objectives of the Land Use Law. If a majority of the County Commission approves the petition, the next step is to obtain the approval of the Land Use Commission, which has the power to approve, modify, or deny the county

decision. Denial by either Commission and/or modification by the Land Use Commission is appealable to the appropriate Circuit Court.<sup>74</sup>

Nonconforming uses or buildings may also be permitted if such uses or buildings are in existence on the date of the establishment of any agricultural or rural district.<sup>75</sup> However, no nonconforming use can be expanded or changed to another nonconforming use. Similarly, no nonconforming building can be replaced, reconstructed, enlarged, or changed to another nonconforming use. Further, should any nonconforming use be discontinued for one year, subsequent continuation of such use is prohibited.

The recently enacted Hawaii State Plan is another state mechanism that will affect land use decisions in the future.<sup>76</sup> The Hawaii State Plan (hereinafter referred to as "State Plan") is a comprehensive statewide plan for Hawaii's future. The major goals of the State Plan are to achieve:<sup>77</sup>

- (1) A strong, viable economy characterized by stability, diversity and growth that enables the fulfillment of the needs and expectations of Hawaii's present and future generations;
- (2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people;
- (3) Physical, social and economic wellbeing, for individuals and families in Hawaii, that nourishes a sense of community responsibility, of caring and of participation in community life.

Functional plans aimed at the fulfillment of these broad goals are to be submitted to the 1979 and 1980 legislatures.

Under the State Plan, county general plans should indicate desired population and physical development patterns as well as address the problems unique to the county. Such county plans must implement the State Plan's goals to the extent such implementation is not contrary to the county charter.

While the exact scope of the State Plan's impact on current land use policies is unclear, some hint is provided by the priorities established by the State Plan regarding land resources:<sup>78</sup>



- (1) Preserve and improve shoreline open spaces and scenic resources.
- (2) Seek to utilize Hawaii's limited land resources wisely in order to insure the protection of the environment and the availability of shoreline, conservation lands.
- (3) Seek to accommodate urban growth in existing urban areas while maintaining agricultural lands in agricultural designation.

Until functional plans for implementation are approved by the legislature, interim guidelines established by State Land Laws are in effect.

## PART II. MIGRATION RESTRICTIONS AND INDIVIDUAL LIBERTIES

By Cheryl Keiko Hetherington

### Types of Residence Requirements

One frequently discussed way to control population growth is to prohibit or severely restrict migration to Hawaii. Efforts to directly prohibit immigration have primarily taken the form of some type of residence requirement. Such a requirement is relied upon to distinguish between United States citizens for the purpose of limiting or otherwise causing those persons who are not residents of the State to be disadvantaged for various purposes. Alternative approaches often involve variations on land use regulation. For an overview of the applicable law in that area, see "Selected Legal Issues Related to Growth Management in Hawaii".<sup>79</sup>

There are three types of residence requirements currently used by various jurisdictions: (1) durational, (2) actual/bona fide, and (3) assumption of residence requirements. Definition and examples are given below:

- (1) Durational Residence Requirements -- demand that a person has lived within the jurisdiction for a fixed period of time, usually one year prior to receiving governmental services or benefits.<sup>80</sup>

#### Example:

For resident tuition at the University of Hawaii:<sup>81</sup>

...the basic rule should be that adult and minor students are resident students if the adult students, or in the case of minor students, their parents or guardians have been bona fide residents of this State for at least twelve consecutive months next preceding their first registration at the University. (Emphasis added)

- (2) Actual or Continuing Residence Requirements --demand that a person continue living within a jurisdiction while working for that jurisdiction's local government or receiving governmental benefits.<sup>82</sup>

Example:<sup>83</sup>

Except as hereinafter provided, every appointive officer and employee of Salt Lake City must be a resident at the time of his appointment and must continue a resident of the City while employed by the City. (Emphasis added)

- (3) Assumption-of-Residence or Bona Fide Residence Requirements -- demand that an applicant be a bona fide resident of the jurisdiction when applying for governmental benefits or employment.<sup>84</sup>

Example:<sup>85</sup>

All employees in the service of the government of the State or in the service of any county or municipal subdivision of the State shall be citizens, nationals, or permanent resident aliens of the U.S. and residents of the State at the time of their application for employment. (Emphasis added)

### The Applicable Law

Residence requirements are subject to numerous constitutional objections. Among these are the Equal Protection Clauses of both the United States and Hawaii Constitutions,<sup>86</sup> the Privileges and Immunities Clause,<sup>87</sup> the Commerce Clause,<sup>88</sup> and the Rights of Individuals Clause found in the Hawaii Constitution.<sup>89</sup> A brief discussion of these provisions follows.

The Equal Protection Clause of the 14th Amendment has played a major role in cases involving residence requirements and requires that "No State...shall deny to any person within its jurisdiction the equal protection of the laws."<sup>90</sup> Although originally construed to protect only blacks,<sup>91</sup> such restrictions disappeared by 1886<sup>92</sup> and the clause is broadly applicable to various forms of discrimination.

The 1883 Civil Rights cases<sup>93</sup> held that the Equal Protection Clause was violated only when there had been action by a state that operated to deny equal protection. Subsequently, the Court has recognized state action in a variety of forms of state involvement.<sup>94</sup> Residence requirements clearly involve state action because they are products of legislative action.

In considering laws challenged under the Equal Protection Clause, the Court has evolved more than one test, depending on the interest affected or the classification involved.<sup>95</sup> When the statute impinges on a fundamental right<sup>96</sup> or creates a suspect classification,<sup>97</sup> it must be measured by a strict equal protection test.

Under this strict scrutiny test, a statute is unconstitutional unless the State demonstrates that such a statute is necessary to promote a compelling governmental interest.<sup>98</sup> The State must also show there are no other reasonable ways to achieve those goals with a lesser burden or constitutionally protected activity.<sup>99</sup> Further, the statute must be drawn with precision and must be tailored to serve their legitimate objectives.<sup>100</sup>

The heavy burden the strict scrutiny test imposes on a state is demonstrated by the fact that while the Court has never defined the term "compelling interest", very few governmental interests have been so described: (1) national security;<sup>101</sup> (2) stability of state political systems;<sup>102</sup> and (3) protection of the health of mothers and life of viable fetuses during the last two trimesters of pregnancies.<sup>103</sup>

To invoke this strict scrutiny test, the statute must impinge on a fundamental right. A fundamental right is one that is explicitly or implicitly guaranteed by the Constitution.<sup>104</sup> The following determinations regarding fundamental interests have been made by the Court:

<u>Fundamental Interests</u>	<u>Non-Fundamental Interests</u>
1. Right of interstate travel <sup>105</sup>	1. Right to housing of a certain quality <sup>106</sup>
2. Right to vote <sup>107</sup>	2. Right to welfare <sup>108</sup>
3. Free exercise of religion <sup>109</sup>	3. Right to social security benefits <sup>110</sup>
4. Freedom of association <sup>111</sup>	4. Right to education <sup>112</sup>

5. Right to privacy<sup>113</sup>
6. Freedom to marry<sup>114</sup>
7. Right of procreation<sup>115</sup>

In addition to interests deemed fundamental, suspect classifications also invoke the strict scrutiny test. Such classifications have often been described as those that "...often discriminate on the basis of characteristics that are the accident of birth and that have no relation to ability to perform or contribute to society".<sup>116</sup> Examples are classifications based on race,<sup>117</sup> nationality,<sup>118</sup> and alienage.<sup>119</sup>

Supplementing the rights protected by the federal constitution are those guaranteed by the states. The Equal Protection Clause found in the Hawaii Constitution provides that "No person shall be deprived of life, liberty or property without due process of law, nor be denied equal protection of the laws...."<sup>120</sup> The clause has been interpreted to provide protection identical to that afforded by the 14th Amendment of the federal constitution. If the 14th Amendment is violated, the same is true for the Hawaii Constitution.<sup>121</sup>

Separate from the Equal Protection analysis is the Privilege and Immunities Clause. There are actually two Privileges and Immunities Clauses in the U.S. Constitution. One found in Article IV, Section 2. The other is in the 14th Amendment. However, only the clause found in Article IV, Section 2, has been applied to residence requirements and it provides as follows: "The citizens of each state shall be entitled to all Privileges and Immunities of Citizens in the several States."<sup>122</sup>

This Clause is and historically was intended to be a limitation on the power of the states to discriminate against citizens of other states.<sup>123</sup> Preliminarily, citizens of a state may not use the Privileges and Immunities Clause to challenge treatment they receive from their own state,<sup>124</sup> and neither the U.S. government nor citizens of foreign countries are protected under the Clause.<sup>125</sup> In the U.S. Supreme Court case involving the Privileges and Immunities Clause, Hicklin v. Orbeck,<sup>126</sup> the Court established that the terms "citizen" and "resident" are interchangeable for purposes of analysis under the

Privileges and Immunities Clause.<sup>127</sup> Therefore, nonresidents may challenge treatment they receive from states other than their own.

While the exact scope of the term "privileges and immunities" is not known, the following have been recognized by the Court to be included under the Clause:

- (1) Right to pursue happiness;<sup>128</sup>
- (2) Right to enter into contracts;<sup>129</sup>
- (3) Right to own property;<sup>130</sup>
- (4) Right to engage in business;<sup>131</sup>
- (5) Right to access to the courts;<sup>132</sup>
- (6) Right to access to medical care;<sup>133</sup>
- (7) Right to enjoy equal treatment with respect to taxes;<sup>134</sup> and
- (8) Right to travel to another state for purposes of employment.<sup>135</sup>

In considering laws challenged under the Privileges and Immunities Clause, the statute may not violate the Clause if the state shows that nonresidents "constitute a peculiar source of the evil at which the statute is aimed".<sup>136</sup> Further, there must be a reasonable relationship between the danger represented by nonresidents and the discrimination levied against them.<sup>137</sup> Given the Hicklin case, it is likely that the Privileges and Immunities Clause will play an increasingly larger role in cases challenging residence requirements.

The Commerce Clause grants Congress the power "to regulate commerce with foreign Nations, and among the several States, and with the Indian Tribes".<sup>138</sup> The Clause has been interpreted to mean that Congress possesses exclusive power to regulate interstate commerce.<sup>139</sup> While the term "interstate commerce" has not been defined in a comprehensive fashion,<sup>140</sup> the power of Congress over such commerce knows no limitations other than those prescribed in the Constitution. No form of state activity can constitutionally thwart this power.<sup>141</sup> Therefore, a state statute which unduly burdens the instrumentality of commerce is invalid.<sup>142</sup>

The Commerce Clause<sup>143</sup> has not played a major role thus far in the cases which involved residence requirements.<sup>144</sup> However, the U.S. Supreme Court's holding in Edwards v. California<sup>145</sup> may provide a potential Commerce Clause objection to residence requirements. In Edwards (supra), the Court invalidated a California statute making it a misdemeanor for any person to bring or assist in bringing, into the State, any nonresident knowing that person to be an indigent.<sup>146</sup> The Court concluded that the passage of persons from state to state constituted interstate commerce.<sup>147</sup> Since the freedom of movement is fundamental, the statute constituted an unconstitutional burden upon interstate commerce and, therefore, was invalid.<sup>148</sup>

While Edwards v. California<sup>149</sup> has not been cited recently for the proposition that movement of persons constitutes interstate commerce, it has not been overruled. Therefore, if a residence requirement restricts the freedom of movement, it constitutes an unconstitutional burden on interstate commerce under the Edwards doctrine and the Commerce Clause<sup>150</sup> poses a potential threat to the constitutionality of residence requirements.

Lastly, it has been suggested that Rights of Individuals Clause in the Hawaii Constitution<sup>151</sup> provides yet another basis for challenging residence requirements.<sup>152</sup> The provision reads:<sup>153</sup>

All persons are free by nature and are equal in their inherent and inalienable rights. Among these rights are the enjoyment of life, liberty, and the pursuit of happiness and the acquiring and possessing of property. These rights cannot endure unless the people recognize their corresponding obligations and responsibilities.

Although not yet utilized to challenge residency requirements, the Clause may invalidate such requirements if they interfere with the pursuit of happiness. Additionally, since the Hawaii Supreme Court has held that the right to pursue a business, calling, or a profession is a property right,<sup>154</sup> residence requirements which impinge on this right would appear to be subject to the protection afforded by the Clause.

While the above mentioned constitutional limitations apply equally to U.S. mainland and alien migrants, there are additional constraints on state attempts

to limit alien migration. Article I, Section 8, of the U.S. Constitution grants Congress the power to regulate alien immigration. Since the late nineteenth century, this power has been held to be reserved exclusively to the federal government.<sup>155</sup> For this reason, a discussion focusing on the powers of the state to regulate the immigration of aliens will be brief.

In Graham v. Richardson,<sup>156</sup> the U.S. Supreme Court invalidated a residence requirement as a condition of eligibility for aliens to receive welfare benefits. The Court stated that in imposing the residence requirements, the State was asserting a right, inconsistent with federal policy, to deny aliens entrance and abode: "Since such laws encroach upon federal exclusive power, they are constitutionally impermissible."<sup>157</sup>

Secondly, classifications based on alienage are suspect for equal protection purposes and therefore subject to strict scrutiny.<sup>158</sup> Strict scrutiny requires that the State show that the classification is necessary to achieve a compelling governmental interest unable to be accomplished by less drastic means.<sup>159</sup> The major exception to the invalidity of citizenship requirements lie in the areas of voting rights and qualifications for public office,<sup>160</sup> neither of which is of significance for Hawaii's population management efforts.

### Constitutional Limitations and the Residence Requirements

Durational residence requirements have been the focus of much litigation since the U.S. Supreme Court's decision in Shapiro v. Thompson.<sup>161</sup> In that case, several states and the District of Columbia imposed a one-year durational residence requirement in their respective jurisdictions as one condition of eligibility for receipt of welfare benefits. Appellees, who had been denied welfare benefits solely because they failed to meet the durational residence requirement, challenged its constitutionality under the Equal Protection Clause of the 14th Amendment.<sup>162</sup> In determining the appropriate test under the Equal Protection Clause, the Court stated that:<sup>163</sup>

The waiting period provision (used interchangeably with durational residence requirement) denies welfare benefits to otherwise eligible



applicants solely because they have recently moved into the jurisdiction. But in moving from state to state, or to the District of Columbia, appellees were exercising a constitutional right (right to travel) and any classification which serves to penalize the exercise of that right, unless shown to promote a compelling governmental interest, is unconstitutional.

Seven state interests were asserted as requiring the durational residence requirement:

- (1) To deter the in-migration of indigents;<sup>164</sup>
- (2) To deter indigents who come to the state with the sole purpose of collecting higher benefits;<sup>165</sup>
- (3) To limit welfare benefits to those residents regarded as contributing to the state;<sup>166</sup>
- (4) To facilitate planning of the welfare budget;<sup>167</sup>
- (5) To provide an objective test of residency;<sup>168</sup>
- (6) To minimize fraud;<sup>169</sup> and
- (7) To encourage new residents to join the labor force promptly.<sup>170</sup>

These interests were rejected by the Court as constitutionally impermissible (#1-3) or as not compelling (#4-7). Concluding that the one-year requirement was not needed for the purposes suggested, the Court held that the waiting period clearly violated the Equal Protection Clause.<sup>171</sup>

Following Shapiro, one-year durational residence requirements for voting in Dunn v. Blumstein<sup>172</sup> and for nonemergency hospital care for indigents in Memorial Hospital v. Maricopa County<sup>173</sup> were invalidated by the U.S. Supreme Court. Both cases reiterated the Shapiro<sup>174</sup> reasoning that since durational residence requirements penalized the right to travel, a compelling governmental interest was required to avoid violation of the Equal Protection Clause.<sup>175</sup> Having failed to make the requisite showing, the durational residence requirements were held unconstitutional.<sup>176</sup>

Under the Shapiro-Dunn-Memorial Hospital guidelines, Hawaii's two most recently enacted durational residence requirements were declared

unconstitutional in violation of the Equal Protection Clause.<sup>177</sup> In York v. State,<sup>178</sup> the constitutionality of a three-year durational residency requirement for public employment then contained in section 78-1(a) of the Hawaii Revised Statutes was challenged. The Hawaii Supreme Court, while recognizing that the strict scrutiny test was applicable,<sup>179</sup> failed to find even a rational relationship between the requirement and the asserted state interest.<sup>180</sup> Therefore, the requirement was unconstitutional.<sup>181</sup>

Nehring v. Ariyoshi<sup>182</sup> involved a one-year residence requirement for public employment. The Federal District Court stated that the strict scrutiny test was appropriate since the requirement operated as a penalty on the recent exercise of interstate travel.<sup>183</sup> The requirement was held unconstitutional as the State failed to meet its burden of showing a compelling state interest. Discouraging in-migration was explicitly rejected as being a constitutionally impermissible state objective.<sup>184</sup>

However, not all durational residence requirements are unconstitutional. The Shapiro case<sup>185</sup> contained the following caveat:<sup>186</sup>

We imply no view of the validity of waiting period or residence requirements determining eligibility to vote, eligibility for tuition-free education, to obtain a license to practice a profession, to hunt or fish, and so forth. Such requirements may promote compelling state interests on the one hand, or, on the other, may not be penalties upon the exercise of the constitutional right of interstate travel.

The Court reiterated this caveat in Memorial Hospital v. Maricopa County<sup>187</sup> and concluded that "although any durational residence requirement impinges to some extent on the right to travel, the Court in Shapiro did not declare such a requirement to be per se unconstitutional."<sup>188</sup>

Thus far, durational residence requirements have been sustained for candidacy,<sup>189</sup> bar admissions,<sup>190</sup> in-state tuition benefits,<sup>191</sup> and divorce jurisdiction.<sup>192</sup> However, the Court's rationale for upholding the candidacy, in-state tuition benefits, and bar admissions is unclear due to the Court's summary affirmances of those cases. Their rationale is unclear because when the Court affirms the judgment of a three-judge district court without opinion, it affirms the judgment, but not necessarily the reasoning by which it was reached.<sup>193</sup>

The lower court in each of the three cases concluded that the durational residence requirement in question did not penalize the right to travel.<sup>194</sup> Summary affirmances could mean that the Court agreed with this reasoning. On the other hand, it could mean that the Court found some unarticulated compelling governmental interest advanced by the residence requirements.

In articulating a new caveat to the equal protection analysis the Court, in Sosna v. Iowa,<sup>195</sup> held that a one-year residence requirement for divorce jurisdiction called for a different resolution than in previous cases. The Court distinguished the earlier cases by stating that the durational residence requirements struck down were justified on the bases of budgetary or recordkeeping considerations which were held insufficient to outweigh the constitutional claims of the individuals. But Iowa's divorce residency requirement was different.<sup>196</sup> Iowa justified the requirement as being necessary to ensure that those who seek divorce in its courts were genuinely attached to the State and to insulate the divorce decrees from collateral attack.<sup>197</sup>

Therefore, should Hawaii desire to enact constitutionally acceptable durational residence requirements, it appears that the State may do so in the areas of candidacy, bar admissions, and in-state tuition benefits.<sup>198</sup> Other durational residence requirements either must not penalize the right of travel or must be justified by a compelling state interest other than budgetary or recordkeeping concerns.

The U.S. Supreme Court has been careful to distinguish between durational residence requirements and other types of residence requirements.<sup>199</sup> A continuing residence requirement was sustained by the Court in McCarthy v. Philadelphia Civil Service Commission.<sup>200</sup> In that case, a sixteen-year employee of the Philadelphia Fire Department was terminated because he moved his permanent residence from Philadelphia to New Jersey in contravention of a municipal regulation requiring employees of the city to be residents of the city.

The Court held that:<sup>201</sup>

In this case, appellant claims a constitutional right to be employed by the city of Philadelphia while he is living elsewhere. There is no support in our cases for such a claim.

In sustaining the requirement, the Court added that:<sup>202</sup>

We have previously differentiated between a requirement of continuing residency and a requirement of prior residency of a given duration. This case involves that kind of bona fide continuing residence requirement.

Therefore, Hawaii could enact continuing residence requirements for public employment.

There is language in several U.S. Supreme Court cases to suggest that bona fide residence requirements do not violate the Equal Protection Clause.<sup>203</sup> In the most recent Supreme Court case on the subject, McCarthy v. Philadelphia Civil Service Commission,<sup>204</sup> the Court stated that "neither in those cases (referring to Shapiro, Dunn, Memorial Hospital) nor in any others have we questioned the validity of a condition placed upon municipal employment that a person be a resident at the time of his application."<sup>205</sup> (Emphasis added) This seems consistent with earlier cases because the basis of the classification here is residence and not the recent exercise of interstate travel as is the case with durational residence requirements. Indeed the Court has held that a state is not constitutionally mandated to extend welfare benefits, voting right, and free nonemergency medical care to nonresidents.<sup>206</sup>

While McCarthy<sup>207</sup> indicates that reasonable bona fide residence requirements do not violate the Equal Protection Clause, such requirements may be subject to the Privileges and Immunities Clause<sup>208</sup> in light of the U.S. Supreme Court's decision in Hicklin v. Orbeck.<sup>209</sup>

In Hicklin,<sup>210</sup> of concern was the "Alaska Hire" statute requiring that oil and gas leases, easements or right-of-way permits for oil or gas pipeline purposes, or renegotiation of the same to contain a provision requiring the hiring of qualified Alaska residents in preference to nonresidents.<sup>211</sup> The Alaska Supreme Court invalidated that part of the definition of "resident" involving the one-year durational residence requirement as a violation of the Equal Protection Clause of the 14th Amendment. The Court went on to sustain the resident preference reasoning that "a residency requirement does not penalize the right of interstate migration because unlike a durational residence

requirement, it does not burden those who have recently migrated".<sup>212</sup> In addition, the Court held that since only those contracts relating to state-owned natural resources were involved, there was no Privileges and Immunities Clause violation due to the "natural resource" exception articulated by the U.S. Supreme Court in McCready v. Virginia.<sup>213</sup>

On appeal, the U.S. Supreme Court discussed the scope of the Privileges and Immunities Clause, quoting from an early case, Ward v. Maryland:<sup>214</sup>

The clause plainly and unmistakably secures and protects the right of a citizen of one state to pass into any other state of the Union for the purpose of engaging in lawful commerce, trade, or business without molestation.

The Court also cited the case of Toomer v. Witsell,<sup>215</sup> the leading modern exposition of the Clause. The Toomer Court stated that the Clause prohibits only that discrimination against citizens of other states where there is no substantial reason for the discrimination beyond the fact that they are citizens of other states. "A substantial reason for the discrimination would not exist unless there is something to indicate that noncitizens constitute a peculiar source of the evil at which the statute is aimed."<sup>216</sup> Moreover, the State must show that there is a reasonable relationship between the danger represented by the noncitizens and the discrimination practiced on them.<sup>217</sup>

Applying this test, the Hicklin Court invalidated the resident preference because the State had failed to show that nonresidents were a "peculiar source" of the evil, namely unemployment.<sup>218</sup> Further, there was no reasonable relationship between the discrimination against nonresident and the objective of reducing unemployment; the residence preference extended to all residents and not only to the unemployed.<sup>219</sup>

In dealing with the "natural resource" exception referred to by the Alaska Court, the U.S. Supreme Court stated that:<sup>220</sup>

Rather than placing a statute completely beyond the Clause, a state's ownership of the property with which the statute is concerned is a factor - although often the crucial factor - to be considered in evaluating whether the statute's discrimination against noncitizens violates the Clause.

The Court then concluded that Alaska's ownership of the oil and gas constituted insufficient justification for the discrimination against nonresidents.<sup>221</sup>

Lastly, the Court relied on the Commerce Clause to supplement its holding. A series of Supreme Court decisions had previously established that the Commerce Clause forbids a state to prefer its own citizens in the utilization of natural resources found within its borders, but destined for interstate commerce.<sup>222</sup>

Therefore, although bona fide residence requirements may pass scrutiny under the Equal Protection Clause, they may not pass muster under the Privileges and Immunities Clause and the Commerce Clause.

#### Do Residency Requirements Affect Migration?

Theoretically, durational residence requirements deter those persons who would be dependent on governmental services and benefits (e.g., welfare, food stamps) within a year of their arrival in a new jurisdiction. A review of the literature indicates there have been no studies thus far showing the actual impact of durational residence requirements on in-migration to Hawaii. Such a study in Illinois,<sup>223</sup> undertaken after the U.S. Supreme Court invalidated a one-year durational residence requirement for welfare benefits in Shapiro v. Thompson.<sup>224</sup>

The purpose of the study was to test the validity of the widely held notion that the elimination of residence requirements results in transmigration of welfare recipients. The data base consisted of Illinois welfare applications approved during odd-numbered months from March 1968 to January 1971. The study concluded that the elimination of durational residence requirements seems to have been a relatively trivial factor in the growth in the Illinois welfare rolls. Provided that the study's findings can be generalized to Hawaii and to either durational residence requirements, it would appear that durational residence requirements may not affect in-migration to the extent as is popularly believed.

It appears, however, that durational residence requirements do perform functions that are related to in-migration and growth. First, the requirements serve a "political" function by echoing public sentiment. A recent poll in Hawaii conducted by Survey and Marketing Services, Inc., during December 28, 1977 to January 2, 1978, indicated that 56 per cent of those surveyed were in favor of the one-year durational residence requirement. Thus, not only does the requirement have public support, but also gives the impression that something is being done about in-migration. Additionally, durational residence requirements could perform a "negative" public relations function in that they could convey to the world that although Hawaii welcomes tourists, it does not greet in-migrants with open arms.

Similarly, continuing residence requirements probably would do little to change in-migration patterns. This conclusion is based on the fact those situations in which continuing residence requirements have been sustained are of little significance to Hawaii. Such requirements have been enacted almost exclusively at the municipal level as attempts to deter employees from living in one jurisdiction and working/commuting to another. Hawaii does not share this type of commuter problem; given the geographic isolation of the islands, the only economically feasible alternative is to maintain a residence in Hawaii while employed here. Like durational residence requirements, however, continuing residence requirements may perform political and public relations functions.

Lastly, bona fide residence requirements theoretically deter those in-migrants unable or unwilling to move without prior assurance of jobs and/or other governmental services and benefits. Based on a survey of state employment applications received between fiscal years 1976 and 1977, only 4.0 per cent of the applications, and 3.5 per cent of those hired involved nonresidents.<sup>225</sup> But, it is not known how many of these nonresidents would have moved to Hawaii in spite of uncertain employment.

### Summary

Although little impact data exist, given the numerous constitutional constraints, it seems unlikely residence requirements will have the hoped-for

deterrent effect on in-migration. Given that a determination of bona fide residency primarily focuses on physical presence within the state and a local address,<sup>226</sup> however, it appears that this type of requirement will not play a major role in the decision to move to Hawaii. For, once having made the decision and the move, the requirement really requires little else than what one would ordinarily do upon recent arrival in a new jurisdiction. The requirement may perform the same kinds of public relations functions discussed in connection with other residence requirements. Taken together, they may indirectly affect in-migration by inconveniencing new residents, in the marginal case, perhaps hastening their departure, and serving notice to the world that the door to paradise has been closed. Further, even if Hawaii could constitutionally keep people out, there would still remain the problems that first evoked cries of "overpopulation": depletion of natural resources, deterioration of the environment, increased congestion, and increased costs for services. Therefore, those techniques which seek to correct or minimize the attendant problems may prove better tools with which to manage Hawaii's growth.



### PART III. ANALYSIS OF IMPACTS

The following discussion examines eight alternative proposals for dealing with issues relating to population growth. The following table, which also appeared in chapter IV, summarizes the discussion below.

#### CONTROLLING POPULATION GROWTH IS NOT COSTLESS

Selected Quality of Life Variables	Population Management Proposals	State land regulation	Impact tax	Land banking	Tourist development licensing	Limit housing supply	Point system for development	Publicity campaigns	Residency for public assistance
Reduce net in-migration	u	u	u	u	u	u	o	+	
Reduce immigration	o	o	o	o	o	o	o	o	
Reduce birth rate	o	o	o	o	o	o	o	o	
Reduce tourist population	u	+	+	+	-	u	u	o	
Preserve environment	+	o	+	+	+	+	o	o	
Reduce traffic congestion	-	o	u	+	u	u	o	o	
Disperse development	-	u	+	+	o	u	o	o	
Protect individual freedoms	o	o	o	o	u	u	o	-	
Increase job opportunities	u	-	-	u	-	o	o	o	
Increase personal income	u	u	-	u	-	o	o	+	
Increase housing supply	u	-	-	o	-	u	o	o	
Reduce government costs	o	+	-	-	u	-	-	u	

+ = positive effect  
 o = no effect  
 - = negative effect  
 u = uncertain effect

The mode of analysis used has been determined by the nature of the policy setting and constraints of economy. The method relied upon was mainly a theoretical, a priori approach. This method used available social science theory and information as the basis for hypothesizing the probable effect. It assumed that all things were held constant as a proposal introduced to the policy setting brings about an effect on the quality of life. By holding all other variables constant, it is possible to anticipate the likely impact of a proposal on a specific area. Where they were available, empirical data provided the bases for hypothesizing the probable effect.

Two alternative analytical approaches were considered but not employed. First, is the method of relying on the lessons of other jurisdictions. However, there are little or no data available from other jurisdictions about how each of the alternatives influences the variables selected. This is because many of the proposals have not been implemented or if they have, there is little or no evaluatory data regarding their impact. The scarcity of information, other than the planning documents for a growth management scheme, reflects the fact that many of the growth management tools examined here are relatively new and innovative.

A second alternative approach requires a heavy reliance on social science theory and methodology. Reference here is to the possibility of constructing a model, most likely a regression model, for more accurately measuring the probable effects of growth management alternatives. There are many practical as well as methodological constraints to pursuing that approach. Undertaking such a modeling project requires time and money resources well beyond those presently available. Furthermore, it is more likely than not that the information created by such an analysis would not be of very high quality. Many of the variables contributing to the quality of life are only indirectly related to the alternatives discussed here. There are currently no social science models for making those relationships more explicit, e.g., the linkage between licensing tourism and fertility rates. Moreover, there are many intervening and interrelated variables that would increase the difficulty of constructing the model. For these reasons, the approach employed was deemed the most cost-effective.

## Impact Taxes

In-migration. A program of impact taxes would have a varying effect on the components of Hawaii's population. Whether an impact tax would reduce net in-migration is uncertain. Such a tax would increase the cost of land development and would be passed on to consumers. The extent of the resulting price increase would depend upon the size of the tax and the elasticity of demand for the type of development in question. The higher cost to consumers would tend to discourage in-migration. However, the evidence indicates that those in-migrating to Hawaii tend to be more affluent, more educated, and young. It is not clear to what extent, if at all, such a group would be discouraged by economic considerations. The impact tax might work to induce greater out-migration because of the higher prices for development-type goods, e.g., housing. On the other hand, the tax revenues generated by the impact tax would tend to decrease tax liabilities in other areas assuming the level of governmental expenditure remains the same. To the extent that such decreases overshadow the higher costs of land-related goods, the overall effect may be to attract potential in-migrants. There is presently no way to estimate to what extent that is true.

Immigration. The higher prices caused by the impact tax also might discourage alien immigrants from settling in Hawaii. However, available data on immigrant motivations indicate that noneconomic reasons, e.g., climate and family location, are more important in affecting decisions to settle in Hawaii rather than other mainland states. For this reason, it also could be expected there would be a negligible effect on alien out-migration to other states caused by the impact tax. The impact tax, in all likelihood, will have no effect on reducing immigration.

Natural Increase. Whether the impact tax will reduce the birth rate is not probable. Economic forces such as higher prices are related to the birth rate in a downward manner. However, it is not clear to what extent this is true and to what extent an impact tax would affect the overall economy. More importantly, other socio-cultural forces influence the desire to have children. It may be that the economic forces created by an impact tax would alter fertility trends but attributing such changes to such a tax is impossible and it is more probable than not that an impact tax would have no effect on the birth rate.

Tourism. The impact tax would raise the price of the types of development goods consumed by the tourist population. On the one hand, the tax might work to discourage tourist arrivals. However, it needs to be noted that current development practices by government agencies result in exactions that, in effect, cause developers to pay for many of the costs their developments create. If this is true, then the magnitude of the price increase due to the tax would be minimal and the decrease in tourist arrivals small. On the other hand, it is not known whether the demand for Hawaii's tourist services can be characterized as elastic or inelastic upwards. Without such information, it is difficult to estimate the size of decrease in tourist arrivals. However, the direction of the effect of the impact tax remains positive relative to reducing the tourist population.

Environment. It is not clear that the impact tax would work to preserve the Hawaiian environment. Assume that development does not preserve the environment. The tax would increase the cost of development to developers. It may be that such higher costs would discourage development where profit margins are small. On the other hand, whether or not profit margins are small and whether or not developers are generally able to pass on additional costs to purchasers is not clear. Notwithstanding the rate of investment return prior to the imposition of the tax, if the developer can pass on the additional costs, then the impact tax would have little effect in a setting where demand is inelastic upwards. Moreover, the impact tax is not by its nature designed to preserve the environment. The purpose of the impact tax is to make the developer pay for the externalities that would have been paid for by the government. The aim is to change the party designated to pay for the externalities and not to change their size. If the impact tax achieves that end, then it would have no effect. While the impact tax has a tendency to preserve the natural environment, that tendency is slight at best and the tax, more likely than not, will have no effect on the environment.

Traffic. The impact tax is not designed to affect traffic congestion. Moreover, linkages between such a tax and the likelihood of reducing congestion in traffic patterns is very remote.

Dispersal of Development. Similarly, an impact tax is neutral as to the location of development. Whether the tax would operate to disperse development depends on how it is structured. If the tax is structured as a broad uniform rate, then developers would be indifferent as to where they locate. However, if the tax is designed to make the development pay for the costs that it creates, then the impact would be different. Under such a scheme, a developer would only be concerned about the marginal costs created by the development. In order to minimize the marginal external effect created by their development, developers would be advantaged to cluster together. If this is true, then the effect of that type of impact tax would be to concentrate, rather than disperse, development. The California model for impact taxes relies on this latter approach. Since the design of the impact tax is open to question, its effect on dispersing development is uncertain.

Individual Liberties. As a taxation measure, the impact tax does not infringe upon individual liberties protected by the constitution. However, in an economic sense, the effect of the tax has been described as inequitable because purchasers of new developments may be required to subsidize those residing in existing adjacent developments.

Jobs. The impact tax would have a negative effect on increasing job opportunities. Increasing development costs would tend to dampen economic growth. The resulting effect on the economy would be a smaller number of new jobs.

Personal Income. On the one hand, the impact tax would tend to increase disposable personal income. This is because the costs created by externalities would no longer be paid for by taxpayers but rather by the developer. The tax liability would tend to decrease for the average taxpayer and less of the taxpayer's income would go to the government. On the other hand, the dampening effect on the economy might result in lower incomes due to the decline in employment opportunities. The countervailing potential effects of the impact tax indicate that its impact is uncertain.

Housing. The impact tax would tend to negatively affect the housing supply. This is because the tax would increase development costs. If such

costs could not be passed on to purchasers, then the developer would experience a lower return on investment. There would be fewer developments. To the extent that the costs could be passed on to purchasers, then housing costs would increase. Those with lower incomes would perceive this increase in the form of a smaller supply of housing units in their price range.

Government Costs. In contrast to the effect on the housing supply, the impact tax would result in reduced government costs. The purpose of the impact tax is to make developers pay for the costs presently borne by government. Notwithstanding administrative and collection expenses for implementing the tax, the net result of the tax would be a reduction in government costs.

### Land Banking

In the long run, many of the effects of a land banking program must be characterized as uncertain. This is because the amounts of land in any particular use would be determined by the public agency controlling the land bank. However, in the short run, it is possible to more specifically assess what the likely impacts of the banking program would be.

Immigration. In the short run, the effects of land banking reflect the role of government in leasing or purchasing land and holding it. It could be expected that withholding the land from development would be unlikely to have an effect on reducing alien immigration. As noted above, immigration tends to be not very responsive to changes in status of the State's economy. Even assuming that the holding function by the land bank creates adverse economic effects, many aliens would continue to move to Hawaii in order to be close to their families and friends already in the State.

In-migration. On the other hand, whether land banking would reduce net in-migration is uncertain. On the one hand, by withholding land from development, the price of land-related goods like housing would tend to be pushed upward. To the extent that this damper on the supply of land-related goods like housing would result in a price increase, those intending to relocate

in the islands would be discouraged from doing so. However, it also is likely that in-migrants are attracted to Hawaii because of the climate, beaches, open spaces, and other factors related to the physical setting. If such in-migrants are strongly motivated by such factors and land banking retains land uses that are consistent with enhancing or preserving the natural setting of the islands, then such persons would be attracted to in-migrate. Although in-migrants may be well educated, with professional employment backgrounds, and only marginally influenced by factors of economy, it is nonetheless unclear what the overall balance of the contrary directions of effect would be.

Natural Increase. The land banking scheme would be expected to have no effect on reducing the birth rate. By placing developable lands in the land bank where they are indefinitely held from development, it could be expected that the bank would bring about an upward price effect. While it is believed that economic forces do play some role in discouraging fertility, it also is known that other stronger social factors bear more heavily in family decisions regarding childbirth. Even assuming that the economic consequences attributable to land banking play some role in determining fertility levels, it is not probable that price influences would have any measurable effect on the birth rate.

Tourism. It is likely that land banking may have a positive impact on reducing the tourist population. First, one of the types of uses that may be affected by the land bank is resort hotel development. Since lands currently identified for such uses may be withheld from such development, the supply of tourist industry facilities would grow at a decreased rate. Assuming a set level of demand, the lower supply would mean higher prices for a Hawaiian vacation. Such price increases would discourage tourist arrivals. In a similar manner, if lands developable for other uses were withheld by the land bank, those other uses would compete with resort-type developments for available land. For example, if land usable for commercial purposes were held by the bank, the supply of commercial lands would be decreased. Notwithstanding the limitations imposed by zoning, the pressures for creating commercial lands would tend to push the value of the resort development lands upward. By viewing other uses as substitutes for tourism development-type uses, the price effects become the same as if resort hotel development lands were withheld by the land bank.

Ignoring issues of elasticity of demand for vacation services from Hawaii, such price effects lead to a positive direction of change in reducing the tourist population.

Environment. The short-term consequences of the land bank also would be positive in preserving the environment. By withholding lands from development, changes of use to those that are more intensive would be indefinitely postponed. By limiting the amount of land that is available for changes to more intensive uses, lower intensity uses generally associated with open spaces and natural settings would be preserved.

Traffic. It is unclear what consequences the land bank would have on reducing traffic congestion, however. On the other hand, by retaining lower intensity uses, it may be that traffic congestion would be reduced. This would come about if the restraint on use changes would decrease the demand for transportation facilities. For example, by keeping land next to a freeway from being developed with residential units, the congestion of that freeway would not be increased. On the other hand, it may be that the development prohibited on bank lands would go elsewhere. That is, the demand for developing areas available for more intensive uses would be increased. To the extent that the demand becomes translated into actual higher intensity uses, traffic congestion would be exacerbated. For example, if condominium uses were driven to residential areas otherwise used for single-family dwellings, then there would be increased traffic congestion. Because it is not clear the development restrained by land banking would shift to other already developed areas, the effect of the banking scheme on traffic patterns is unknown.

Dispersal of Development. By withholding land from development, a land bank would positively influence a dispersal of development. This would come about regardless of where bank-acquired lands were situated. The acquisition of lands close to large urban centers would tend to push developments away from existing urban centers. This is because one consequence of withholding lands from higher intensity development is a rise in price for land available for that use. Assuming that for any given land use, location closer to urban centers means higher land prices, the higher prices resulting from the banking would push developers farther away from existing high intensity uses. If land



banks were located away from urban settings, then as urbanization pushed outwards the lands held from development would tend to exert the same type of price influence in pushing developers still further away from the original urban center.

Individual Liberties. Since land banking involves governmental purchase of private lands, it does not affect individual liberties. While the constitutional prohibitions against a "taking" of property without due process is often raised as a prohibition against land banking in most states, Hawaii has recently amended its constitution in a manner permitting the establishment of a land bank.

Jobs and Personal Income. The short-run consequences of the land banking on increasing job opportunities and raising personal income would be negative. By withholding land from higher intensity uses, many segments of the economy, e.g., construction industry, that depend upon continued development would face slower growth potential. This negative result would mean a decline in employment opportunities. This effect would also tend to hold personal incomes down. Personal income also would be negatively influenced by the heavier tax rates which may be needed to pay for acquisition of land for the bank.

Housing. The consequences of land banking on increasing the housing supply would also tend to be negative. By taking developable land out of the land market, two things would happen. Lands that would have been used for residential purposes would be held for other less intensive land use purposes. In addition, by decreasing the amount of land upon which housing could be built, the price of land would be pushed upwards. Notwithstanding the role of zoning in prescribing types of land uses, the higher costs for land would mean that some developers would require higher intensity uses that would ensure an adequate return to capital. Most such alternative uses with higher returns would not be for residential uses. The higher prices would tend to decrease growth of the housing supply.

Government Costs. The short-term result of land banking would be greatly increased governmental costs. This is because all lands in the land

bank must be purchased or leased from private owners. While it is possible that long-run turnovers of banked lands might lead to recoupment of more than amounts initially invested due to land value appreciation, the initial costs of acquisition are large and are incurred many years before the anticipated turnover.

### Licensing Tourism

In-migration. Licensing the construction of hotel units may or may not affect net in-migration. The proposal is not intended to deal with in-migration. However, to the extent that such a licensing scheme results in restricting hotel construction and hindering economic growth and employment opportunities, fewer potential in-migrants would be encouraged to relocate in Hawaii. On the other hand, a successful licensing scheme might operate to attract in-migrants. Those who are attracted to Hawaii because of open space, beach, and recreation areas would be further encouraged to move to the islands if they believed that the State was making a major effort to control resort, hotel, and other high density type developments. The overall impact on reducing net in-migration would be uncertain.

Immigration. In all likelihood, the licensing program would not affect alien immigration. It may be argued that the licensing scheme would hinder the growth of the job opportunities and result in discouraging aliens, who presently take many lower tourist industry-related jobs, from locating in the State. However, the evidence to date indicates that aliens locate in Hawaii primarily for noneconomic reasons like being close to their families. Given those strong forces, the economic deterrent to reducing immigration caused by licensing tourism is marginal at best.

Natural Increase. The licensing program should have no effect on reducing the birth rate. It may be that the scheme will affect the economy in a manner that discourages women from having children. However, such effects are uncertain in direction and magnitude; such effects are mitigated by many other noneconomic forces, e.g., desire to have children, and the relationship between such effects and the birth rate is very remote. For such reasons, and

the fact that the program is not designed to expressly deal with fertility, the licensing proposal could be expected to have no effect on the birth rate.

Tourism. Assuming the licensing program effectively controls the number of hotel units constructed and the demand for Hawaii's tourist services continues to be high, the licensing program would have a positive effect on reducing the tourist population's growth. The program works to regulate the supply of housing for the tourist population in the long run. Assuming that vacationers have a high dislike for crowding, the total number of tourists that can be accommodated in the long run would be limited. Those controlling hotel units, although regulated as to the supply they can make available for rental, can increase their prices in a manner consistent with tourist demand. Such price increases would discourage tourists from choosing Hawaii as their vacation destination. On the other hand, the licensing program might encourage those tourists who desire less crowded beaches and a setting with fewer adjacent resort-type developments to come to Hawaii. However, the limiting factor, notwithstanding changes in the demand for tourist hotel rooms, is the number of persons that can be accommodated by tourist industry facilities. As a result, it can be expected that the licensing program would have a positive effect on reducing the growth of the tourist population. It cannot, however, be determined at this time by how much.

Environment. Many factors other than the construction of hotel units affect the environment. There is little reason to think that licensing hotel construction would act to preserve the environment. A licensing program would regulate one kind of land use that affects the natural environment. Areas not developed with hotels because of the licensing scheme remain open to development for residential, condominium, commercial, or other uses affecting the natural ecology. On the other hand, it may be that an effective licensing program curtailing growth of the tourist population would indirectly act to preserve the environment. Given, however, the present trends in increased per capita consumption and the fact that other population components also continue to grow, the effect of licensing on decreasing pressures on the natural environment is nominal. Although licensing only affects one type of land use, and generally it would probably have no effect, on margin, its direction of impact on preserving the environment, however nominal, would be positive.

Traffic. Licensing tourism would positively affect a reduction in traffic congestion. Fewer tourists mean a smaller demand for rented cars and fewer potential drivers. Notwithstanding the increasing number of automobiles per household, fewer tourists would lead to positive effects on traffic congestion.

Dispersal of Development. As proposed, the licensing of hotel construction would positively affect a dispersal of development. This is because different numbers of units would be allocated for licensing within each county. While it may be contended that the variance in quotas reflects expectations of demand for development among the different counties, nonetheless, the allocations are not uniform and the licensing process retains the potential for dispersing growth within the State.

Individual Liberties. Assuming that adequate procedural safeguards and criteria for distributing licenses are established, the licensing scheme would not affect individual freedoms.

Jobs. The licensing program would not increase employment opportunities. The aim of the licensing mechanism is to put a limit on the level of hotel construction each year. The primary effect of the program would be to decrease the amount of construction and other visitor industry related jobs. However, it is unclear to what extent existing hotels would be able, in the long run, to charge monopoly rents and raise their prices in a manner consistent with demand. If such price increases are great, then the licensing would also act to stimulate the Hawaiian economy by bringing in more moneys to the State. The extent of that stimulation would depend upon the multiplier effect of hotel revenues. Forecasting the existence and magnitude of such a stimulating effect is not possible without more information regarding the structure and demand for tourist industry services. In the aggregate, the contrary directions of effect make the determination of impact on job opportunities uncertain.

Personal Income. The effect of licensing hotel construction on increasing the average personal income is uncertain. On the one hand, by limiting hotel construction, it could be said that the economic growth would be hindered and personal income would be negatively affected. On the other hand, however, licensing construction tends to restrict the supply of hotel units. If demand

continues to be high, then hotel prices could be increased without decreasing occupancy rates. If such increases are not small, then the economy would be stimulated and personal income would be positively affected. The net result is uncertain.

Housing. The licensing program only targets in on hotel construction. It would have no effect on increasing the supply of housing. It could be speculated, on the other hand, that restricting hotel construction would encourage alternative forms of development, such as housing. However, many other factors determine whether a developer would choose to construct housing as opposed to commercial or other forms of development. As a result, such effects are too remote and speculative.

Government Costs. Government costs would tend to increase under the licensing scheme. This is because administrative and enforcement machineries need to be created to deal properly with the licensing process.

#### Limit Housing Supply

In-migration. The net effect of limiting the housing supply on reducing net in-migration is uncertain. The limitation on housing construction would tend to raise housing prices. To the extent that housing costs are considered by those in-migrating, such prices would discourage in-migration. On the other hand, the profile of current in-migrants suggests that they would be relatively undeterred by such price increases. In fact, by limiting "urban sprawl" or "high rise" construction, Hawaiian communities would tend to become more attractive to those who migrate for reasons of life-style, climate, and a desire to live in a beautiful setting. Since the magnitudes of such effects cannot be determined at this time, the net effect is concluded to be uncertain.

Immigration and Natural Increase. Immigration and the birth rate, however, could be expected not to be affected by a limitation in housing. While the increases in housing prices resulting from the limitation arguably would deter childbirth and alien location in Hawaii, other factors have greater force in influencing immigration and fertility patterns. To the extent that such

noneconomic factors control reductions in immigration and birth rates, limiting the housing supply would have no effect.

Tourism. Although the housing limitation is not directed at the tourist population, the limitation may have a negative impact on reducing it. This would occur indirectly. If housing in the form of urban sprawl or multi-family units were curtailed, the State would become relatively more attractive as a visitor destination. The more persons attracted to the islands, the higher the demand for tourist services. Although the relationship is indirect and may be characterized as not very high, the direction of the potential effect is clearly to negatively affect a reduction in the tourist population's growth.

Environment. Like the scheme for licensing tourism, the housing supply limitation would have a marginally positive effect on preserving the environment. This is because housing is only one of the uses that affects the natural environment and its limitation would only provide opportunities for other uses. However, by restricting the housing supply, the magnitudes of the pressures for land development are decreased. To the extent that this is true, there would be a slight tendency not to disturb existing land uses and to preserve the existing natural environment.

Traffic. It is unclear what effect, if any, a limitation on housing construction would have on reducing congested traffic patterns. Such a limitation is not aimed at affecting traffic patterns. However, to the extent that population growth is marginally deterred by the decreased availability of housing, there is a tendency to reduce traffic volume. On the other hand, under a scheme such as Petaluma's, where construction permits are discretionarily granted, the housing limitation would tend to affect the location of housing. To the extent that such location patterns follow a development pattern that discourages sprawl, the housing location would result in congested transportation arteries. However, the linkages between the housing limitation and positive or negative effects on traffic congestion are weak and there is a high likelihood of no effect. Nonetheless, to the extent that limiting housing does have an impact, its direction of effect is uncertain.

Dispersing Development. A limitation on housing construction, in all likelihood, would have no effect on dispersing development. The limitation acts to reduce the supply of housing. It is neutral as to where the housing units authorized for construction are located. While a scheme such as that implemented in Petaluma does have an impact on the location of housing, such an effect is attributable to the point system for selecting among construction proposals rather than the constraints against construction.

Individual Liberties. While Petaluma's attempt to limit housing construction has been unsuccessfully challenged as infringements upon individual liberties, the issues are not yet definitely resolved. The issues raised by the Petaluma case are relatively new and the case has not been heard by the U.S. Supreme Court. There are strong arguments regarding individual right to travel on the one hand, and the extent of the police power on the other, that arise from a program of limiting housing construction. It can be expected that these issues will be tested increasingly as more and more jurisdictions become concerned about controlling growth. Until such time that they are definitely resolved by the U.S. Supreme Court, the impact of the housing limitation on protecting individual freedoms is characterized as uncertain.

Jobs. The limitation on housing construction would tend to negatively affect increasing job opportunities. The limitation would restrain growth in one key segment of the economy. To the extent that the segment associated with housing construction strongly influences economic growth, then the limitation would slow down growth. To the extent that this depressing effect decreases job opportunities, housing limits negatively affect employment possibilities. Although such limitations also would tend to drive up housing prices, the increases would not be likely to have a mitigating stimulating effect on the economy. This is primarily because in comparison to hotel rentals, housing units are not held for investment purposes and the appreciation in value would have a marginal stimulating impact.

Personal Income. Since the restraint on housing construction would dampen economic growth and decrease employment opportunities, it would negatively affect personal income growth.

Housing. The aim of the construction limitation is to constrain the growth of the housing supply. It would be expected to have a negative impact on increasing the housing supply.

Government Costs. It is unclear what impact the housing limitation would have on governmental costs. This is because there would be contrary potential effects. There would be increased costs for administration and enforcement of the program. On the other hand, the decline in housing growth would tend to decrease the need for public services like roads and fire protection. Such decreased needs would be reflected in a decline in fiscal requirements. Taken together, such potential effects make the aggregate impact of the program to limit housing construction uncertain.

#### Point System for Development

In-migration. Whether a point system like that implemented in Ramapo would reduce net in-migration is uncertain. It may be that an appropriate point system would raise the quality of land development however defined. To the extent that this is true, and the physical setting of the islands is enhanced, the point system would encourage in-migration. In contrast, the point system also might result in higher development costs that are in turn passed on to consumers. If this is true, then land developments like housing would rise in price and potential in-migrants would think twice about relocating in Hawaii. In addition, some already in the islands would be advantaged to out-migrate. Such a price rise would tend to reduce net in-migration. While it may be argued that both such positive and negative effects of the point system on net in-migration can be described as remote possibilities, nonetheless, the fact that they might occur make a determination of impact caused by a point system uncertain.

Immigration. Because the effects of quality land development and relative economic advantages do not appear to be major considerations for alien location in Hawaii, it is likely that the point system would have no effect on reducing alien immigration.



Natural Increase. Similarly, it appears that child birth rates would not be affected by the point system. It is possible that the economic effects of the point system might act to deter childbearing but the likelihood of even such a marginal result is very remote.

Tourism. Implementation of a point system that enhances the quality of development would make the islands more attractive to tourists who decide to visit after consideration of the setting's physical attractiveness. However, to the extent that such a selective development system would tend to raise the cost of land development which, in turn, is translated into higher prices for tourist services like hotel rooms, there would be a countervailing deterrent effect created by the point system. While the linkages in such relationships are difficult to specify, it cannot be denied that the potential for such effects arising from implementation of a point system exist. Because of such difficulties, the impact of the point system can be assessed to be uncertain.

Environment. All other things being equal, a development approval process based on a point system would have a positive effect on preserving the environment. By weighting undesirable environmental impacts in a manner that discourages their occurrence, a point system helps to protect the environment. However, it could be pointed out that the point system also weights socially desirable land uses in a manner that encourages their development. For example, low-income housing units are allocated bonus points under the Petaluma point scheme. As a result, the point system has only a marginal effect on affecting more or less intensive type of land uses. Yet on the other hand, by awarding points in a manner that discourages land development in areas without infrastructural amenities like sewer hookups, the scheme acts to slow down the timing of developments in areas not contiguous to already urban settings.

Traffic. The impact on reducing traffic congestion is not clear. Traffic pattern impacts are explicit criteria upon which points for a proposed development are awarded. Generally, the point structure is designed to discourage congested traffic patterns. Inclusion of this traffic criteria for awarding points effects a reduction in traffic congestion. At the same time, however, points are also awarded for developments proposed close to existing

major transportation arteries. The effect of this criterion is to encourage clusters of developments and to increase their density. Such points tend to encourage traffic patterns that increase congestion. It may be that the interplay of such points would lead to no impact on reducing traffic congestion. However, it is more appropriate to recognize at this time that the impact of the point system on traffic patterns is uncertain.

Dispersal of Development. It is also uncertain what effect the system would have on dispersing development. It could be argued that the system is neutral regarding the location of development because the approach is site specific. That is, a proposal regarding a specific parcel of land is analyzed under the point scheme. Under the Ramapo model, if the proposal meets minimum point standards, the project is authorized. If that is true then except for influencing the type of development on a parcel, the point system would not determine which parcels are or are not developed. However, it also could be said that the point system, by encouraging "quality" development, tends to disperse development. Whether this would be true depends upon the structure of the point system and whether it encourages lower density land developments. Still on the other hand, the point structure may reflect the need to minimize fiscal demands. The costly requirements of capital infrastructure would, in that case, encourage a clustering rather than dispersal of developments. Taking all these potential effects into consideration, the aggregate impact appears to be uncertain.

Individual Liberties. Like the proposal to limit housing construction, it is uncertain what effect the point system would have on individual liberties. The point system employed in Ramapo has been upheld by the New York courts as not violating constitutionally protected individual rights. However, until such a program is upheld by the U.S. Supreme Court, it must be recognized that the existing status of the law in this area is only temporary.

Jobs. The point system would probably have no effect on increasing job opportunities. Although compliance with the point requirements for development would tend to increase costs, it is not clear that such an effect would influence employment opportunities in other than a negligible manner. The magnitude of the depressing effect on the economy created by compliance with such a

regulatory scheme cannot be anticipated at this time. However, the probability that it will have no effect is suggested by the fact that the relationship between compliance with the regulation and employment opportunities is very indirect.

Personal Income. It also is not clear as to how or whether the point system would tend to increase personal income. Since the relationship between compliance with the point structure and disposable personal income is very remote and weak, it is more likely than not that there would be no effect that can be attributable to the point system.

Housing. In contrast, the relationship between the development regulation and the supply of housing tends to be more direct. Since housing construction is directly tied to land development, the costs of complying with the point system would tend to increase the cost of development. Developers on the margin of receiving a minimum expected return on their investment would be discouraged from undertaking a housing project. On the other hand, the point system could award points on the basis of encouraging housing development relative to other land uses. Because of the real potential for such contrary directions of effect, the impact of the point scheme on increasing housing supply is uncertain.

Government Costs. Governmental costs would tend to increase because of a point system. Development of guidelines for awarding points, their administration and enforcement mean greater fiscal demands in the area of land regulation.

### Publicity Campaign

In-migration. Available evidence from the State of Oregon indicates that a negative publicity campaign has no effect on reducing net in-migration. It is most important to note at the outset that deterring in-migration is the fundamental purpose for implementing a negative publicity campaign. The aim is to discourage potential in-migrants by providing information regarding the negative aspects of residency in the State. However, it might be that such a public information approach would have a counter-productive impact. This

result could arise if those already attracted to an area because of the relatively less dense population patterns and environmental considerations would be all the more encouraged to move to the area if they believed that others would not be migrating there. Whether or not such effects can be empirically isolated has yet to be determined. However, it does appear that in-migration rates before and after implementation of the campaign in Oregon did not seem to have changed.

Immigration. As designed, the publicity campaign would have no impact on reducing immigration of aliens. This is because the program is targeted at U.S. citizens and not aliens. It is also unlikely that such a program would have a substantial impact on immigration rates if it were to be targeted to aliens.

Natural Increase. Similarly, the birth rate would not be affected by a publicity campaign. Such a campaign is not meant to deal with desires to have children and it is extremely unlikely to have an indirect effect on such attitudes.

Tourism. Because a publicity campaign is aimed at only in-migrants, it would most likely be that the tourist population would not be affected. However, unless the types of information contained in the campaign are judiciously selected, it may well be that the publicity aimed at potential in-migrants would have a spill-over effect on tourists. Such an effect would be to discourage tourist arrivals. But on the other hand, a publicity campaign may act to make Hawaii more attractive to tourists. A widespread publicity campaign might lead tourists to believe that the State's beauty, beaches, and natural tropical settings are being protected against urban and other types of developments associated with high population density. Because of the potential for either of those effects to dominate, the overall impact of a publicity campaign on the tourist population is uncertain.

Environment. A publicity campaign would have no effect on preserving the environment. The focus of the campaign would be on persons outside the State. It would not have an impact on decisions regarding land use or consumption preferences. Although arguably, such a campaign would decrease pressures on environmental resources, this would only occur if the campaign were highly successful in reducing population growth, a possibility viewed as extremely unlikely.

Traffic, Dispersal of Development, and Individual Liberties. A negative publicity campaign aimed at in-migration would have no effect on reducing traffic congestion, dispersing development, or protecting individual freedoms. The campaign is not designed to achieve such impacts and the likelihood of indirectly causing those effects is extremely remote.

Government Costs. On the other hand, government costs would tend to increase. The task of developing a publicity campaign involves creation of the materials and their dissemination. Indirect effects of the publicity campaign, if it has an impact on altering population growth patterns, may result in tax savings. However, the likelihood of such a mitigating force is highly improbable. The impact of the publicity campaign can be expected to be a negative one on reducing government costs.

Jobs, Personal Income, and Housing. It could be speculated that a negative publicity campaign would have some effect on employment possibilities, personal income, and the supply of housing through marginally related repercussions on the economy. However, there is little reason to believe that a publicity campaign of the magnitude being considered would have any effect at all in those areas. The campaign purpose is not to affect them and indirect relationships between an information program and those areas affected primarily by economic forces is de minimus. It can be concluded that the publicity campaign would probably have no impact in those areas.

#### Residency for Public Assistance

In-migration. Requiring residency as a basis for affecting the amount of General Assistance (GA) awarded would tend to have a positive effect on reducing net in-migration. Those persons on GA in another jurisdiction would consider Hawaii's level of GA benefits, along with other considerations, before making the move. To the extent that factors of economy influence such persons' decisions regarding relocation, the requirement would discourage such moves. However, as noted earlier, mainland in-migrants tend to be characterized as younger, more educated, and more able to compete in the employment markets. This mitigates the deterrent effect because factors such as the difference in

public assistance amounts would be negligible in their decision to move. Moreover, while it has not been estimated how many of those currently on GA would be affected by the new requirement, it does not appear that such a number would be very large.

Immigration. Immigration rates would not be affected by the residency requirement. Although, as drafted, it is not clear whether the proposal creating the requirement applies to alien immigrants. Many countries do not have public assistance programs. As a result, the amounts from an alien "person's last place of residence" would be zero. If that were true and enforceable as such, then the requirement would tend to deter immigration. However, such a construction of the proposal would run afoul of many constitutionally protected rights. On the other hand, if it were construed to not apply to alien immigrants, and only to U.S. citizens, then the requirement would have no impact on reducing immigration. Since this is the more likely construction of the proposal, the residency requirement can be expected to have no effect on immigration.

Natural Increase. The residency requirement also would tend to have no effect on reducing the birth rate. The size and the segment of the population affected by the requirement are very small. Moreover, the relationship between the marginal difference in public assistance amounts and decisions regarding childbearing is extremely tenuous.

Tourism. The requirement also has no relationship to the tourist industry. As a result, it can be expected that the residency proposal is neutral as to reducing the tourist population. The requirement would have no effect.

Environment. Requiring residency for public assistance similarly would have no impact on preserving the environment, reducing traffic congestion, or dispersing development. The program is designed to affect decisions to move to the State. Any changes in the three areas would be fortuitous and not causally attributable to the residency requirement.

Individual Liberties. In contrast, it is likely that affecting the amounts of public assistance on the basis of a durational residency standard infringes

upon constitutionally protected individual freedoms. This is because the requirement focuses on the period immediately after residency is established. The requirement distinguishes between two types of residents. One type has been as resident for more than a year. The other has been a resident for less than a year. The latter class is disadvantaged as to the amount of public assistance they can receive. While the courts have upheld such durational residency standards in other contexts, such as out-of-state tuition, the area at issue here is public assistance. It is extremely similar to those facts in the landmark case of Shapiro v. Thompson. There the court held that such a durational requirement for public assistance eligibility unconstitutionally affected the right to travel. On the other hand, the requirement proposed is distinguishable because it affects the amount rather than the eligibility for public assistance. The amount awarded under the requirement reflects a policy of treating the recipient as if no move had been made and not to penalize. However, the strong language of the Shapiro case suggests that affecting the amount of public assistance awarded may penalize exercise of the fundamental right to travel. Under the proposed requirement, it would make a difference where the applicant resided prior to making application. Notwithstanding applicability of the strict scrutiny test, the analogy to the Shapiro case is adequately strong for the initial assessment that the residency requirement may unconstitutionally infringe upon individual freedoms.

Jobs. There would be no effect on increasing job opportunities. To the extent that the requirement is effective in deterring in-migration, it could be argued that the competition for lower paying jobs demanding fewer skills would be decreased. However, such an effect, albeit unlikely, does not go to the creation of jobs. It has no stimulating or depressing effect on the economy. As such, the residency requirement would have no impact on increasing employment opportunities.

Personal Income. Disposable personal income would tend to increase under the additional requirement that public assistance grantees maintain residency for a year before full GA amounts are awarded. The magnitude of this effect would tend to be miniscule but the direction of the effect is clear. Since Hawaii's GA awards are among the highest in the nation, requiring payment of the amount the recipient would have received in the prior place of

residence would theoretically result in a tax saving. In turn, local taxes would tend to decrease and disposable personal income would rise. Other, system-wide, indirect economic effects from implementation of the requirement are unlikely and presently indeterminate in direction or size of effect.

Housing. The housing supply would not be affected by the new public assistance standard. Indirect effects are remote and the residency requirement is not aimed at affecting the housing sector.

Government Costs. As pointed out above, the limitation on the public assistance amounts awarded for new residents would tend to push the cost of social welfare programs downward. The direction of this effect on reducing government costs would be positive. While it may be that such savings would be overshadowed by costs created in other areas, e.g., additional administrative burdens and litigation costs, it is not possible to anticipate the magnitude of those mitigating factors. In the short term, it cannot be determined what the aggregate effect the residency standard would have on reducing governmental costs.

### State Land Regulation

In-migration. Continued reliance on a regulation of land uses by the State in the future would tend to influence net in-migration. It is not clear, however, what the direction of such effects would be. Restricting land use has an impact on land prices because land use controls prohibit uses that yield the highest possible economic benefits. Housing prices, in particular, reflect the supply of land available for residential uses. The usual effect of restricting supply is increased prices. Although the fact that in-migrants tend to be more affluent is a mitigating factor as to the strength of the effect, prices that are pushed upwards because of restraints on use of other lands and reflected in goods like housing tend to discourage in-migration. On the other hand, the fact that more than 96 per cent of all lands in the State is zoned for agricultural and conservation uses tend to make Hawaii more attractive to potential in-migrants who value natural settings and open spaces. To the extent, however, that future changes in uses permit more intensive land uses, the regulating



scheme would have a deterring effect. Since the impact on reducing net immigration is dependent upon the type of land uses chosen and their relative proportions, the overall effect of the State's regulatory scheme in the future is uncertain.

Immigration. While a similar analysis might be applicable to alien immigrants, it is more likely than not that land use regulation has no impact on reducing immigration. As noted above, considerations of family and other socio-cultural concerns strongly influence immigrant location decisions. To the extent that noneconomic factors explain whether aliens settle in Hawaii, the land regulatory scheme has no effect on reducing immigration.

Natural Increase. For the same reasons, it could be expected that the land regulatory program will bring about no change in the birth rate in the future. While it may be said that concerning the use of land, amounts of land available for different types of uses influence decisions regarding fertility, e.g., residential uses, such effects would be very remote and not easily be attributable causally to land use policies. Instead, it is more likely that other social forces strongly influence the number of children women will bear.

Tourism. Whether state land use regulations affect the tourist population is uncertain. On the one hand, the availability of land usable for resort and hotel development determines both the long-run price of hotel rooms and the physical attractiveness of the island setting for vacations. Since changing the amount of land usable for the tourist industry contrarily influences both the price and physical beauty of the islands, it is not clear what the overall direction of effect would be.

Environment. As presently structured, the state land use scheme appears to act in a manner consistent with preserving the environment. This is because 48 per cent of all lands in the State is currently designated for conservation uses. Another 48 per cent is classified as agricultural. Only 4 per cent is designated for the highest intensity use and classified as urban. Notwithstanding imperfections in the regulatory scheme that permit urban type uses in conservation districts, classification of the bulk of the lands in the State for low intensity usage means that developments causing changes to the

environment can only come about after approval by a public agency. Relative to a policy where most of the land is designated for high intensity use and public agencies are burdened with trying to extinguish rights to such usage, the present regulatory scheme tends to preserve the environment.

Dispersal of Development. By regulating the usage of land, the regulatory scheme affects the location of development. By influencing where people work and live, the process indirectly affects transportation and traffic patterns. To the extent that high intensity uses are located in contiguous areas, the land use policy has a negative impact on reducing traffic congestion and on dispersing development. On the other hand, use designations that tend to scatter high intensity uses tend to reduce traffic congestion and to disperse development patterns. Since policy preferences in recent years reflect the desire to preserve natural environmental settings and to permit infrastructural developments in areas close to existing high intensity uses, the regulatory scheme can be said to negatively influence traffic patterns and scattered growth.

Individual Liberties. Public land use regulation is well established in legal theory. While the original land regulatory programs underwent severe judicial scrutiny for their effects on individual liberties, such schemes are now well accepted in the law as valid exercises of the police power. Hawaii's land regulation process has been in existence since the 1960's and does not appear to infringe upon constitutionally guaranteed individual liberties.

Jobs. Looking prospectively, it cannot be determined whether continued reliance on the state land regulatory process would affect job opportunities. While establishment of a new statewide program might have an impact on employment possibilities, retaining an ongoing land use policy and process would have an uncertain effect. This is because changes in the use classifications may either work to increase or decrease opportunities for employment. In addition to the difficulty in establishing causal relationships between changes in land use and the creation of jobs, effect on job opportunities would depend upon the type and scope of the changes made. Even accounting for the recently adopted State Planning Act, the effect of state land use regulation on increasing job opportunities appears to be uncertain.

Personal Income. In the same manner, it can be said that future changes in land use policies have an uncertain effect on personal income. This is because changes in the uses permitted and the associated land development tend to influence the State's economy. Although it is difficult to translate such changes into economic impacts or to approximate their size, it can be anticipated that they do exist and may be in positive or negative directions. Since such effects depend upon the specific types of changes made in the future, it must be said that their effect on increasing personal income is uncertain.

Housing. Whether the continued regulation of land use increases the housing supply is related to the amount of land allocated for residential use. Independent of other programs to develop housing by the State and the counties, changes in land uses permitted by the state and local governments affect the supply of housing. While both levels of government are concerned about increasing the stock of available housing, whether the specific types of land use changes authorized in the next few years increase the housing supply is uncertain.

Government Costs. In contrast, it is likely that the state land regulation process will have no effect on reducing government costs. This is because the regulatory scheme is already existing and in operation. Although continued operational costs are expected, barring major changes in the regulatory processes, they will neither reduce nor increase governmental costs.

Attachment B-1

BILL OFFERED BY THE 1978 GOVERNOR'S TASK FORCE  
ON GROWTH MANAGEMENT \_\_\_\_\_ . B. NO. \_\_\_\_\_

A BILL FOR AN ACT

RELATING TO THE REGULATORY LICENSING OF TRANSIENT ACCOMMODATIONS

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Findings and purpose. The legislature finds that there is a need for coordinating the overall policies of the State and its several counties with respect to matters such as economic growth, land use, transportation systems, public facilities, natural and man-made environmental protection, housing, population densities and distribution, public health and social programs, and other related matters which by their nature or current functions of governmental services, are of concern to the State as a whole as well as to its several counties.

In the recent past, the legislature has enacted many laws and programs which are intended for and aimed at the well-being of our citizens to ensure the public health, peace, and general welfare of all residents in and visitors to, the State.

The legislature finds that the rapid population growth of the State and its prime concentration on the island of Oahu is beginning to pose serious problems on Oahu due to traffic congestion, water supply and distribution, waste

water treatment and disposal, population density and social problems, noise and peace, degradation of the natural and man-made environments, and a heavy demand on public facilities and services.

The legislature further finds that the State's rapid population growth has increased the seriousness of these problems to such an extent that it becomes necessary to guide and direct such growth to assure an adequate water supply, to lessen traffic congestion, to protect the public health, and assure the general welfare of all the people in the State.

The legislature finds that in order to guide, direct, and affect the rate of growth of the population and the economy of the State, it now becomes necessary to regulate those major components of the economy which the legislature can regulate. Activities of the Federal government are a major component in the economy of the State which the legislature cannot regulate. Agriculture is a significant component of the economy but its employment has declined steadily during this century. On the other hand, tourism and visitor expenditures have grown rapidly during the last decade. As a result, tourism has become the paramount industry in the State in terms of direct income generated in the economy. If this rate of growth in tourism continues during the next decade, it will account for more than one-half of the direct

export income of the State. In 1976, tourism accounted for over 3,220,000 visitors staying overnight or longer in Hawaii.

Tourism has a major impact on transportation services and facilities from airports to hotel destinations, recreational areas, and scenic vistas. Tourism has a major impact on water supply and waste water treatment and disposal. Tourism has a major impact on population and building density; it has a significant impact on population growth because it encourages in-migration; many such in-migrants reside temporarily or permanently in close proximity to resort areas.

Because of the impact of tourism on the population and economy of Hawaii, it is the purpose of this Act to establish regulatory licensing of transient accommodations in the State in order to better guide the growth of the State, lessen traffic congestion, and protect the public health, peace, and general welfare of both residents and visitors to the State.

The use of licensing can be an effective tool to avoid major fluctuations in the economy of the State because it is so dependent on tourism; it can smooth out construction activity to avoid the boom and bust of hotel construction as occurred in 1969 to 1972; it can direct growth in the State; and it is a measure which offers less intervention than others in the zoning powers of the counties.

SECTION 2. Section 445-98, Hawaii Revised Statutes, reading as follows, is repealed:

["Sec. 445-98 Hotels without licenses, when. The treasurer may also, in his discretion, permit hotels at which both meals and lodgings are furnished, at points other than in Honolulu, where they are a public convenience, to be carried on without a license under this chapter."]

SECTION 3. Chapter 445, Hawaii Revised Statutes, is amended by adding new sections to be appropriately designated and to read:

"Sec. 445-      Distribution of new hotel units.

To guide future development of the hotel industry through the year 1985, there is hereby established a distribution allocation by counties for new hotel units in the following amounts:

Hawaii County . . . . . 5,250 units

Maui County . . . . . 7,500 units

Kauai County . . . . . 2,650 units

City and County of Honolulu . . 9,900 units

This distribution allocation is subject to review and adjustment in 1983 by the legislature. The number of new hotel units allowed to be constructed each year in each county shall be determined by the county council of each county in accordance with the guidelines established in section 445- .  
The total number of new hotel units allowed by the county

shall not exceed the county's allocation set forth above  
before December 31, 1985.

"Sec. 445- Guidelines for determining annual  
allocation of new hotel units. In determining the number of  
new hotel units allowed to be constructed each year, the  
county shall consider the following factors:

- (1) The number and rate of growth in the number  
of visitors to the county.
- (2) Forecasts of the future number of visitors  
to the county.
- (3) The current number of hotel units in the  
county.
- (4) The rate at which public facilities to  
accommodate visitor needs can be provided  
and with due consideration for the public  
costs of such facilities.
- (5) The availability of transportation facilities  
and services to accommodate the expected number  
of visitors to each county.
- (6) Existing and desired densities of hotel units  
in each visitor destination area in the county.



(7) Existing and desired population densities in each visitor destination area; such densities shall include de facto and resident populations.

(8) And such other factors as are deemed relevant and appropriate, including but not limited to, zoning and county general and development plans.

"Sec. 445- Criteria for new resort development.

Each county may establish criteria governing the issuance of certificates of necessity for hotels and other structures intended to be used for transient accommodations, including provisions for allowing competition among applicants.

"Sec. 445- Application for an issuance of certificates of necessity. No building permit shall be issued for a new hotel or other structure intended to be used for transient accommodations until a certificate of necessity has been approved for the proposed building. Each application for a certificate of necessity shall be filed with the agency designated by the county to receive such applications. If the application complies with the criteria established under section 445- , and does not exceed the annual allocation for the number of new hotel units permitted in that year,

the county may issue the certificate of necessity; provided, however, that the last certificate of necessity issued within the annual allocation may exceed the annual allocation by not more than fifty hotel units in order to make the proposed project economically viable. The number of units exceeding the annual allocation shall be deducted from the total number allocated for the following calendar year. If the application is denied, the county shall inform the applicant of the reasons for denial in writing. The county shall act on each application for a certificate of necessity within forty-five days from the date of filing of the application. Any legal action to challenge the denial of an application must be filed in the appropriate court of jurisdiction within thirty days after the denial.

"Sec. 445-      Duration of certificate of necessity.  
If the applicant has not filed a building permit application with the appropriate county agency within one year from the date of issue of the certificate of necessity, such certificate shall expire and become void at the end of the one-year period. In construing what constitutes an application for a building permit, the determination shall be based on a building permit which permits completion of a hotel for occupancy. Any site grading permit, or building permit for the foundation only, or for the shell of a hotel

building only, shall not be adequate evidence to prevent the certificate of necessity for the hotel from expiring.

"Sec. 445- Sale or transfer of certificate of necessity. Any certificate of necessity for a hotel which has been duly issued may not be sold or transferred to another person, partnership, corporation, or other legal entity. It is not the intent of the legislature that certificates of necessity be obtained for speculative or monopoly purposes.

"Sec. 445- Status report on certificate of necessity. At the end of ten months from the date of issue of a certificate of necessity for a proposed hotel, the applicant shall inform the county in writing of the status of the proposed hotel project. Such status report shall indicate if the project has progressed, or will progress, to the stage where the applicant can file for a building permit before the expiration date of the certificate. If the initial certificate expires, the number of hotel units that would have been built shall revert to the annual allocation of hotel units and may be carried over into the next calendar year.

"Sec. 445- Buildings for hotel use. Any building whether it be a condominium, apartment, or time-sharing unit which is intended to be used or operated as a hotel,

shall require a certificate of necessity. Such certificates shall be continued so long as the building or portions thereof are used as a hotel."

SECTION 4. Severability. If any provision of this Act, or the application thereof to any person or circumstance is held invalid, the invalidity does not affect other provisions or applications of the Act which can be given effect without the invalid provision or application, and to this end the provisions of this Act are severable.

SECTION 5. Statutory material to be repealed is bracketed. New material is underscored. In printing this Act, the revisor of statutes need not include the brackets, the bracketed material, or the underscoring.

SECTION 6. Effective date. This Act shall take effect 90 days after approval.

INTRODUCED BY: \_\_\_\_\_

ADAPTED FROM THE PROPOSAL OFFERED BY THE GOVERNOR'S TASK  
FORCE ON GROWTH MANAGEMENT\*

\_\_\_\_\_. B. NO. \_\_\_\_\_

A BILL FOR AN ACT

RELATING TO PUBLIC ASSISTANCE

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Findings and purpose. (a) The Legislature finds that Hawaii ranks among the most generous of the states in terms of welfare benefits. In a recent study (National Journal, January 8, 1977), Hawaii was at the top of the list of states in terms of total welfare spending for the five biggest welfare programs per poor resident. This same study indicated that Hawaii ranked third (after Massachusetts and New York) in terms of state and local spending per poor person, providing two and a half times the average amount spent per poor person across the country. In providing benefits under general assistance programs, which are funded entirely by state and local government funds, Hawaii ranked fourth among the states.

Hawaii's financial resources to continue to provide this kind of generous help are becoming strained. State expenditures for welfare increased nearly fourfold between 1970 and 1976, or at a rate of 25.2% per year. General fund tax revenues, however, have increased by only 11.1% per year over this same period.

Hawaii recognizes its responsibility to assist those less fortunate citizens who are unable to provide sufficient support for themselves and their dependents, and it does not wish to penalize those who are currently drawing benefits under the State's general assistance program. At the same time, it does not wish to encourage in-migration because of the high benefit amounts that this State provides.

(b) The purpose of this bill is to limit the amounts of general assistance payments that persons of less than one-year residency can receive to an amount no higher than that provided in their last place of residency, or, in the event that the last place of residence does not make provisions for a general assistance program, the payment amount of the AFDC program of that place. In cases where benefit amounts in the last place of residency exceed the amount that Hawaii provides, the Hawaii benefit amounts would prevail.

SECTION 2. Section 346-53, Hawaii Revised Statutes, is amended by amending subsection (a) to read as follows:

"(a) The director shall adopt rules pursuant to chapter 91 concerning the determination of public assistance grants under this chapter. Except as otherwise provided in this subsection, [Public] public assistance grants shall be sufficient to maintain a standard consistent with this chapter. In granting public assistance to a person under

this chapter the department may take into account part or all of the needs of the person's dependents or those persons essential to his well being, provided that they are also eligible for public assistance. In the event that a public assistance grant to a recipient has taken into consideration only part of the needs of other eligible persons, this public assistance grant shall be without prejudice to a separate public assistance grant to such other eligible persons or any of them, as may be proper to meet their remaining needs and in compliance with this chapter.

Notwithstanding any other provision of this section, the amount of assistance which the department shall initially pay a general assistance recipient who has been a bona fide resident of this state for less than one year prior to the date of such person's application for general assistance, considering income and resources in accordance with this chapter, shall be limited to the amount of general assistance such person would be entitled to receive in that person's last place of residence, provided that such amount shall not exceed the amount of assistance otherwise set forth in this section. If the last place of residence does not make provisions for a general assistance program, the department shall adopt the amount of assistance paid to adults under the Aid to Families with Dependent Children program of that

place, provided that such amount shall not exceed the amount  
of assistance otherwise set forth in this section."

SECTION 3. This Act shall take effect upon its approval.

INTRODUCED BY: \_\_\_\_\_

\*Portions of this bill were enacted by the 1978 Legislature. L 1978, c 103. Those portions relying on the durational residency requirement as a basis for determining public assistance amounts were not included in that Act.



## FOOTNOTES TO APPENDIX B

1. California, Office of Planning and Research, *Growth Management Practices in California* (Sacramento: 1976), p. 35. The park dedication ordinances required by section 46-6, *Hawaii Rev. Stat.*, is an example of a development exaction used locally.
2. Donald Hagman and Dean Mischynski (eds.), *Windfalls for Wipeouts: Land Value Capture and Compensation* (Chicago: American Society of Planning Officials, 1978), p. 367.
3. *Ibid.*, p. 369.
4. *Ibid.*
5. *Calif. Govt. Code*, sec. 66410 et seq.
6. *Calif. Business and Prof. Code*, sec. 11000, defines "subdivision" or "subdivided lands" as improved or unimproved land/lands divided or proposed to be divided for the purpose of sale or lease or financing, whether immediate or future, into five or more lots.
7. *Calif. Govt. Code*, sec. 783, defines "condominium" as an estate in real property consisting of an undivided interest in common in a portion of a parcel of real property together with a separate interest in space in a residential, industrial, or commercial building on such real property such as an apartment, office, or store. A condominium may include a separate interest in other portions of such real property. Such estate may be either: (1) estate of inheritance or perpetual estate; (2) estate for life; or (3) estate for years such as leasehold or subleasehold.
8. *Calif. Business and Prof. Code*, sec. 11004, defines "community apartment" as a project in which an undivided interest in the land is coupled with the right of exclusive occupancy of any apartment located within.
9. *Calif. Govt. Code*, sec. 66483; this section imposes a number of requirements regarding the local ordinance:
  - (a) The ordinance must have been in effect for at least 30 days prior to the filing of the proposed subdivision.
  - (b) The ordinance must refer to a drainage and/or sewer plan adopted for the particular area which contains estimates of costs.
  - (c) The drainage or sewer plan is in conformance with the county or district plan.
10. *Calif. Govt. Code*, sec. 66483(d).
11. *Calif. Govt. Code*, sec. 66483(e).
12. *Calif. Govt. Code*, sec. 66483(1).
13. *Calif. Govt. Code*, sec. 66483.1; sec. 66483.2 governs the procedure to be followed for a refund.
14. *Calif. Govt. Code*, sec. 66484.
15. *Calif. Govt. Code*, sec. 66477; this section and section 66484 are subject to limitations similar to those enumerated in footnote 9.
16. *Calif. Govt. Code*, secs. 66477 and 66484.
17. Jay Janis, "Impact Taxes Unfair (Good Intentions Aside)," *Management and Control of Growth*, Randall W. Scott, ed. (Washington: The Urban Land Institute, 1975), p. 291.
18. *Ibid.*
19. *Hawaii Const.* art. XI, sec. 4.
20. Richard P. Fishman, "Public Land Banking: Examination of a Management Technique," *Management and Control of Growth*, Randall W. Scott, ed. (Washington: The Urban Land Institute, 1975), p. 61.
21. *Ibid.* The foremost advantage of land banking over zoning is that the government's ownership of land would allow the implementation of comprehensive land use plans that would otherwise be impossible.
22. In Sweden, land banking is part of an almost total system of control. Stockholm's practice has been to hold large amounts of land on the periphery in reserve for as long as 25 years. The government then leases the bank land to developers under long-term contracts subject to periodic negotiation.
23. Fishman, p. 64.
24. *Ibid.*, p. 65.
25. The ability to acquire land by condemnation or eminent domain is crucial to the land bank's operation for without such power, private owners could frustrate the objectives by refusing to sell or by demanding unjustifiably high prices. Thus far, only Puerto Rico's courts have upheld legislation providing for land reservation as being for the public benefit.
26. Hawaii, Growth Management Task Force, *A Program for Selective Growth Management in Hawaii* (Honolulu: 1978), p. 154.
27. See attachment B-1 of this appendix.
28. Hawaii, Growth Management Task Force, p. 155.
29. *Ibid.* The proposed allocation by county is as follows:
 

Hawaii County.....	5,250 units
MauI County.....	7,500 units
Kauai County.....	2,650 units
City and County of Honolulu.....	9,900 units

These allocations are subject to review and adjustment by the 1983 legislature.

30. *Ibid.*, pp. 160-161.

31. Any building, condominium, apartment, or time-sharing unit which is intended to be used or operated as a hotel shall require a certificate of necessity. Counties may establish criteria to govern the issuance of certificates.

32. A building permit is a permit which permits completion of a hotel for occupancy.

33. California, Office of Planning and Research, p. 106.

34. *Ibid.*

35. *Ibid.*

36. *Ibid.*, p. 121.

37. Urban Land Institute, *Management and Control of Growth*, Vol. II (Washington: 1975), p. 121.

38. Petaluma, Cal., Resolution No. 5760 N.C.S., May 25, 1971.

39. Petaluma, Cal., Resolution No. 6008 N.C.S., March 27, 1972.

40. Petaluma, Cal., Resolution No. 6113 N.C.S., August 21, 1972.

41. Environmental Analysis Systems, Inc., *Growth Management...Practices and Issues, A Report Prepared for the Assembly Committee on Local Government* (San Diego: 1975), p. 44.

42. Petaluma, Cal., Resolution No. 6113 N.C.S., August 21, 1972.

43. Urban Land Institute, p. 158.

44. *Construction Industry Association of Sonoma County v. City of Petaluma*, 552 F.2d 897 (9th Cir. 1975), cert. denied, 424 U.S. 934 (1976).

45. No special permit will be issued unless the residential development has available at least 15 development points on the following scale:

(1) Sewers

- (a) Public sewers available in RR-50, R-40, R-35, R-25, R-15 and R-15S districts.....5 points
- (b) Package Sewer Plants.....3 points
- (c) County approved septic system in an RR-80 district.....3 points
- (d) All others.....0 points

(2) Drainage

Percentage of Required Drainage Capacity Available

- (a) 100% or more.....5 points
- (b) 90% to 99.9%.....4 points
- (c) 80% to 89.9%.....3 points
- (d) 65% to 79.9%.....2 points
- (e) 50% to 64.9%.....1 point
- (f) Less than 50%.....0 points

(3) Improved Public Park or Recreation Facility Including Public School Site

- (a) Within 1/4 mile.....5 points
- (b) Within 1/2 mile.....3 points
- (c) Within 1 mile.....1 point
- (d) Further than 1 mile.....0 points

(4) State, County, or Town Major, Secondary, or Collector Road(s) Improved with Curbs and Sidewalks

- (a) Direct Access.....5 points
- (b) Within 1/2 mile.....3 points
- (c) Within 1 mile.....1 point
- (d) Further than 1 mile.....0 points

(5) Fire House

- (a) Within 1 mile.....3 points
- (b) Within 2 miles.....1 point
- (c) Further than 2 miles.....0 points

All distances shall be computed from the proposed location of each separate lot or plot capable of being improved with a residential dwelling and not from the boundaries of the entire parcel. The Town Board shall issue the special permit specifying the number of dwelling units that meet the standards set forth herein.

46. Hawaii, Growth Management Task Force, p. 24.

47. Alaska, in the height of the Pipeline Construction years faced a crush of in-migrants seeking employment. Their Department of Labor produced a brochure similar to the type mentioned here.

48. *Oregonian Statesman*, January 12, 1971.

49. *Ibid.*

50. Several newspaper articles indicated that McCall's statements were having a "forbidden fruits" effect. "The Governor's statements make people wonder what we have here that's so good." *Oregonian Statesman*, September 24, 1972.

51. See attachment B-2 of this appendix.

52. The three programs are: (a) Aid to Families with Dependent Children; (b) Aid to Families with Dependent Children-Unemployed Father; and (c) General Assistance.

53. *Annual Report, Fiscal Years 1974-1975*, Department of Social Services and Housing, State of Hawaii (Honolulu: 1975), p. 2.

54. Monthly standard allowance (taken from Department of Social Services and Housing Manual, sec. 3300):

<u>Family Size</u>	<u>Amount</u>
1	\$122
2	175
3	228
15	870 (for each additional person, add \$54)

Monthly shelter allowance (rent and utilities or home ownership costs):

<u>Family Size</u>	<u>Amount (Maximum)</u>
--------------------	-------------------------

1	\$175
2	215
3	240
6	320
more than 6	360

55. Examples of persons who do not qualify for other assistance programs but who still may be eligible for GA:

- An intact family unit with minor children with a father employed full time who earns less than Department of Social Services and Housing's standards of assistance.
- A couple who is expecting their first child.

56. In determining bona fide residency, the Department of Social Services and Housing may consider but is not limited to the following:

- Enrollment and receipt of welfare benefits from another jurisdiction;
- Physical presence in Hawaii;
- Maintenance of a place of residence in Hawaii;
- The existence of furnishings and household and personal effects sufficient to lead the reasonable person to conclude that the place of residence is more than mere public accommodation;
- Eligibility to vote (although need not actually be registered);
- Vehicle registration in Hawaii;
- Hawaii driver's license;
- Enrollment of children in local schools;
- Existence of local bank accounts.

57. *Hawaii Rev. Stat.*, sec. 346-71.

58. See attachment B-2 of this appendix.

59. *National Journal*, January 8, 1977, p. 48.

<u>State</u>	<u>Per Recipient/Month Spending</u> (i.e. monthly allowance)
Pennsylvania	\$122
Michigan	134
Washington, D.C.	144
Hawaii	119

60. For those eight states which do not have a GA program, the amounts provided under AFDC shall be used in lieu of GA. See attachment B-2 of this appendix.

61. Hawaii, Department of Planning and Economic Development, *The State of Hawaii Data Book 1977, A Statistical Abstract* (Honolulu: 1977), p. 101.

62. *Hawaii Rev. Stat.*, ch. 205.

63. *Hawaii Rev. Stat.*, sec. 205-1.

64. *Hawaii Rev. Stat.*, sec. 205-2.

65. *Ibid.* Currently, Honolulu, Hawaii, Kauai, and certain districts of Maui have county plans.

66. *Hawaii Rev. Stat.*, sec. 205-4(a).

67. *Hawaii Rev. Stat.*, sec. 205-1. No amendment of a land use district boundary shall be approved unless under clear preponderance of the evidence, the proposed boundary is reasonable and is not violative of the uses enumerated in section 205-2.

68. *Hawaii Rev. Stat.*, sec. 205-2.

69. Hawaii, Department of Planning and Economic Development, *Data Book 1977*, p. 101.

70. *Ibid.*

71. *Hawaii Rev. Stat.*, sec. 205-6.

72. *Ibid.* The county planning organization is similar to the state organization. Each county has a general planning department included in which is a county planning commission.

73. *Hawaii Rev. Stat.*, sec. 205-6.

74. *Ibid.* The scope of review at the circuit court level is generally limited to the record unless procedural irregularities are alleged.

75. *Hawaii Rev. Stat.*, sec. 205-8.

76. *Hawaii Rev. Stat.*, ch. 226.

77. Hawaii, Department of Planning and Economic Development, *The Hawaii State Plan* (Honolulu: 1978), p. 26.

78. *Ibid.*

79. Hawaii, Department of Budget and Finance, *Growth Management Issues in Hawaii* (Honolulu: 1977), pp. 158-176.

80. *Ibid.*, p. 148.

81. *Hawaii Rev. Stat.*, sec. 304-4.

82. Hawaii, Department of Budget and Finance, p. 148.

83. *Rev. Ord. of Salt Lake City*, sec. 25-1-7 (1965).

84. Hawaii, Department of Budget and Finance, p. 148.

85. *Hawaii Rev. Stat.*, sec. 78-1(b), as amended by 1978 Hawaii Sess. Laws, Act 101. It should be noted that bona fide residence requirements are often imposed in conjunction with durational and continuing residence requirements. See examples.

86. *U.S. Const.* amend XIV, sec. 1; *Hawaii Const.* art. I, sec. 5.

87. *U.S. Const.* art. IV, sec. 2.

88. *U.S. Const.* art. I, sec. 8.

89. *Hawaii Const.* art. I, sec. 2.

90. *U.S. Const. amend. IV.*
91. *Slaughterhouse cases*, 83 U.S. 36, 81 (1873).
92. The Court applied the Equal Protection Clause to a different racial group in *Yick Wo v. Hopkins*, 118 U.S. 356, 369 (1886), and let a corporation assert the right in *Santa Clara Co. v. So. Pac. R.R.*, 118 U.S. 394, 396 (1886).
93. 109 U.S. 3 (1883).
94. The following were interpreted as involving state action:
  - a. Judicial enforcement of private agreements - *Shelley v. Kraemer*, 334 U.S. 1 (1948);
  - b. Significant state regulation of activity - *Public Utilities Commission v. Pollack*, 343 U.S. 451 (1952);
  - c. Appointment of state agents as administrators - *Pennsylvania v. Board of Directors*, 353 U.S. 230 (1957);
  - d. Seemingly private entities carrying on public functions ordinarily performed by the state - *Marsh v. Alabama*, 326 U.S. 501 (1946).
95. *Dunn v. Blumstein*, 405 U.S. 330, 335 (1972).
96. *San Antonio Independent School District v. Rodriguez*, 411 U.S. 1, 30-39 (1973).
97. *Loving v. Virginia*, 388 U.S. 1 (1971).
98. *Shapiro v. Thompson*, 394 U.S. 618, 634 (1968).
99. *Shelton v. Tucker*, 364 U.S. 479, 488 (1960).
100. *Shapiro v. Thompson*, 394 U.S. 618, 631 (1968).
101. *Karematu v. U.S.*, 323 U.S. 214, 217-18 (1944).
102. *Storer v. Brown*, 415 U.S. 724, 736 (1974).
103. *Roe v. Wade*, 410 U.S. 113, 163 (1973).
104. *San Antonio Independent School District v. Rodriguez*, 411 U.S. 1, 33-34 (1973).
105. *Shapiro v. Thompson*, 394 U.S. 618, 638 (1968).
106. *Lindsey v. Normet*, 405 U.S. 56, 74 (1972).
107. *Reynolds v. Sims*, 377 U.S. 533, 561-62 (1964).
108. *Dandridge v. Williams*, 307 U.S. 471, 485 (1970).
109. *Sherbert v. Verner*, 374 U.S. 398, 406 (1963).
110. *Richardson v. Belcher*, 404 U.S. 78, 81 (1971).
111. *Bates v. City of Little Rock*, 361 U.S. 516, 524 (1960).
112. *San Antonio Independent School District v. Rodriguez*, 411 U.S. 1, 30-39 (1973).
113. *Roe v. Wade*, 410 U.S. 113, 152-55 (1973).
114. *Loving v. Virginia*, 388 U.S. 1, 12 (1971).
115. *Skinner v. Oklahoma*, 316 U.S. 535, 541 (1942).
116. *Frontiero v. Richardson*, 411 U.S. 677, 686 (1973).
117. *Loving v. Virginia*, 388 U.S. 1 (1971).
118. *Oyama v. California*, 332 U.S. 633, 646 (1948).
119. *In re Griffiths*, 413 U.S. 717, 721-22 (1973).
120. *Hawaii Const. art. I, sec. 5.*
121. No distinction made between the two Equal Protection Clauses in *State v. Catton*, 55 Haw. 148, 516 P.2d 715 (1973); *State v. Johnston*, 51 Haw. 95, 451 P.2d 804 (1969); *State v. Diamond Motors, Inc.*, 50 Haw. 33, 429 P.2d 825 (1967).
122. *U.S. Const. art. IV, sec. 2.*
123. *Paul v. Virginia*, 75 U.S. 168 (1869).
124. *Bradwell v. Illinois*, 83 U.S. 130 (1872).
125. *Takahashi v. Fish and Game Commission*, 334 U.S. 410 (1948).
126. 46 U.S.L.W. 4773 (June 20, 1978).
127. *Ibid.*, at 4774 n.8 (June 20, 1978).
128. *Paul v. Virginia*, 75 U.S. 168 (1868).
129. *Ward v. Maryland*, 79 U.S. 418 (1870).
130. *Blake v. McClung*, 172 U.S. 239 (1898).
131. *Connor v. Elliot*, 59 U.S. 591 (1855).
132. *So. R.R. v. Mayfield*, 340 U.S. 1 (1950).
133. *Doe v. Balton*, 410 U.S. 179 (1973).
134. *Austin v. New Hampshire*, 420 U.S. 656 (1975).
135. *Ward v. Maryland*, 79 U.S. 418, 430 (1870).
136. *Toomer v. Witsell*, 334 U.S. 385, 398 (1948). This case is the leading modern exposition of the limitation the Privileges and Immunities Clause places on the State's power to bias employment opportunities in favor of its own residents.
137. *Ibid.*, at 399.
138. *U.S. Const. art. I, sec. 8.*
139. *Crutchen v. Kentucky*, 141 U.S. 57 (1891).
140. *Hopkins v. U.S.*, 171 U.S. 578 (1898).
141. *U.S. v. Wrightwood Dairy Co.*, 315 U.S. 110 (1942).
142. *Glenovich v. Noerenberg*, 346 F. Supp. 1286 (D.C. Alas. 1972), *aff'd. mem.*, 409 U.S. 1070.
143. *U.S. Const. art. II, sec. 8.*
144. *Hicklin v. Orbeck*, 46 U.S.L.W. 4773 (June 20, 1978) - the Court cited the Commerce Clause only to supplement its holding based on the Privileges and Immunities Clause in Article IV, Section 2, of the U.S. Constitution.
145. 314 U.S. 160 (1941).

146. *Ibid.*, at 161.
147. *Ibid.*
148. *Ibid.*, at 163-177.
149. *Ibid.*, at 160 (1941).
150. U.S. Const. art. I, sec. 8.
151. *Hawaii Const.* art. I, sec. 2.
152. Hawaii, Department of Budget and Finance, p. 133.
153. *Hawaii Const.* art. I, sec. 2.
154. *Enes v. Hoopai*, 38 Haw. 126 (1948).
155. *Henderson v. Mayor of New York*, 92 U.S. 259 (1875).
156. *Graham v. Richardson*, 403 U.S. 365 (1971).
157. *Ibid.*, at 380.
158. *Nyquist v. Mauclet*, 432 U.S. 1 (1977).
159. See Equal Protection discussion at footnote 90 and following.
160. *Sugarman v. Dougall*, 413 U.S. 634, 648 (1973).
161. 394 U.S. 618 (1969).
162. U.S. Const. amend. XIV.
163. *Shapiro v. Thompson*, 394 U.S. 618, 634 (1969).
164. *Ibid.*, at 631.
165. *Ibid.*
166. *Ibid.*, at 633.
167. *Ibid.*, at 634.
168. *Ibid.*
169. *Ibid.*
170. *Ibid.*
171. *Ibid.*, at 638.
172. 405 U.S. 330 (1972).
173. 415 U.S. 250 (1974).
174. *Shapiro v. Thompson*, 394 U.S. 618 (1969).
175. *Dunn v. Blumstein*, 405 U.S. 330, 334-35 (1972); *Memorial Hospital v. Maricopa County*, 415 U.S. 250, 254 (1974).
176. *Dunn v. Blumstein*, 405 U.S. 330, 360 (1972); *Memorial Hospital v. Maricopa County*, 415 U.S. 250, 269 (1974).
177. *York v. State of Hawaii*, 53 Haw. 557, 498 P.2d 644 (1972); *Nehring v. Ariyoshi*, 443 F. Supp. 228 (D. Hi. 1977).
178. 53 Haw. 557, 498 P.2d 644 (1972).
179. *Ibid.*, at 561.
180. *Ibid.*, at 560. Note that under equal protection analysis, if strict scrutiny is not warranted, the courts have applied the "rational relationship" test. This involves a much easier burden for the state to bear as it need only show there is a rational relationship between the statute and a legitimate state interest.
181. *Ibid.*, at 561.
182. 443 F. Supp. 228 (D. Hi. 1977).
183. *Ibid.*, at 249.
184. *Ibid.*, at 251.
185. *Shapiro v. Thompson*, 394 U.S. 618 (1968).
186. *Ibid.*, at 638 n.21.
187. 415 U.S. 250, 256 (1974).
188. *Ibid.*
189. *Chimento v. Stark*, 353 F. Supp. 1211 (D. N.H. 1973) (three-judge court), aff'd mem., 414 U.S. 802.
190. *Rose v. Bondurant*, 339 F. Supp. 257 (D. N.M. 1972) (three-judge court), aff'd mem., sub. nom., *Suffling v. Bondurant*, 409 U.S. 1020 (1972).
191. *Starns v. Malkerson*, 326 F. Supp. 234 (D. Minn. 1970) (three-judge court), aff'd mem., 401 U.S. 1020 (1971).
192. *Sosna v. Iowa*, 419 U.S. 393 (1975) (Marshall, J., dissenting).
193. *Fusari v. Steinberg*, 419 U.S. 379, 391 (1975) (Burger, C.J., concurring).
194. *Starns v. Malkerson*, 326 F. Supp. 234, 238 (D. Minn. 1970) (three-judge court), aff'd mem., 401 U.S. 1020 (1971); *Rose v. Bondurant*, 339 F. Supp. 257, 260 (D. N.M. 1972) (three-judge court), aff'd mem., sub. nom., *Suffling v. Bondurant*, 409 U.S. 1020 (1972); *Chimento v. Stark*, 353 F. Supp. 1211, 1215 (D. N.H. 1973), aff'd mem., 414 U.S. 802.
195. 419 U.S. 393 (1975) (Marshall, J., dissenting).
196. *Ibid.*, at 406.
197. *Ibid.*, at 409.
198. Hawaii currently has a one-year durational residency requirement for divorce jurisdiction. *Hawaii Rev. Stat.*, sec. 580-1. See, *Whitehead v. Whitehead*, 53 Haw. 302, 492 P.2d 939 (1972); *Mon Chi Heung Au v. Lum*, 360 F. Supp. 219 (D. Haw. 19 ), rev'd per curiam 512 F.2d 430 (9th Cir., 19 ).
199. "The residence requirement and the one-year waiting period requirement are distinct and independent prerequisites...." *Shapiro v. Thompson*, 394 U.S. 618, 636 (1968). "We emphasize again the difference between bona fide residence requirements and durational residence requirements." *Dunn v. Blumstein*, 405 U.S. 330, 343 (1972).

200. 424 U.S. 645 (1976) (per curiam).
201. *Ibid.*, at 646-647.
202. *Ibid.*, at 647.
203. See note 119.
204. 424 U.S. 645 (1976) (per curiam).
205. *Ibid.*, at 646.
206. *Shapiro v. Thompson*, 394 U.S. 618, 636 (1968); *Dunn v. Blumstein*, 405 U.S. 440, 342 n.13 (1972); *Memorial Hospital v. Maricopa County*, 415 U.S. 250, 255 (1974).
207. *McCarthy v. Philadelphia Civil Serv. Comm'n*, 424 U.S. 645 (1976) (per curiam).
208. U.S. Const. art. IV, sec. 2.
209. *Hicklin v. Orbeck*, 46 U.S.L.W. 4773 (U.S., June 27, 1978).
210. *Ibid.*
211. 8 Alaska Admin. Code secs. 38.40.10 to 38.40.90. The statute defines "resident" as a person who:
- (a) Except for brief intervals, military service, attendance at an educational or training institution, or for absences for good cause, is physically present in the State for a period of one year immediately before the time his status is determined;
  - (b) Maintains a place of residence in the state;
  - (c) Has established residency for voting purposes in the state;
  - (d) Has not, within the period of required residency, claimed residency in another state; and
  - (e) Shows by all attending circumstances that his intent is to make Alaska his permanent residence.
212. *Hicklin v. Orbeck*, 565 P.2d 159, 165 (Alaska 1977).
213. 94 U.S. 391 (1877). Basically, the "natural resource" exception allowed a state to prefer its residents when dealing with natural resources it owns.
214. 12 Watt 418, 430 (1870).
215. 334 U.S. 385 (1948).
216. *Ibid.*, at 398.
217. *Ibid.*, at 399.
218. *Hicklin v. Orbeck*, 46 U.S.L.W. 4773, 4775 (U.S., June 27, 1978).
219. *Ibid.*, at 4775-76. "If Alaska is to attempt to ease her unemployment problem by forcing employers within the State to discriminate against non-residents - again, a policy which may prevent serious constitutional questions - the means by which she may do so must be more closely tailored to aid the unemployed the Act is intended to benefit."
220. *Ibid.*, at 4776.
221. *Ibid.*
222. *West v. Kansas Natural Gas*, 221 U.S. 229 (1911); *Pennsylvania v. West Virginia*, 262 U.S. 553 (1923); *Foster Packing Co. v. Haydel*, 278 U.S. 1 (1928).
223. Eugene C. Durman, *The Impact of the Elimination of Residency Laws on Public Assistance Rolls*, 4 Journal of Legal Studies 199 (1975).
224. 394 U.S. 618 (1968).
225. Hawaii, Department of Budget and Finance, "Public Employment and Population Impact of 'Less Than One Year' Migrants" (Honolulu: 1977).
226. See, *Hawaii Rev. Stat.*, sec. 78-1(b), as amended by Act 101, 1978 Hawaii Sess. Laws; *Hawaii Rev. Stat.*, sec. 346-71, as amended by Act 103, 1978 Hawaii Sess. Laws.

## SENATE RESOLUTION

PERMANENT FILE - DOWN

REQUESTING AN INVESTIGATION OF ALTERNATIVE PLANS AND STRATEGIES  
TO ESTABLISH LIMITS ON STATE GROWTH RATES WHICH ARE IN  
HARMONY WITH THE SUPPLY AND DISTRIBUTION OF NATURAL  
RESOURCES.

WHEREAS, the fact that there exist certain limits to  
economic growth in relation to natural resources is a  
proposition that enjoys universal acceptance; and

WHEREAS, there is recent evidence that uncontrolled  
growth could severely strain our supply of water, agricultural  
land, open space, recreational areas, utilities, and ecosystems;  
and

WHEREAS, many other governmental jurisdictions in the  
United States have successfully established limitations on  
the rate of growth to provide for natural population increases  
and for the maintenance of a stable economy without a dangerous  
depletion and degradation of natural resources; now, therefore,

BE IT RESOLVED by the Senate of the Ninth Legislature of  
the State of Hawaii, Regular Session of 1978, that the Office  
of the Legislative Reference Bureau is requested to investigate  
the methods of controlling growth in other jurisdictions, including:

- (1) the agricultural productivity of the land;
- (2) the added demand for water and related facilities;
- (3) the added demand for sewage and drainage facilities;
- (4) the added demand on transportation facilities;
- (5) the added demand on school facilities;
- (6) the added demand on recreational facilities;
- (7) the impacts on fragile natural resources;
- (8) the added demand on energy resources;

(9) the added demand on housing;

(10) any other related areas; and

BE IT FURTHER RESOLVED that the Legislative Reference Bureau shall not restrict itself to examples found in the United States, but shall explore strategies used throughout the world; and,

BE IT FURTHER RESOLVED that the Legislative Reference Bureau report back to the legislature twenty days prior to the convening of the Regular Session of 1979 with a comprehensive plan for legislation; and

BE IT FURTHER RESOLVED that a certified copy of this resolution be transmitted to the Director of the Legislative Reference Bureau.

OFFERED BY:

*Paul K. Young*  
*James J. [unclear]*  
*James F. [unclear]*

*Jean King*  
*Joe Kuoda*  
*Richard S. H. [unclear]*  
*George H. [unclear]*  
*J. [unclear]*  
*Arnon [unclear]*  
*Henry [unclear]*  
*T. C. [unclear]*  
*Patricia [unclear]*  
*Donald [unclear]*  
*Robert S. [unclear]*  
*Patricia K. Young*  
*Harvey [unclear]*

2/10/78



## Appendix D

### REVIEWERS' COMMENTS

The following letter was sent to the following:

Dr. Hubert Kimura  
Hawaii Institute for Management  
and Analysis in Government  
3860 Old Pali Road  
Honolulu, Hawaii 96813

Mr. Robert C. Schmitt  
Chief, Statistical Analysis  
Department of Planning and  
Economic Development  
Kamamalu Building  
250 South King Street  
Honolulu, Hawaii 96813

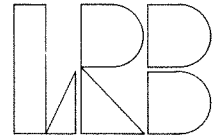
Dr. Robert W. Gardner  
Research Associate  
East-West Population Institute  
The East-West Center  
1777 East-West Road  
Honolulu, Hawaii 96848

Ms. Eleanor C. Nordyke  
Community Population Specialist  
East-West Population Institute  
The East-West Center  
1777 East-West Road  
Honolulu, Hawaii 96848

Dr. William H. Hindle  
Chairman, Population Commission  
c/o Straub Clinic and Hospital  
888 South King Street  
Honolulu, Hawaii 96813

Mr. Richard L. O'Connell, Director  
Office of Environmental  
Quality Control  
550 Halekauwila Street  
Room 301  
Honolulu, Hawaii 96813

Samuel B. K. Chang  
Director



LEGISLATIVE REFERENCE BUREAU  
State of Hawaii  
State Capitol  
Honolulu, Hawaii 96813  
Phone 548-6237

January 17, 1979

1039-A

C  
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Y

Mr. Hideto Kono, Director  
Department of Planning and  
Economic Development  
Kamamalu Building  
250 South King Street  
Honolulu, Hawaii 96813

Dear Mr. Kono:

The 1978 Legislature asked the Bureau to study alternative plans and strategies for controlling the State's growth. A draft of the study, which has tentatively been titled "Preserving the Quality of Life in Hawaii: A Strategy for Population Growth Control", has been completed.

Before submitting the study to the 1979 Legislature, we are circulating the draft among a small number of professionals familiar with the issues relating to population and growth management. A copy of the draft is enclosed and we would be pleased if you would review it and offer whatever criticism you feel appropriate. Any comments or insights you provide would be greatly appreciated. Such comments may be written separately or placed directly on the report itself at appropriate places at your convenience. Since the study is not for general circulation prior to its submittal to the Legislature and is confidential, we ask your cooperation in protecting the confidence of the report and its contents until that time. Please forward your review, including the return of the enclosed draft, directly to me by January 26, 1979. A published copy of the report will be sent to you when completed.

Thank you for your assistance.

Very truly yours,

Samuel B. K. Chang  
Director

SBKC:my  
Enc.



# The EAST-WEST CENTER

EAST-WEST POPULATION INSTITUTE

1777 EAST-WEST ROAD  
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January 22nd, 1979

Samuel B. K. Chang  
Director  
Legislative Reference Bureau  
State of Hawaii  
State Capitol  
Honolulu, Hawaii 96813

Dear Mr. Chang;

I am returning to you the ~~copy~~ of the draft of the population growth control paper which you so kindly sent me for review. I found it to be a fascinating document and spent many hours over it; I came nowhere near doing a careful job on all sections for lack of time (I must be out of town beginning Wednesday, and classes are beginning at UH), but I did manage to chew into a good part of it. My comments, both below and on the draft, are heavily on the demographic side, as you would expect from a demographer, but I haven't shied away from other topics as well.

The volume of my marginal comments might be taken as an indication that I did not like the paper, but that is not true. I just found lots to comment on, and I think that if at least some of the comments can be taken into account in a final draft, the paper might be further improved. In general, I think the author has done an excellent job, covering a large amount of material and coming to some interesting conclusions. I'd like to offer several general comments below, and then refer the author to the marginal comments (where I hope he can read my scribbling!).

1. Although natural increase is still a major component of overall growth in Hawaii, the Total Fertility Rate is below "replacement", and if the TFR does not rise above 2.1 in the near future, then natural increase will have to become a smaller and smaller proportion of total growth. The reason that it is more important now and in the recent past is because the age structure of the population is disproportionately concentrated in the child-bearing ages. Unless migration works to perpetuate this fact, natural increase will decrease in relative importance.

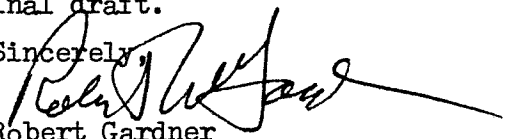
2. Natural increase of the "civilian" population usually includes the military births, i.e. births from a young, very fertile group of people. This puts a strong upward pressure on fertility and hence on natural increase in the State. It also results in a minimizing of estimates of out-migration, because these babies then migrate out although they never migrated in. The result of this effect of the military is to make natural increase more important as a component of growth and net in-migration less important than they would otherwise be. Consideration of the "real" civilian population, not including dependents and their births, would lead to the conclusion that net in-migration is more important than is suggested by the report. This can have important implications.

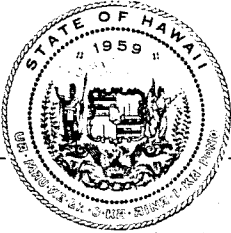
3. The author correctly notes that population growth and size are not the only sources of the social and economic problems of Hawaii. I began to feel, however, that he was belaboring this point since it was made so many times. This may have been done, of course, to correct the apparent misperception on the part of many that population is the source of many problems.
4. Appendix tables might be numbered. A minor point but quite annoying when one is trying to substantiate the text tables.
5. No mention is made of the possibility that economic growth can occur in the absence of population growth. The statement is made several times that we must choose between growth in both areas or slowed growth in both. The very likely possibility that economic growth can occur at lower population growth levels must be examined.

Ms. Nordyke has asked me to tell you she will be out of town until the 29th, and will return the manuscript as soon as possible.

Again, many thanks. I look forward to the final draft.

Sincerely,

  
Robert Gardner  
Research Associate



## DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

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GEORGE R. ARIYOSHI  
Governor

HIDETO KONO  
Director

FRANK SKRIVANEK  
Deputy Director

January 24, 1979

Mr. Samuel B. K. Chang, Director  
Legislative Reference Bureau  
State Capitol  
Honolulu, Hawaii 96813

Dear Mr. Chang:

Thank you for letting me comment on your draft of "Preserving the Quality of Life in Hawaii: A Strategy for Population Growth Control." This study is of great interest to me, because of my membership in the Commission on Population and the Hawaiian Future and my continuing assignment in the preparation of population estimates for the State.

I have carefully reviewed the draft, inserting comments and corrections in the margins of the draft and adding more general suggestions in this covering letter. I am herewith returning the draft you sent me, as you requested.

The first part of the study presents and analyzes the data currently available on past and expected population growth in Hawaii, and it is this section that provides the focus for most of my criticism. The second part of the study discusses various types of population management and their possible effects, topics where statistics are either inappropriate or lacking and toward which I can offer little in the way of special knowledge.

I would in particular like to call your attention to four areas in the statistical analysis calling for some revision or reemphasis: (1) This section veers rather noticeably from standard terminology and definitions, thus inviting misunderstanding; (2) many of the estimates cited in the text and Appendix A have been substantially revised in the past two or three years, and should be replaced with the most recent accepted figures; (3) the totals on gross migration quoted in this section are now known to be seriously incomplete and misleading; and (4) the complex and often circular relationship between employment opportunities and population growth, and the complications for both resulting from social and political considerations, may be somewhat oversimplified.

I have also noted a number of typographical and grammatical errors in this section (notably the use of "criteria" as a singular noun) but these are relatively unimportant.

January 24, 1979

One example of non-standard terminology is the concept of "total population" advanced by the draft. The LRB study defines this as the sum of the total resident population and the average visitor census. It thus differs from the well-known concepts of de facto population (officially defined as total resident population plus average visitor census minus the average number of residents absent) and total resident population. Since it is equivalent to neither the number of persons physically present in the State (the de facto total) nor the number whose usual place of residence is Hawaii (the total resident population), its use would seem to have less utility than these alternate and better known concepts.

The study also tends to commingle population composition with the components of population change. The former is usually understood to refer to demographic, social or economic elements of the resident or de facto populations -- age, military status, residence status, etc. The latter, in contrast, refers to the processes affecting change, that is, births, deaths, in-migration, and out-migration. Some of the tables in the LRB report mix net change in specific groups (military personnel and their dependents, or visitors present) with components of change (natural increase, net migration) in others. This mixture is rather confusing, especially to persons accustomed to more traditional ways of presenting demographic data, and requires careful labeling and footnoting to forestall misunderstanding.

The terms "in-migration," "out-migration," "net migration," and "immigration" are used in a manner quite different from that preferred by most population analysts. These students apply the expressions "in-migration" and "out-migration" to total movement into or out of a specific area, without restriction as to the source or destination of the movers; these words thus embrace both interstate and international migration. No satisfactory short-hand term is in common use for interstate migrants, and such movers must be somewhat clumsily designated as interstate in- or out-migrants. Unfortunately, the LRB study applies the much broader terms of in- and out-migrants to this more narrowly defined category. Immigrants and emigrants are of course international migrants, but it is ordinarily necessary to distinguish from the context whether the terms are limited to first-time movers or also encompass those who initially settled in another State and subsequently moved to Hawaii -- a distinction that is inadequately observed in this study. Moreover, the report on occasion seems to use "immigration" as short-hand for "net immigration," a very different concept.

Less important, but still worth mentioning, is the fact that the study uses "tourist" in preference to "visitor," although the latter is the locally established and recommended word. This is because "tourist" implies to most persons a traveler for pleasure, whereas "visitor" is deemed more inclusive. The HVB data include persons on business trips as well as tourists. This distinction was extensively discussed at the end of World War II when the old Hawaii Tourist Bureau was renamed and the present HVB Basic Data Program was instituted.

Mr. Samuel B. K. Chang, Director  
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A second matter of concern is the study's use of obsolete statistics. Annually, the Bureau of the Census in conjunction with the State Department of Health and Department of Planning and Economic Development issues estimates of total population, population distribution, and the components of population change. In each such report, provisional estimates for the most recent date (about six to nine months earlier) and revised figures for the date preceding the most recent (about 18 to 21 months ago) are published. In 1978, moreover, revised estimates back to 1970 were released, and these figures, particularly those for year-to-year net change and net migration, greatly altered the data put out earlier. Unfortunately, the LRB report relies mostly on data contained in a DPED report prepared three years ago and subsequently revised. These long discarded estimates are given in considerable detail in Appendix A and also appear throughout the text.

Even the revised estimates of net change and net migration should be used with considerable caution. Although we are reasonably confident of the official figures for the consolidated 99-month postcensal period (that is, April 1, 1970 to June 30, 1978), we have many qualms regarding the underlying year-to-year data. The methodology for preparing these estimates is far from perfect, and although it provides a generally satisfactory basis for charting broad trends it remains notably deficient for gauging year-to-year movements.

This inadequacy of the annual figures can fortunately be circumvented without incurring any real damage to the main arguments of the LRB report. Limiting the documentation to ten-year (1960-1970) and 8 1/4-year (1970-1978) totals on components of change does not affect the thrust of the report. The same is true of the substitution of the revised for the preliminary estimates; although the figures differ considerably, the major conclusions are unaffected. Elimination of the meaningless annual detail would not only eliminate many questionable figures but would also permit a much tighter and more readable presentation.

A related problem is that posed by the use of earlier estimates of gross in- and out-migration, included in DPED reports until 1976 but now known to have been seriously incomplete and misleading. These estimates were calculated from the HVB data on intended residents, Immigration and Naturalization Service immigration statistics, and Bureau of the Census estimates of net migration. Gross in-migration was calculated by adding the HVB and INS data; out-migration, by subtracting net migration from the computed in-migration figures. In 1978, tabulations on residence one year earlier by place of birth first became available from the Hawaii Health Surveillance Program survey, and the results conclusively proved the unsuitability of the HVB and INS data as sources of gross in-migration estimates. The HVB and INS data both overlapped one another and suffered from serious omissions, making it impossible to estimate gross in-migration (and consequently out-migration) with any confidence. The numerous estimates of gross migration presented in the text and Appendix A of the LRB report (and taken from earlier DPED reports) must now be viewed as seriously defective.

Mr. Samuel B. K. Chang, Director

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January 24, 1979

If annual data on gross in-migration are deemed essential to the report, we recommend that you substitute the data from the Hawaii Health Surveillance Program for those obtained from HVB and INS. These findings refer to place of residence one year earlier, and appear in the enclosed memorandum, "Migration Data from the Hawaii Health Surveillance Program Survey, Hawaii Visitors Bureau, and Immigration and Naturalization Service," dated January 16, 1979.

A discussion of the limitations of the HVB and INS tabulations as measures of gross migration and an effort to derive more accurate estimates of net immigration can be found in summary form in "Immigration Trends in Hawaii" (Department of Health, Population Report, No. 10, dated September 1978), p. 4 and tables 7 and 13, and in greater detail in the enclosed memorandum, "Migration, Nativity, and Citizenship, 1973-1976" (August 22, 1978).

We strongly urge you to replace the outdated and erroneous estimates in Appendix A and narrative with the revised figures in the enclosed reports and memorandums. In addition to the DOH report and DPED memorandum cited in the preceding paragraph and memorandum of January 16, 1979 mentioned earlier, these enclosures include "Revised Population Estimates, 1970-1978" (October 6, 1978) and "Population Distribution and Components of Change, 1977 and 1978" (January 24, 1979).

Finally, you might give some thought to amplifying the discussion of the relative roles of demographic, economic, and social factors in population growth. The current official DPED population projections begin with employment projections and assume that population grows or declines in response to shifts in the job count. Some population analysts, in contrast, view immigration as a function of social, political, and family considerations (to a large extent) and treat employment as a major element only in interstate migration. Both points of view necessarily oversimplify an extremely complex situation. Both social and economic factors are present to some degree in both interstate and international population movement.

I hope that the foregoing comments, in combination with the briefer marginal notes pencilled into the draft herewith being returned, will be useful to you in revising the draft. Please do not hesitate to call if we can be of further help, particularly in regard to the updating of Appendix A and the other statistical content of the volume.

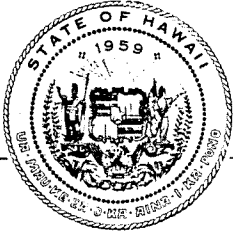
Sincerely,



Robert C. Schmitt  
State Statistician

RCS/jn  
Enclosures





## DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

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GEORGE R. ARIYOSHI  
Governor

HIDETO KONO  
Director

FRANK SKRIVANEK  
Deputy Director

Ref. No. 8118

January 31, 1979

FEB 1 1979

Mr. Samuel B. K. Chang  
Director  
Legislative Reference Bureau  
State of Hawaii  
State Capitol  
Honolulu, Hawaii 96813

Dear Mr. Chang:

While we find the report "Preserving the Quality of Life in Hawaii: A Strategy for Population Growth Control" interesting and thought-provoking in challenging certain policy directions, we have serious reservations regarding certain references made to The Hawaii State Plan within the report. Some aspects of the State Plan technical studies--Population and The Economy seem to have been misinterpreted.

The preliminary draft of "Preserving the Quality of Life in Hawaii: A Strategy for Population Growth Control" sets forth various types of criteria which may be used to determine "ideal" population growth. These include absolute number, population increase rate, carrying capacity, employment availability, popular opinion, and economic welfare. The advantages and disadvantages of each are discussed. Among the disadvantages cited with regard to the employment availability model is that it disregards other impacts of population such as social and environmental impacts. Within the footnote section, the State Plan technical study - Population is cited as an example of an employment availability model. Perhaps some clarification of the State Plan population technical study is needed.

Within the State Plan population technical study, a number of population projections were made. These projections were projections of probable future rates of growth given that certain conditions regarding natural increase and migration, etc., occurred (assumptions). The assumptions were based upon fertility and mortality data and various other factors dealing with civilian, military, visitor and other components of population growth and trends, and upon a study of economic conditions and projections (State Plan: The Economy, Technical Study). This was done in order to develop alternative population growth rates and to determine probable rates and a "most desirable" rate. Social and environmental impacts were not neglected (Population Issue Paper, State Plan Issue Paper No. 6). May we direct you to Chapter 9, Implications of Growth and Planning Concerns, and specifically to pages 9-9 through 9-13,

The Hawaii State Plan: Population, Technical Study. This section discusses social and environmental impacts associated with various rates of growth, environmental quality, loss of agricultural land and open space, crowding in parks, traffic congestion, crime rates, health care and diversity of choice. The State Plan: Population Issue Paper further discusses these social and environmental impacts. While economic factors and specifically employment availability are important variables in determining desirable population growth rates, these are not the sole variables.

In addition, while it is stated in the Population Technical Study that all of the "important relationships that were developed are relatively simple to understand and use," the word "simple" is very different than the word "simplistic." The statement in "Preserving the Quality of Life in Hawaii" report that the methodology used in the technical study is "simplistic," could be omitted. Careful reading of the plan and its technical studies would assure the reader that there is adequate acknowledgement that this is a very complex subject and that it is treated as such.

Further, with regard to footnote 21, Chapter III, the statement implies that the State Plan does not consider the effect of technology on resource availability. This is not the case, as is indicated in The Hawaii State Plan, pp. 30 and 44. However, it is acknowledged in The Hawaii State Plan: Limited Resources Issue Paper that alternative sources are expensive and many years away from being available for use. The point that is raised within the footnote and section is a good one--population growth and consumption of resources may not be closely linked; that is, there may still be a resource scarcity problem without rapid population growth. It is, however, not valid to draw the conclusion that the State Plan methodology looks upon population growth as the sole reason for resource depletion and other problems.

The Hawaii State Plan includes not only the State Plan document but the underlying technical studies and issues papers as well. These encompass social, environmental, physical as well as economic elements. A comprehensive perspective is undertaken, thus, it may be inappropriate to reference the State Plan as an example illustrating a uni-dimensional point. Some of these examples might be omitted or clarified.

With regard to the data sections, these appear to be correctly used and the interpretations sound. One point that might be made here is that while in-migration as a component of population growth is not that large, it is significant that the proportions of natural increase versus net in-migration have changed since 1960 from 31% in 1960-65 to 49% in 1970-77 (DPED, Population Growth Issue Paper, p. 4). The State statistician will be providing additional comments.

The report provides an alternate perspective on a number of policy views and the analysis technique is different. The "alternate viewpoint" regarding the questioning of whether there really is a population problem and whether there is a need for a population strategy, is an interesting role to take and could stimulate further dialogue in this area.

Mr. Samuel B. K. Chang  
Page 3  
January 31, 1979

If I can assist in clarifying any of these points further, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, consisting of a large, stylized 'H' followed by a series of loops and a long horizontal stroke.

HIDETO KONO

GEORGE R. ARIYOSHI  
GOVERNOR



RICHARD L. O'CONNELL  
DIRECTOR  
TELEPHONE NO.  
548-6915

STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
OFFICE OF THE GOVERNOR  
550 HALEKAUWILA ST.  
ROOM 301  
HONOLULU, HAWAII 96813

February 2, 1979

Mr. Samuel B. K. Chang  
Director  
Legislative Reference Bureau  
State Capitol  
Honolulu, HI 96813

Dear Mr. Chang:

I have reviewed your draft report "Preserving the Quality of Life in Hawaii: A Strategy for Population Growth Control" and have found it to be most interesting and informative. I believe that it describes very well the factors influencing population changes and the limited options available to influence those changes. I also believe that the recommendation to concentrate on a procedural-supply strategy has merit and that the controls identified with that strategy are well worth pursuing.

It occurs to me that one other area should be analyzed for its impact on population growth, economic development and the quality of life. I refer to the uncontrolled speculation in real estate development which seems to be prevalent in Hawaii. How does this phenomenon influence the "problem" which is the subject of your report? Is this type of development a response to a need for housing units or simply an income-producing opportunity which then contributes to untimely growth? What would be the effect of legislative controls such as those adopted in Vermont which heavily tax the short-term profits of speculators? Should long-term investors/lessors be controlled as businesses which contribute to the inventory of tourist accommodations and thereby contribute to the growth of tourism and its associated service population?

Mr. Samuel B. K. Chang  
Page 2  
February 2, 1979

I appreciate the opportunity to review this draft and will look forward to receiving the final report.

Sincerely,

A handwritten signature in dark ink, appearing to read "R. O'Connell", written in a cursive style.

Richard L. O'Connell  
Director

Enclosure

OEQC Comment on  
"Preserving the Quality of Life in Hawaii:  
A Strategy for Population Growth Control"

Page 35, Footnote 5. Footnote number 5 cites the report of the Growth Management Task Force (1978) as the reference for the term "carrying capacity". Since use of the term and the following discussion is in direct reference to the Hawaii Carrying Capacity Study, a more appropriate reference source for the term would be:

Hawaii, Governor's Steering Committee on Carrying Capacity Studies, Carrying Capacity Concepts and Criteria (Honolulu: 1975) p. 1.

This citation is the same as that of Chapter III, footnote 38.



# The EAST-WEST CENTER

EAST-WEST POPULATION INSTITUTE

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2 February 1979

Mr. Samuel B.K. Chang, Director  
Legislative Reference Bureau  
State of Hawaii State Capitol  
Honolulu, Hawaii 96813

Dear Mr. Chang:

Thank you for sharing the study Preserving the Quality of Life in Hawaii: A Strategy for Population Growth Control and for offering an opportunity to review and to criticize this work.

This is an important document that should provide legislators with considerable understanding of Hawaii's population problem and help them make recommendations to reduce Hawaii's rate of population growth. While the study has many excellent qualities, I would like to suggest some shortcomings:

- (1) Much of the data is obsolete. Figures for different years are used inconsistently, some migration discussions only cover material through 1974, and the appendix that could be more useful if indexed often does not include information for the 1976-1978 period. The period from 1975 through 1978 has seen a rapid increase in population, with annual visitor population growing from 2.8 million to 3.7 million and tourists and the total de facto population advancing from 927,700 to 984,900 residents.
- (2) Natural increase is indicated as a population control problem despite the fact that Hawaii's fertility has dropped below replacement level (and it is possible that in a few years Hawaii may be initiating measures to promote births). Further reduction of natural increase could unfavorably alter age composition and racial mix. Present fertility trends show that if these islands were a closed population without in-migration and immigration, our population would gradually age and decline in numbers. In demographic terms, Hawaii's residents have already controlled their component of growth by natural increase. The declining growth rate by natural increase approximates the United States rate, and this slow growth could be easily tolerated with minimal environmental impact. Net migration, however, is uncontrolled; this component of growth contributes excessively to the annual population growth rate of Hawaii and threatens the quality of life of these islands.

- (3) The population growth impact of the tourist industry is not explicitly indicated, and there are no clear recommendations for its control. The expansion of jobs in the visitor industry is the major stimulant to rapid population growth in Hawaii in 1979. New tourist industry developments open jobs in hotels & restaurants, in financial fields like banking, real estate and insurance, in air and ground transportation, in retail trade, construction, and many other public and private services. The more jobs, the higher net migration; the net migration is determined by the economy that depends on the performance of the tourist industry. The findings of the DPED Long-Range Population and Economic Simulation Model for the State of Hawaii and of the DPED Economy of Hawaii 1978 clearly state that if the expansion of tourism could be controlled, the growth of population in Hawaii would be controlled. They suggest that the State has a powerful planning instrument by the control of the tourist industry. Yet your study that is supposed to review strategies for population growth control fails to clearly point out the tourist industry impact on population increase or to show that the population growth rate for 1970 to 2000 will be a comparatively high rate of 1.5 if Hawaii continues to endorse its "most likely tourism growth trend," while the state's growth rate could drop to 0.6 if tourism could be curtailed to its present level of almost four million annual visitors. This fact should be clearly stated whether or not action is proposed.

In 1978 the Commission on Population and the Hawaiian Future recommended that Hawaii should "Achieve a statewide population growth rate not to exceed the national growth rate in 10 years, while attaining a zero net migration rate in Hawaii within 15 years." This goal is not attainable with the recommendations found in this document; it would be within reach if tourism could be contained at its present level.

- (4) The chapter on forecasting is incomplete and does not show that Hawaii's population will increase by many hundreds of thousands of persons as a result of the economic thrust of the tourist industry. High population forecasts (E2, IIF, and "most likely trend of tourism") that implicitly endorse rapid population growth as a necessary "tradeoff" for economic growth are presented in considerable detail. Planning based upon these forecasts offers a self-fulfilling prophecy for rapid population increase. A comparison of alternate projections that show different assumptions of growth in tourism should be included, so that legislators may be aware that with low rates of tourism growth population growth could be controlled and per capita income could be higher. The question of how many jobs are necessary for Hawaii's population if lower population forecasts are followed offers alternate perspectives.



- (5) Urban planning terminology is confusing. Technical terms, such as "procedural-supply strategy" may not be clear to the general reader.
- (6) The terms "components" and "composition" need clarification. In demographic terms, components of change include births, deaths, and migration, while composition of population may refer to categories such as military, tourists, civilian, resident, defacto, and others.

State Senate Resolution 166 of the Ninth Legislature, 1978, requested an investigation of alternate plans and strategies to establish limits on state growth rates which are in harmony with the supply and distribution of natural resources. This document - Preserving the Quality of Life in Hawaii: A Strategy for Population Growth Control might be more accurately titled Ensuring the Decline in Quality of Life in Hawaii: A Strategy for Population Growth. It fails to address the problem of growth control; instead it emphasizes growth management and accommodation to population increase. It does not clearly identify the major source of Hawaii's population growth - the tourist industry. It accepts the economists' perspective that continued rapid population growth is a necessary "tradeoff" to ensure economic growth. It implies that Hawaii can continue indefinitely to accommodate to rapid increase of population. It belittles the intelligence of the average citizen, indicating that popular sentiment polls that show concern and desire for control of population growth are meaningless since results may lead to "undesirable tradeoffs" that are not adequately understood by the general public.

Once again I want to express my appreciation for your kindness in letting me review this document prior to its publication. This complex subject concerns me professionally and personally, and I am grateful that you are working on it. My comments were hastily scratched with a blunt pencil while driving, flying, and sitting in coffee shops during a mainland vacation, and if they are illegible or if you wish to discuss the ideas further, I would be happy to meet with you.

Aloha,

*Eleanor C. Nordyke*

Eleanor C. Nordyke  
Community Population Specialist

ECN:csw

Enclosure

GEORGE R. ARIYOSHI  
GOVERNOR



DR. W. H. HINDLE  
CHAIRMAN

STATE OF HAWAII  
COMMISSION ON POPULATION AND THE HAWAIIAN FUTURE  
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FEB 9 1979

February 8, 1979

Mr. Samuel B. K. Chang  
Director  
Legislative Reference Bureau  
State Capitol  
Honolulu, Hawaii 96813

Dear Mr. Chang:

First, let me apologize for this overdue response to LRB report, "Preserving the Quality of Life in Hawaii: A strategy for population growth control."

This is a well written and easily comprehensible report. It describes the basic dilemma that decision-makers face in attempting to stem unplanned growth in Hawaii.

The historical perspective sets the frame for discussion of future growth management direction. However, there is a need to discuss further how "population growth problem" is defined in relation to political trade-offs that are necessary for long range planning. Specifically, what is needed to ensure that policies will be carried out?

In the discussion on state land regulation as a strategy for growth management, emphasis is based upon the theoretical concept of state land management. However, there is no discussion about the effects that zoning variances have had on the overall scheme of state land management. Has there been an effect at all? Have recent land conversions been minimal? How much land has been converted and of what classification? Has the semi-judicial application process to the Land Use Commission had an effect on the decision-making process? Is community interest being considered over special interest, or vice versa?


It is necessary, I think, to discuss the political process involved in government land management. Since this report is geared for decision-makers as its prime audience, discussion on the effects of land conversions is necessary, as well as suggestions for stronger enforcement.

At the risk of editorializing, I would like to make one point. On the surface, government land management strategy appears to have its checks and balances with regard to state/county powers. But a law is effective when it is enforced and when decision-makers make decisions in accordance with the intent of the law.

Mr. Samuel B. K. Chang  
February 8, 1979  
Page Two

Thank you for the opportunity to comment on this preliminary draft report.

Sincerely yours,

  
Lynnette Araki  
Information Specialist