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THE ECONOMIC BASE OF FAIRBANKS, ALASKA

A
THESIS

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THE ECONOMIC BASE OF FAIRBANKS, ALASKA

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ABSTRACT

The economic base of Fairbanks, Alaska, consists largely of national defense functions and other government activities, including research and education. Fairbanks is also a transportation, communications, and service center for interior and arctic Alaska.

During 1963-1968 the greatest employment increase in an economic base component occurred at the College campus of the University of Alaska, near Fairbanks. Beginning in the last quarter of 1968 the local economy was sharply stimulated by oil industry activities on the Arctic North Slope. Construction of an oil pipeline and possible construction of a small refinery in or near Fairbanks will result in continued economic growth at least through 1972.

Long term economic growth in Fairbanks will result primarily from continued expansion at the College campus of the University of Alaska and from the continuing role of Fairbanks as a trade, service, and government center for interior and arctic Alaska. Economic expansion almost anywhere in the northern half of Alaska will probably bring some benefits to Fairbanks, and growth in northern Alaska during the coming decades will probably be at a greater rate than during 1963-1968. In part, the more rapid growth rate will be the direct result of petroleum activities.

Available evidence indicates that every civilian job in basic economic activity, such as defense, research, or regional trade, generates directly and indirectly about .8 additional jobs in nonbasic

activities such as retail trade, personal services, and local government.

A major question which remains unanswered is to what extent will Fairbanks rather than Anchorage, Alaska be the chief beneficiary of economic expansion throughout northern Alaska. The answer to this question will be determined, during the next decade, in part by the degree to which public programs for health, education, and community planning are improved in Fairbanks. In the absence of such improvements, the difficulty of attracting and holding the high caliber workforce required in economic base activities will deter public and private agencies from locating functions in Fairbanks.

PREFACE

Reason for Selection of Topic

Charles M. Tiebout states:

The primary objective of an economic base study is to develop information which will help a community solve local problems, make better decisions about matters that will enlarge economic opportunities for its citizens, improve their welfare, and make it possible for them to increase their contributions to national growth.¹

With reference to that statement of objectives, one reason for the selection of this topic is the need of policy makers for an up-to-date analysis of the existing and potential opportunities for employment in Fairbanks, including the development of information about the levels of education and training required. Other studies of Fairbanks have not emphasized this aspect of the economy.

Furthermore, although Economic Base of the Fairbanks North Star Borough, by Robert C. Haring, was published in June 1967, the information developed in that study is already out of date. In August of 1967, Fairbanks experienced a devastating flood, the results of which could not be evaluated with any precision until after the lapse of a considerable period of time.

In addition, recent large discoveries of oil on the Arctic North Slope have changed the economic outlook substantially. Therefore, it is important to the community of Fairbanks to have available an economic

¹Charles M. Tiebout, The Community Economic Base, (Supplementary Paper No. 16, published by the Committee for Economic Development December 1962), p. 9.

base study describing as accurately as possible the structure of the local economy prior to the impact of the oil boom. This study will provide a benchmark against which to measure the effects of North Slope oil activity.

A new economic base study of Fairbanks is also needed because previously published employment and wage data have been seriously in error concerning recent growth of employment at the University of Alaska in College. The error of previously published data was established through interviews with the Comptroller, University of Alaska, and with the Research and Analysis Head, Employment Security Division, Alaska Department of Labor. As a result of this discovery, steps are being taken to insure that future published data are correct.

Specific Questions to Be Answered by This Study

The Committee for Economic Development (CED) has listed ten questions which may be answered by economic base studies. These are:

1. What have been the precise sources of employment, income and output in the past?
2. Which of these sources have served markets outside the metropolitan area and will be affected by external markets?
3. Which have served markets within the metropolitan area?
4. What are the prospects for future growth, change or decline in these various economic activities? What new industries may be expected to emerge within the next decade or two?

5. How does public policy influence the growth, change, or decline of various economic activities?
6. What changes may be expected in the size and mix of the labor force?
7. To what extent will labor services be supplied by residents of the region or by new migrants?
8. What are the residential preferences of high and middle-income families? And how and where are the housing needs of low-income people likely to be met?
9. What kinds of community and institutional facilities are required at current or anticipated levels of service?
10. In view of these factors, what are the likely uses of different districts and neighborhoods within the region?²

This study will concentrate on questions (1) through (4) above, and will provide only partial answers to questions (5), (6), (7), and (9), while ignoring questions (8) and (10). However, this study will attempt to go beyond most economic base studies by providing detailed recommendations for improving the flow of information necessary for community planning. This aspect of the study is inspired by the following comments by the Committee for Economic Development (CED):

. . . a better bridge must be built between pioneering new techniques in the universities and practitioners engaged in applying economic base studies to policy problems in various metropolitan areas. The professional disciplines have not devoted as much attention to these problems as appears to be warranted. In addition, many techniques are severely limited by a lack of primary data.

²Guiding Metropolitan Growth (A Statement on National Policy by the Research and Policy Committee of the Committee for Economic Development, August 1960), p. 32.

The Committee believes that this field of inquiry warrants a larger commitment of research resources. This requires the cooperation of the universities, governmental agencies, business firms, and private foundations. Universities have an opportunity to develop research programs in this field

. . . there is need for a broad assessment of the objectives of metropolitan economic base analysis, the adequacy of techniques, and the availability of data³

One goal of this study is to produce a document of value to planning personnel in the City of Fairbanks and the Fairbanks North Star Borough governments. Included will be detailed information about basic social and economic data series, including sources of data, frequency with which data can be updated, ways to reduce time lags on data, limitations of existing data series, and recommendations for eliminating inadequacies of existing data series.

As indicated earlier, this study will also concentrate on the industry and occupational pattern of existing and potential employment opportunities in Fairbanks. A proposed design for a continuing series of periodic reports showing the occupational profile of each area industry will be developed.

The introductory chapter provides a conceptual framework to aid in evaluation of the historical economic data presented in subsequent chapters.

³Ibid., pp. 33-34.

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CHAPTER 1.
THE ECONOMIC BASE CONCEPT

Definition of Basic Economic Activity

The concept of the community economic base which is applied in this study is a modified version of the concept outlined by Charles M. Tiebout.⁴ According to Tiebout, production of goods and services which contribute either directly or indirectly to export sales is considered basic economic activity, while all economic activity oriented to the local market is considered nonbasic. In this context, exports include all sales to purchasers outside the community.⁵

Tiebout states, "Implicit in this division of markets is the cause and effect relationship."⁶ It is assumed that changes in export related employment and income will generate further changes in employment and income derived from local consumption.

For example, a hypothetical community with a job total of 1,000, of which 550 jobs are involved in the production of pulp while most of the other 450 are in retail trade and personal service establishments, is easily analyzed on the basis of a cause-and-effect relationship between export (basic) and local market (nonbasic) activity. Receipts from the export of pulp bring revenues into the community, which are divided among the factors of production, including labor. Much of the resulting income will be spent in the community, thereby generating

⁴Charles M. Tiebout, The Community Economic Base.

⁵Ibid., p. 13.

⁶Ibid.

additional income. For example, the pay of pulp mill workers will be spent in local trade and service establishments and in support of schools and other local government. In this simple case it is easy to see that any substantial increase or decrease in pulp mill employment will probably have an impact on all nonbasic employment.

In other cases, however, the cause-and-effect relationship between export activity and local market oriented activity is either unimportant or subject to dispute on various grounds. In many such cases, economic base analyses are irrelevant.

There is no export income to a primitive but self-sufficient economy, and none is required. Export income is necessary only as a replacement for corresponding outflows of funds -- referred to in economic base literature as "leakages" -- which result from imports or other causes. By definition, a self-sufficient economy requires no imports, and therefore has no need to export.

Furthermore, in the case of economies with high levels of technology, dependence upon export income becomes less significant as the area under study becomes larger and more diversified. This results because diversification leads to self-sufficiency. The "community" of the United States exports a relatively small proportion of its total production of goods and services, because its leakages are also relatively small. Consequently, analysis of the economy of the United States must concentrate upon internal factors such as consumption functions, investment, and levels of government spending. The export trade aspect -- which is in most respects analogous to the community economic base -- is of comparatively minor significance.

However, the export -- or economic base -- aspect becomes of increasing significance as smaller regions within the United States are considered. The ideal subject for the application of economic base concepts is a relatively small community with one or more large and conspicuous export industries.

There are at least two other major problems inherent in the economic base concept, in addition to myriad practical difficulties in the application of the concept.

With respect to larger communities, Hans Blumenfeld explains the fallacy of assuming that a cause-and-effect relationship exists between the export (basic) and local market (nonbasic) sectors:

A large metropolitan area exists, survives, and grows because its business and consumer services enable it to substitute new "export" industries for any that decline as a result of the incessant vicissitudes of economic life.

These services are the constant and permanent, hence the truly "basic" and "primary" elements of the metropolitan economy; while the ever changing export industries are the "ancillary" and "secondary" elements. The relation assumed by the (economic base) method is, in fact, reversed.⁷

The same reversal of relationships which Blumenfeld points out in very large communities is also becoming increasingly evident in smaller communities. Recently a vice president of a Dun and Bradstreet subsidiary stated that twenty years ago his company's clients sought "the lowest cost community regardless of appearance or liveability," but that today "most firms want a town to which they can attract key

⁷Hans Blumenfeld, "The Economic Base of the Metropolis," *Journal of the American Institute of Planners*, XXI (Fall 1955), p. 114.

. . . personnel. This means outstanding schools, attractive neighborhoods, and an abundance of cultural activities."⁸ Here again, it is seen that the "nonbasic" aspects of the community may be the causal factors in community economic growth.

Another major defect in the economic base concept is its preoccupation with the export side of the community's balance of payments ledger. Import substitutes are an equally important factor in determining the economic well-being of the community. This point will be further developed in the following discussion of the family of ratios associated with the economic base concept.

Economic Base Ratios

A family of ratios is closely associated with the application of economic base analysis to community planning. As summarized by Richard B. Andrews:

Economic base analysis depends upon a system of ratios that expresses not only the quantitative proportional relationships between the parts of an urban economy but also the relationships between these parts and the community's population. One of the principal objectives of classification and identification is to provide the data that will permit the establishment of these ratios.⁹

The more important of these ratios, as formulated by the above quoted source, are:

⁸Ronald M. Reifler, Fortune magazine (October 1968), p. 75.

⁹Richard B. Andrews, "Economic Studies," Principles and Practices of Urban Planning (published by the Institute for Training in Municipal Administration for the International City Managers' Association, Edited by William I. Goodman, 1968), p. 96.

- (1) B:LM
- (2) B:TE
- (3) TE:TP
- (4) B:TP

where:

B = export market activity (base)
 LM = local market activity
 TE = total employment (B + LM)¹⁰
 TP = total community population

If, in a given community, the ratios shown above can be relied upon to remain constant, and if export (basic) employment is the causal factor determining all economic and demographic change, it is clear that changes in basic employment will result in proportional changes in total employment and in total population. This is the straightforward, if oversimplified, basis for total employment and population projections utilizing economic base analysis.

However, as previously stated, exports are required only in order to pay for imports. Therefore, decreasing imports can produce the same benefits as increasing exports. Import substitution will increase local market (nonbasic) employment, thereby decreasing ratios (1), (2), and (4) shown above. Stated another way, import substitution will increase the "employment multiplier," which is defined as: TE:B (total employment to export employment).

In order to show the equivalence of import substitutes to exports, in quantitative terms, the ratio of local market employment to total employment, or LM:TE, is also useful. Although this ratio is expressed in terms of employment rather than money, it is presented in this

¹⁰Ibid., p. 97.

analysis as a rough measure of a community's economic self-sufficiency -- i.e., the degree to which local demand for goods and services is satisfied by local production. In a completely self-sufficient community, there would be by definition neither imports nor exports, and LM:TE would be unity. In that case, B:TE would be zero. However, as a community's export activity becomes more significant -- presumably in order to pay for increased reliance upon imports -- LM:TE will decrease and B:TE will increase. Therefore, B:TE may be viewed as a proxy for the degree of reliance upon imports for satisfaction of local market demand. The relationships of these employment ratios to the degree of dependence upon imports are, however, not linear for many reasons, including differences in productivity.

Five sets of LM:TE and B:TE ratios are presented in Table 1, together with the corresponding "employment multiplier" ratios, TE:B. Using figures in Table 1, it is possible to show the equivalence of import substitutes to exports by comparing two sequences of events which could occur in a community initially having 400 basic and 1200 nonbasic wage and salary jobs. Such a community would be characterized by the set of ratios shown in Line (c) of Table 1.

In the first sequence, total employment could be increased from 1600 to 2000 with no gain in basic employment by shifting the relationships from those in Line (c) to those in Line (b). This would happen if import substitutions were effected such that 80 per cent, rather than 75 per cent, of local demand were satisfied by local production. In that case, LM:TE would increase to .80 and

TABLE 1.

Sample Economic Base Ratios

	Column (1) $\frac{LM:TE}{}$ (Related to proportion of consumption produced locally)	Column (2) $\frac{B:TE}{}$ (Related to proportion of consumption satisfied by imports)	Column (3) $\frac{TE:B}{}$ (The "employment multiplier")
Line (a)	1.00	zero	infinity
Line (b)	.80	.20	5.00
Line (c)	.75	.25	4.00
Line (d)	.60	.40	2.50
Line (e)	.50	.50	2.00

NOTE: $B:TE$ is the complement of $LM:TE$. The employment multiplier, or $TE:B$, is the reciprocal of $B:TE$. Since $B:TE$ is positively related to reliance upon imports, the employment multiplier is inversely related to reliance upon imports.

B:TE would decline to .20. The employment multiplier, TE:B, which is the reciprocal of B:TE, would increase from 4.00 to 5.00. With an employment multiplier of 5.00, the original basic employment of 400 would indirectly support a total employment figure of 2000, rather than the original total employment of 1600.

The employment increase described above may be viewed as occurring in a series of steps, beginning with the immediate impact of import substitutions and continuing through a sequence which is known as the employment multiplier operation.

The direct effect of increasing LM:TE from .75 to .80, through import substitutions, will be that the original 1600 workers will support 1280 nonbasic workers ($.80 \times 1600$) instead of only 1200 ($.75 \times 1600$). The 80 new nonbasic workers will produce goods and services which the original 1600 basic and nonbasic workers previously imported.

Furthermore, these 80 additional nonbasic employees will generate a still further increase of 64 jobs ($80 \times .80$), because 80 per cent of their demand for goods and services will be satisfied by additional local production. In turn, these 64 additional nonbasic employees will support 80 per cent of their number, or 51.2, in still more nonbasic employment. This is the process by which the employment multiplier works itself out to the ultimate limit, which is the reciprocal of B:TE. Through the employment multiplier, the original increase of 80 jobs is multiplied by 5.00, bringing about a total increase of 400.

At this point, with LM:TE now equal to .80, a decrease of 80 jobs in basic employment would, through the employment multiplier,

reduce total employment by 5.00 times that amount, or 400 jobs.

Each of the two sequences described above begins with an initial change of 80 jobs, followed by the working out of the employment multiplier to provide a total employment change of 400. The comparability of the two examples indicates the equivalence of import substitutes to exports. However, as earlier stated, most economic base studies focus upon exports while giving little attention to the equally significant question of imports.

Supplementing the economic base approach by a study of imports is desirable not only because potential import substitutions may be discovered, but also because import data will serve as a check on conclusions based upon information about exports. For example, if only 20 per cent of employment is believed to be export related, while import data show that 33 per cent of goods and services consumed locally is imported, this inconsistency would indicate the need for further study. A B:TE ratio of .20 is consistent with an employment multiplier of 5.00, but importation of 33 per cent of locally consumed goods and services is consistent with an employment multiplier of only 3.00. Additional analysis or additional information might show which employment multiplier is more nearly correct.

The type of discrepancy described above is likely to occur in economic base studies utilizing the "location quotient" method to identify export employment, because that approach often understates the proportion of basic employment, thereby overestimating the employment multiplier. Deficiencies of the location quotient method are discussed in the next section.

Difficulties in Applying the Economic Base Concept

One of the first decisions which must be made concerning a study is the geographical boundaries of the area to be analyzed. This decision is often dictated by considerations of data availability. In the present study, the area analyzed is the entire Fairbanks Census District rather than the Fairbanks metropolitan area. This choice was determined by the fact that employment and wage data by industry are published by the Alaska Department of Labor for the Census District but not for the metropolitan area. Fortunately, there is very little Fairbanks Census District employment outside the metropolitan area.

Data availability is also a problem in the selection of the unit to be used to measure the basic and nonbasic sectors of the economy. Among the units which may be used are: employment, wages, sales, and flow of funds. For many purposes, the most useful unit of measure would be value added, but this unit is used only rarely because of the expense and difficulty in obtaining valid data. In this study, employment is the basic unit of measure used. One reason for the selection of employment is the need for well organized information about current and future job opportunities in the community. This information is needed by persons engaged in education planning, guidance counseling, and job training programs.

Identification of export, as opposed to local market, activity is perhaps the most difficult problem in the application of economic base concepts. Most authorities concede that only direct investigation,

through questionnaires and interviews, can produce accurate results. However, Blumenfeld points out that even this approach is seriously hampered not only by the obvious factor of cost, but also by unwillingness of private firms to disclose their markets.¹¹

All substitutes for direct investigation of markets should, as emphasized by Richard B. Andrews, be labeled "Use in Emergency Only."¹² The substitutes most often employed are of two broad categories: the so-called assumption method, and the location quotient method and its many variations. Andrews describes these approaches:

. . .the assumption method . . . operates on the assumption that broad economic sectors or divisions such as manufacturing, wholesaling, and mining are invariably export in nature; whereas retailing, government, education, and services are invariably oriented toward the local market. . . .

Location quotients have greater respectability, but very little, if any more, reliability than the assumption method. . . . Specifically, it argues that if a certain industry group in a city claims a greater percentage of the local labor force than its counterpart does at the national level of the nation's labor force, the excess is assignable to the export sector.¹³

Blumenfeld presents the formula for the location quotient as follows:

The "location quotient" is the percentage of employment in a given local industry of total local employment, expressed as a ratio of the percentage of national employment in the same industry of total national employment; or $\frac{e_i}{e_t} \div \frac{E_i}{E_t}$;

e = local employment; E = national employment;
i = employment in industry; t = total employment.¹⁴

¹¹ Blumenfeld, op. cit., p. 120.

¹² Andrews, op. cit., p. 91.

¹³ Ibid., p. 90.

¹⁴ Blumenfeld, op. cit., p. 119.

For example, if an industry constitutes 15 per cent of total local employment compared to only 10 per cent of total national employment, the location quotient would be 1.5. Therefore, one-third of local employment in that industry -- the proportion which is in excess of the national percentage -- would be assumed to be export oriented. Blumenfeld explains how this approach tends to understate the amount of export oriented employment:

. . . the Philadelphia Area's share in the production of weekly periodicals may about equal its share of national population and (or) purchasing power. But it does not follow that all copies of the Saturday Evening Post are consumed in the Philadelphia Area and that Philadelphians never buy copies of the Readers Digest. They do (unfortunately).¹⁵

From the above, it may reasonably be concluded that a location quotient of unity or less than unity will often conceal substantial amounts of export oriented employment. This tendency is most pronounced when employment data are presented for broad industry classifications.

Finally, a weakness of the economic base concept is the fact that it is directly applicable only to persons employed in the private sector. Within the context of community economic studies, government employees and other income-receiving persons not employed in private industry are handled in different ways by different authorities. On this point, Blumenfeld reports:

¹⁵Blumenfeld, op. cit., p. 120.

Andrews, Maxine, Kurtz, Forbat, and others allocate employment in government institutions according to the population served (local or outside population); and allocate the staff of universities proportional to the number of local and "foreign" students.¹⁶

Nonetheless, Blumenfeld himself points out that "The income of all federal employees is a net gain to the community, whether they deliver letters to local residents or work on projects to deliver milk -- or atom bombs -- to the Hottentots."¹⁷

The question of how to handle government employment, including university employment, is of paramount interest in any economic study of Fairbanks, Alaska. The approach used in this study, for government employment and for all other population components, is explained in Chapter 3. However, preceding a detailed discussion of the Fairbanks economic base is a general description of the community's economic history, presented in Chapter 2.

¹⁶Ibid., p. 125.

¹⁷Ibid.

CHAPTER 2.
ECONOMIC HISTORY OF FAIRBANKS

Long-Term History

The City of Fairbanks was established on the banks of the Chena River in 1901 following the discovery of important gold placers in the immediate area.¹⁸ Figure 1 shows the location of Fairbanks, just 120 miles south of the Arctic Circle and 265 miles north of Anchorage.

As indicated in Table 2, the city's population in 1910 was 3,541 with approximately 7,000 other persons, mostly miners, living in camps surrounding Fairbanks. However, by 1920 declining gold production had caused population to drop to 2,182 in the entire district.¹⁹

Completion in 1923 of the Alaska Railroad, joining Fairbanks to Anchorage and Seward (see Figure 1) was a major factor in insuring the city's future. The railroad enhanced the transportation role of Fairbanks and also made large scale gold production methods practicable.²⁰

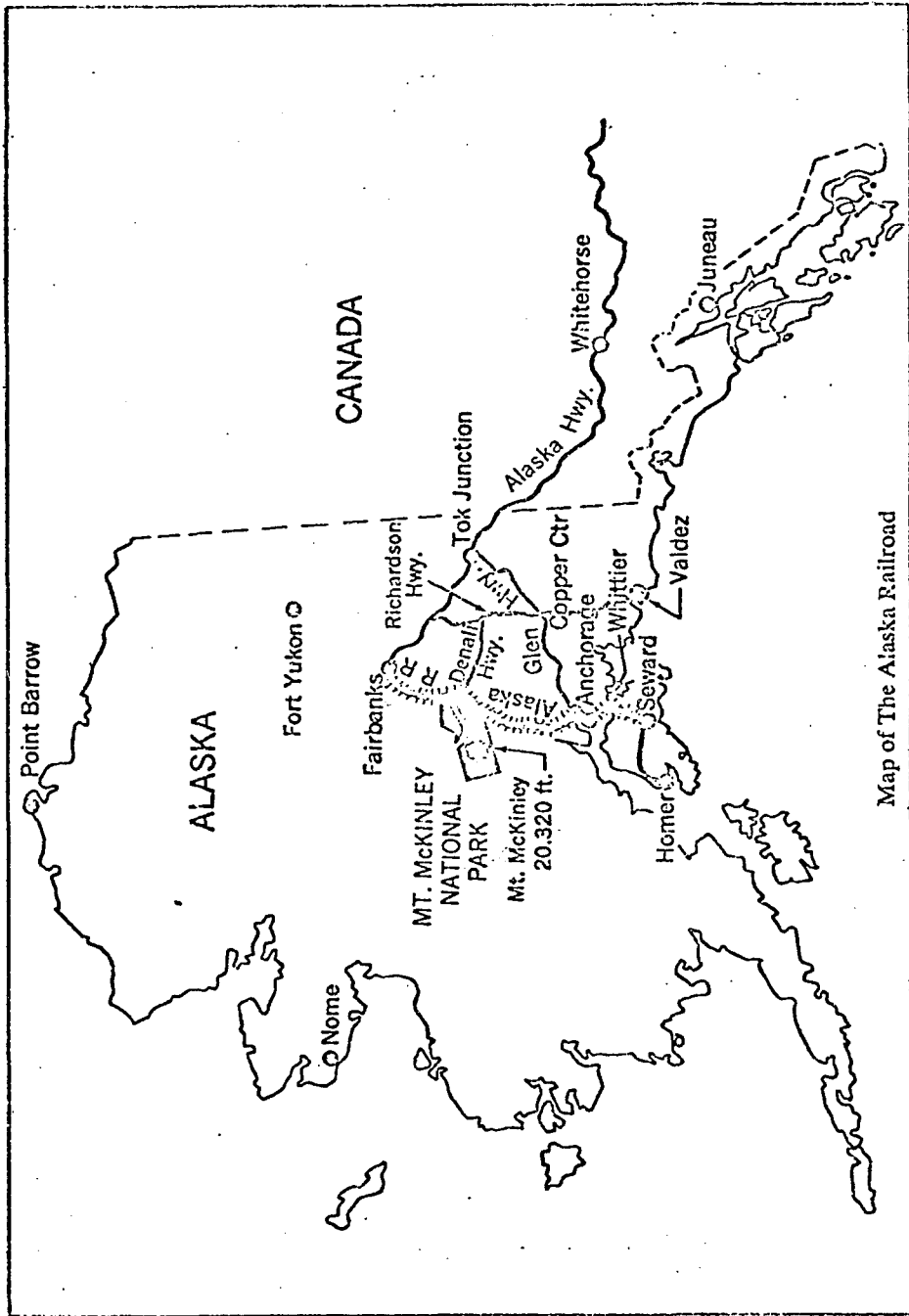
During the nineteen-thirties, modern mining methods caused Fairbanks to prosper while most of the United States suffered economic depression. As a result, streets were paved, sewers laid, and many large buildings erected.²¹

¹⁸Richard A. Cooley, Fairbanks, Alaska: A Survey of Progress (published by the Alaska Development Board, Juneau, Alaska, July 1954), p. 5.

¹⁹Ibid., p. 6.

²⁰Ibid.

²¹Ibid.



Map of The Alaska Railroad

TABLE 2
City of Fairbanks Population,
And Population of District
1910-1968
(In Persons)

Year	Fairbanks City Limits	Fairbanks District ¹
1910	3,541	11,000 (approx.)
1920	1,155	2,182
1929	2,101	3,446
1939	3,455	5,692
1950	5,771	19,409
1960	13,311 ²	43,412 ³
1968	n.a.	45,300 ³

¹Although the area referred to as the Fairbanks District has not been the same in every Census, the population changes have been roughly in accordance with the spread of the settled area and the increase in population in the places previously settled. The district figures include the city in each case.

For 1929, 1939, and 1950, the district figures shown refer to the Fairbanks Recording District. For 1960 and 1968, the district population figures are those of the Fairbanks Census District, which is co-terminous with the original Fairbanks Election District defined in the State Constitution. Although the original Fairbanks Election District has subsequently been combined with the Upper Yukon Election District, it is the original, smaller area which will again be used in 1970 as the Fairbanks Census District.

²The large increase in the city population from 5,771 in 1950 to 13,311 in 1960 is accounted for by a growth of 2,545 in the former area of the city and the annexation of some suburban areas with a 1960 population of 4,995.

³The 1960 total population of 43,412 consisted of 9,880 military personnel and 33,532 civilians. Estimated 1968 population included 8,920 military personnel and 36,380 civilians.

Source: Bureau of Census Surveys for 1910-1960; the 1968 figure is an estimate prepared by the Alaska Department of Labor, Employment Security Division, Research and Analysis Section.

World War II altered the economic structure. Gold mining was curtailed by the federal government, two military bases were established, and a military highway connecting Alaska with the continental United States was completed with its northern terminus at Fairbanks.²² During the war and post-war years, factors of climate and location led to the establishment of government installations for Arctic weather and polar space research.

The gold mining industry resumed operations following the war. Although separate production figures for the Fairbanks area are not available, Table 3 shows annual gold production figures for the entire state. The Fairbanks gold fields were the leading producing fields in Alaska from 1946 until the closing of the last major dredging operation, at Fairbanks, in 1963.²³ Since that time, gold mining throughout Alaska has been limited to small operations, and total production has steadily declined.

The community's transportation capabilities were further developed during 1948-1952 by up-grading of the Alaska Railroad.²⁴ In addition, during the 1950's Fairbanks developed as an air transportation center for the northern half of the state. Construction of the DEW-Line and White Alice radar sites in interior and northern Alaska brought "boom"

²²Leo Loll, "Gold Mining in Alaska" (Alaska Review of Business and Economics, University of Alaska, College, Alaska, March 1965), p. 4; Cooley, op. cit.; George W. Rogers, The Future of Alaska: Economic Consequences of Statehood (published for Resources for the Future, Inc., by Johns Hopkins Press, Baltimore, 1962), p. 12.

²³Loll, op. cit., p. 3.

²⁴Edwin M. Fitch, The Alaska Railroad (Frederick A. Praeger, publishers, New York, Washington, London, 1967), p. 97.

TABLE 3
Gold Production in Alaska 1940-1968

Year	Production in Thousands of Fine Ounces ¹	Value in Thousands of Dollars ¹
1940	757	26,495
1941	696	24,360
1942	503	17,605
1943	110	3,850
1944	51	1,785
1945	60	2,100
1946	192	6,720
1947	320	11,200
1948	221	7,735
1949	227	7,945
1950	276	9,660
1951	208	7,280
1952	250	8,750
1953	265	9,275
1954	260	9,100
1955	253	8,855
1956	209	7,315
1957	216	7,560
1958	188	6,580
1959	177	6,195
1960	173	6,055
1961	117	4,095
1962	165	5,775
1963	99	3,485
1964	63	2,045
1965	42	1,479
1966	27	956
1967	23	803
1968	21	814

¹Rounded to the nearest thousand.

Sources: 1940-1962 data: Treasury Department, Bureau of the Mint, Annual Reports of the Director. (Based upon arrivals at U.S. Mints and assay offices and private refineries.)
1963-1968 data: Division of Mines and Minerals, Alaska Department of Natural Resources.

money to Fairbanks and sharply increased air transportation activity.²⁵ Table 4 shows that total air freight volume in 1956 exceeded that of every subsequent year until 1968.

The period of very high levels of construction activity ended in 1960 when construction employment averaged 1,463 in the Fairbanks Census District. Table 5 shows annual average construction employment in 1961 through 1968, as well as annual employment in other major industry categories, and estimated total unemployment.

Recent History

From 1963 to 1968 the economy was relatively stagnant, until the final months of 1968 when Fairbanks began to be affected by huge oil discoveries on the Arctic North Slope.

Nonagricultural wage and salary employment increased from 10,235 in 1963 to 11,851 in 1968, as shown in Table 5, but there was an accompanying increase in estimated unemployment from 1,018 to 1,121. The net result was a slight decline in the annual average unemployment rate (or percentage of the workforce unemployed) from 8.1 in 1963 to 7.7 in 1968. The jobless rate in 1968 was more than double the national figure.

High unemployment rates in Fairbanks are partially due to the extremely seasonal nature of much of the area's economic activity, but it is nonetheless clear that the Fairbanks economy in recent years has failed to provide enough jobs for area residents. Table 6 indicates that net out-migration from 1960 through 1968 totaled over 7,000 persons

²⁵Rogers, op. cit., p. 99.

TABLE 4
Air Transportation Activities in Fairbanks
Calendar Years 1953-1968

	1953	1954	1955	1956	1957	1958	1959	1960
Passengers, Total	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Passengers, Inbound	30,893	27,684	33,519	44,676	41,749	42,754	47,439	53,783
Passengers, Outbound	33,160	30,473	37,939	50,411	45,828	42,569	50,601	57,566
Passengers, Through	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Freight, In & Outbound (thousands of pounds)	11,807	10,812	24,220	33,755	19,642	17,965	27,508	27,251
Freight, Inbound	9,359	7,063	8,615	8,551	5,962	5,559	7,051	7,204
Freight, Outbound	2,448	3,749	15,605	25,204	13,680	12,406	20,457	20,047
Aircraft Operations	57,128	47,094	59,466	61,593	53,014	62,705	60,256	60,305
Military Landings	n.a.	n.a.	190	61	177	88	77	189
Revenue Landings, only	3,926	3,775	5,025	6,384	5,041	4,641	5,913	6,117
	1961	1962	1963	1964	1965	1966	1967	1968
Passengers, Total	143,124	133,994	137,786	152,563	152,893	154,734	201,191	242,052
Passengers, Inbound	73,818	60,541	62,724	67,917	73,108	76,358	97,530	116,504
Passengers, Outbound	67,767	61,589	65,923	68,928	72,011	75,240	99,952	119,473
Passengers, Through	1,539	11,864	9,139	15,718	7,774	3,136	3,709	6,075
Freight, In & Outbound (thousands of pounds)	28,588	24,812	28,092	30,929	29,517	33,649	30,669	40,470
Freight, Inbound	8,136	7,267	8,164	10,738	10,597	11,283	12,823	12,831
Freight, Outbound	20,452	17,545	19,928	20,191	18,920	22,366	17,846	27,639
Aircraft Operations	48,788	44,446	37,944	39,595	42,639	57,982	76,520	105,053
Military Landings	2,004	3,748	2,653	2,856	2,977	1,342	2,704	951
Revenue Landings, only	6,278	5,036	4,810	4,344	3,352	3,812	4,984	8,338

Source: Unpublished records of the Office of the Airport Manager, Alaska Department of Public Works, Fairbanks Airport.

TABLE 5.
ESTIMATED CIVILIAN WORKFORCE, FAIRBANKS CENSUS DISTRICT

	Annual Average 1961	Annual Average 1962	Annual Average 1963	Annual Average 1964	Annual Average 1965	Annual Average 1966	Annual Average 1967	Annual Average 1968
Total Civilian Workforce	11,517	11,798	12,515	12,776	13,925	14,001	14,001	14,483
Total Unemployment	1,303	1,098	1,018	1,009	1,073	1,024	1,027	1,121
Percentage of Workforce	11.3	9.3	8.1	7.9	7.7	7.3	7.3	7.7
Total Employment	10,214	10,700	11,497	11,767	12,852	12,977	12,974	13,362
Nonagr. Wage & Sal. Empl.	8,946	9,475	10,235	10,435	11,196	11,422	11,473	11,851
Mining	199	177	182	163	152	127	126	99
Construction	940	866	1,160	1,084	1,229	1,183	958	868
Manufacturing	254	237	242	235	224	208	194	273
Transp., Comm. & Util.	746	817	841	982	1,037	1,068	1,109	1,197
Trade	1,472	1,366	1,514	1,576	1,664	1,723	1,824	2,105
Finance, Insurance, and Real Estate	317	371	414	385	386	401	424	458
Services & Miscellaneous	1,133	1,362	1,230	1,273	1,393	1,324	1,437	1,493
Government	3,885	4,279	4,652	4,737	5,111	5,388	5,401	5,358

SOURCE: Almost all data shown above were obtained from the Alaska Department of Labor, Employment Security Division, Research and Analysis Section. However, in a few cases, data for certain industries could not be revealed by the Department of Labor due to disclosure regulations. In those cases, estimates were prepared using a variety of other sources. All figures shown above reflect revisions from previously published figures due to the discovery of errors in University of Alaska employment figures submitted to the Department of Labor.

TABLE 6

**Fairbanks Census District
Estimates of Civilian Resident Population
With Components of Change**

1960-1968

Year	Estimated Civilian Population (12 Mo. Avgs. Centered on 1 July)	Total Change	Net Changes Since April 1960: Components of Change			Net Changes Since Preceding Year: Components of Change			
			Births	Deaths	Net Migration	Total Change	Births	Deaths	Net Migration
1960	33,532 (April) ¹					n.a.	n.a.	n.a.	n.a.
1961	32,254	-1,278	1,900	229	-2,949	-1,278	1,900	229	-2,949
1962	34,788	+1,256	3,398	397	-1,745	+2,534	1,498	168	+1,204
1963	35,826	+2,294	4,903	575	-2,034	+1,038	1,505	178	-289
1964	35,850	+2,318	6,376	759	-3,299	+24	1,473	184	-1,265
1965	35,312	+1,780	7,749	919	-5,050	-538	1,373	160	-1,751
1966	35,891	+2,359	9,022	1,107	-5,556	+579	1,273	188	-506
1967	36,168	+2,636	10,205	1,234	-6,285	+277	1,183	177	-729
1968	36,400	+2,868	11,370	1,450	-7,052	+232	1,165	166	-767

¹Population figure for April 1960 is the Census figure. For subsequent years, the population figures are estimates of the 12-month moving averages centered on 1 July. Estimates of civilian population were developed from the Census Bureau's "Component Method II" which relies heavily upon school enrollment changes to indicate net migration.

n.a.—Not Available.

Source: Alaska Department of Labor, Employment Security Division, Research & Analysis Section.

of which more than 5,000 occurred after 1963. Out-migration usually results from lack of job opportunities.

Furthermore, many rural areas of interior and northwest Alaska have annual average unemployment rates in excess of 50 per cent.²⁶ If Fairbanks -- the region's largest city -- had offered good prospects for employment, it is probable that substantial numbers of Native (Eskimo, Indian, and Aleut) persons, who constitute the majority of Alaska's permanent rural population, would have moved to Fairbanks. However, Table 7 shows that there were only 26 more Native children in Fairbanks elementary schools during the spring of 1968 than in the spring of 1963. This indicates that the net movement of Native families to Fairbanks during the 1963-1968 period was insignificant.

By contrast, Table 7 shows also that the number of white elementary children increased from 3,107 to 3,587, a gain of 15 per cent. A rise of just over 15 per cent also occurred in wage and salary employment during 1963-1968, as shown in Table 5. This suggests that most new jobs which appeared in Fairbanks during the five-year period were filled by white in-migrants.

Table 8 compares 1963 and 1968 employment and wages by detailed industry category, and shows percentage changes by industry, based on second quarter data for those years.

Table 9 provides annual average figures for selected industries and for total nonagricultural wage and salary employment. Of the total

²⁶U.S. Department of the Interior, Bureau of Indian Affairs, Form 5-1521, covering five districts under the Juneau Area, April 1967. (Note: the Juneau Area includes all of Alaska).

TABLE 7.

FAIRBANKS METROPOLITAN AREA SCHOOL ENROLLMENTS, EXCLUDING
SCHOOLS ON MILITARY INSTALLATIONS
(Number and Percentage Enrolled, By Race)

YEAR	ELEMENTARY				HIGH SCHOOL				TOTAL SCHOOL ENROLLMENT
	White	Native	Other	Total	White	Native	Other	Total	
1962-63 %	3,107 (84.5)	381 (10.4)	188 (5.1)	3,676	1,831 (88.6)	155 (7.5)	80 (3.9)	2,066	5,742
1963-64 %	3,015 (84.1)	394 (11.0)	178 (5.0)	3,587	2,005 (88.2)	175 (7.7)	94 (4.1)	2,274	5,861
1964-65 %	2,838 (82.0)	374 (10.8)	249 (7.2)	3,461	2,241 (87.1)	238 (9.2)	95 (3.7)	2,574	6,035
1965-66 %	3,437 (79.6)	574 (13.3)	306 (7.1)	4,317	2,354 (86.7)	220 (8.1)	140 (5.2)	2,714	7,031
1966-67 %	4,300 (84.2)	546 (11.0)	245 (4.8)	5,109	1,584 (87.1)	153 (8.4)	82 (4.5)	1,819	7,173
1967-68 %	3,587 (85.5)	407 (9.7)	209 (5.0)	4,197	2,391 (86.3)	245 (8.8)	133 (4.8)	2,769	6,966

SOURCE: Alaska Department of Education.

TABLE 8

**Fairbanks Census District
Nonagricultural Employment and Payroll, by Industry**

Industrial Classification (and 2-digit Standard Industrial Classification Codes)	2nd Quarter 1968		2nd Quarter 1968		Percentage Change 1968-1968	
	Average Employment	Total Quarterly Payroll	Average Employment	Total Quarterly Payroll	Average Employment	Total Quarterly Payroll
TOTAL	<u>10,173</u>	<u>19,247,976</u>	<u>11,769</u>	<u>27,120,807</u>	<u>+ 15.7</u>	<u>+ 40.9</u>
Mining	<u>222</u>	<u>437,354</u>	<u>99</u>	<u>278,949</u>	<u>- 55.4</u>	<u>- 36.2</u>
10 Metal Mining	*	*	*	*		
11 Anthracite Mining	0	0	0	0		
12 Bituminous Coal & Lignite Mining	*	*	*	*		
13 Crude Petroleum & Natural Gas	*	*	0	0		
14 Mining & Quarrying of Nonmet. Min., excl. Fuels	33	84,262	*	*		
Contract Construction	<u>971</u>	<u>2,847,088</u>	<u>811</u>	<u>2,827,753</u>	<u>- 16.5</u>	<u>- 0.7</u>
15 Building Construction - General Contractors	356	1,012,995	240	788,733	- 32.6	- 22.1
16 Construction Other than Bldg. - Gen. Contractors	304	967,000	208	829,171	- 31.5	- 14.3
17 Construction - Special Trade Contractors	312	867,093	362	1,209,849	+ 16.0	+ 39.5
Manufacturing	<u>250</u>	<u>501,014</u>	<u>296</u>	<u>663,827</u>	<u>+ 18.4</u>	<u>+ 32.5</u>
19 Ordnance & Accessories	0	0	0	0		
20 Food & Kindred Products	89	157,980	79	131,100	- 11.2	- 14.6
21 Tobacco Manufacturers	0	0	0	0		
22 Textile Mill Products	0	0	0	0		
23 Apparel & Oth. Fin. Prod. from Fab. & Sim. Mat.	*	*	*	*		
24 Lumber & Wood Products, excl. Furniture	13	12,703	*	*		
25 Furniture & Fixtures	0	0	0	0		
26 Paper & Allied Products	0	0	0	0		
27 Printing, Publishing & Allied Industries	91	193,997	156	367,624	+ 71.4	+ 89.5
28 Chemicals & Allied Products	*	*	*	*		
29 Petroleum Refining & Related Industries	0	0	*	*		
30 Rubber & Miscellaneous Plastic Products	0	0	0	0		
31 Leather & Leather Products	0	0	0	0		
32 Stone, Clay & Glass Products	35	90,237	*	*		
33 Primary Metal Industries	0	0	0	0		

TABLE

34	Fab. Metal Prod., excl. Ord Mach. & Trans. Equip.	*
35	Machinery, excl. Electrical	*
36	Electrical Machinery, Equipment & Supplies	0
37	Transportation Equipment	*
38	Prof. Sci. & Cont. Inst.; Photo. & Clocks	*
39	Misc. Manufacturing Industries	*
Transportation, Communication & Utilities		<u>825</u>
40	Railroad Transportation	0
41	Local & Sub. Transit & Interurban Pass. Transp.	85
42	Motor Freight Transp. & Warehousing	131
44	Water Transportation	*
45	Transportation by Air	358
46	Pipe Line Transportation - Petroleum	0
47	Transportation Services	*
48	Communication	106
49	Electric, Gas & Sanitary Services	69
Wholesale & Retail Trade		<u>1,452</u>
50	Wholesale Trade	241
52	Retail Trade - Bldg. Mat., Hardware & Farm Equip.	42
53	Retail Trade - General Merchandise	166
54	Retail Trade - Food	196
55	Automotive Dealers & Gasoline Service Stations	207
56	Retail Trade - Apparel & Accessories	44
57	Retail Trade - Furniture, Home Furn., & Equip	51
58	Retail Trade - Eating & Drinking Places	324
59	Retail Trade - Misc. Retail Stores	180
Finance, Insurance & Real Estate		<u>420</u>
60	Banking	216
61	Credit Agencies Other Than Banks,	47
62	Security & Commodity Broker., Dealers, Exch. & Sv.	*
63	Insurance Carriers	*
64	Insurance Agents, Brokers & Service	43
65	Real Estate	101
66	Combinations of R.E., Insurance, Loans, Law Off.	*
67	Holding & Other Investment Companies	*

8 (CONTINUED)

*	*	*		
*	*	*		
0	0	0		
*	0	0		
*	0	0		
*	0	0		
<u>1,897,454</u>	<u>1,197</u>	<u>3,503,002</u>	<u>+ 45.1</u>	<u>+ 84.6</u>
0	0	0		
123,987	127	236,709	+ 49.4	+ 90.9
301,052	194	488,543	+ 48.1	+ 62.3
*	*	*		
884,799	438	1,094,378	+ 22.3	+ 23.7
0	*	*		
*	10	11,568		
253,970	299	1,246,780	+182.1	+390.9
162,140	*	*		
<u>2,418,723</u>	<u>2,094</u>	<u>3,916,374</u>	<u>+ 44.3</u>	<u>+ 61.9</u>
534,553	318	796,370	+ 32.0	+ 49.0
99,206	90	222,731	+114.3	+124.5
217,459	344	505,227	+107.2	+132.3
327,156	295	525,303	+ 59.5	+ 60.6
408,002	259	597,935	+ 25.1	+ 46.6
65,291	55	92,261	+ 25.0	+ 41.3
89,505	63	133,488	+ 23.5	+ 49.1
392,956	432	587,683	+ 33.3	+ 49.6
284,595	239	455,326	+ 32.8	+ 60.0
618,089	450	806,455	+ 7.1	+ 30.5
<u>353,607</u>	<u>205</u>	<u>377,592</u>	<u>- 5.1</u>	<u>+ 6.8</u>
67,894	57	106,155	+ 21.3	+ 56.4
*	*	*		
*	*	*		
71,514	52	101,596	+ 20.9	+ 42.1
111,195	122	178,703	+ 29.3	+ 60.7
*	0	0		
*	0	0		

TABLE 8 (CONTINUED)

Services	<u>1,387</u>	<u>*</u>	<u>1,504</u>	<u>2,499,019</u>	<u>+ 8.4</u>	<u></u>
70 Hotels, Rooming Houses, Camps, & Oth. Lodge Places	172	179,398	275	393,630	+ 59.9	+ 119.4
72 Personal Services	150	201,810	178	247,978	+ 18.7	+ 22.9
73 Misc. Business Services	151	150,250	244	368,131	+ 61.6	+ 145.0
75 Automobile Repair, & Services, & Garages	30	51,280	39	90,788	+ 30.0	+ 77.0
76 Misc. Repair Services	15	19,255	29	41,998	+ 93.3	+ 118.1
78 Motion Pictures	*	*	*	*		
79 Amuse. & Recreation Serv., excl. Motion Pictures	20	30,215	*	*		
80 Medical & Other Health Services	218	296,187	272	405,730	+ 24.8	+ 37.0
81 Legal Services	31	46,678	26	47,816	- 16.1	+ 2.4
82 Educational Services	*	*	43	45,105		
84 Museums, Art Galleries, Bot. & Zool. Gardens	0	0	0	0		
86 Nonprofit Membership Organizations	109	171,012	212	345,153	+ 94.5	+ 101.8
87 Private Households	0	0	0	0		
89 Miscellaneous Services	345	956,262	128	*	- 62.9	
Government	<u>4,646</u>	<u>*</u>	<u>5,318</u>	<u>12,605,438</u>	<u>+ 14.5</u>	<u></u>
91 Federal Government	2,601	4,582,324	2,558	5,413,490	- 1.7	+ 18.1
92 State Government, Incl. University	1,436	2,653,728	1,923	5,154,362	+ 33.9	+ 94.2
93 Local Government	609	*	837	2,037,586	+ 37.4	
Agriculture, Forestry, & Fisheries	*	*	*	*		
01 Commercial Farms	*	*	*	*		
02 Noncommercial Farms	0	0	0	0		
07 Agricultural Services & Hunting & Trapping	0	0	0	0		
08 Forestry	0	0	0	0		
09 Fisheries	0	0	0	0		
Nonclassifiable Establishments	0	0	0	0		

*Information cannot be disclosed due to Employment Security Division regulations forbidding disclosure of data which might indicate the approximate employment or wages of individual firms.

Source: Alaska Department of Labor, Employment Security Division, Research & Analysis Section.

TABLE 9.
 FAIRBANKS CENSUS DISTRICT
 NONAGRICULTURAL WAGE & SALARY EMPLOYMENT CHANGES
 1963-1968
 AND INCREASES IN SELECTED INDUSTRIES

	Calendar Year 1963	Calendar Year 1968	Increase In Job Total: 1963-1968	Percentage of Total Increase	Percentage Increase: 1963-1968
Total Nonagricultural Wage & Salary Employment	10,235	11,851	1,616	100.0%	15.8%
(a) University of Alaska	511	905	394	24.4	77.1
(b) Communications	100	295	195	12.1	195.0
(c) Air Transportation	347	465	118	7.3	34.0
(d) State Government, other than University of Alaska	911	1,022	111	6.9	12.2
Total of (a) through (d), above	1,869	2,687	818	50.7	43.8
Nonagricultural Wage & Salary Employment other than (a) through (d)	8,366	9,164	798	49.3	9.5%

SOURCE: Alaska Department of Labor, Employment Security Division, Research & Analysis
 Section; and the University of Alaska.

net increase of 1,616 jobs, from 1963 to 1968, 818 occurred in the four selected industry categories shown in Table 9 -- i.e., University of Alaska, communications, air transportation, and state government.

It should be observed that Tables 8 and 9 understate recent gains in Fairbanks' air transportation employment, which occurred primarily in the last quarter of 1968 due to petroleum industry activity.

The net gain of 111 in state government (excluding the University of Alaska) reflects a decrease of 94 jobs in the Department of Highways. In other departments, there was an increase of 205 jobs. Table 10 shows that the agencies in which major increases in employment occurred were the Departments of Education, Health and Welfare, and Natural Resources.

Data for gross business receipts by industry in recent years are provided in Table 11, and banking statistics are shown in Table 12.

In the summer of 1968 discovery of very large oil deposits on Alaska's Arctic North Slope ushered in another boom period for Fairbanks. The Fairbanks airport became the scene of a large airlift with eleven huge Lockheed Hercules aircraft hauling freight to the North Slope. The high level of activity at the airport is reflected in December 1968 air transportation employment which was 584 as compared to only 380 in December of 1967. In addition, Table 13 shows that air freight volumes in January and February of 1969 were more than six times as great as in the same months of 1968. The increase in freight traffic figures would be much greater, except for the omission

TABLE 10

Alaska State Government Employment
in the Fairbanks Census District, by Department

Department	CY 1963 Annual Average Employ- ment	Calendar Year 1968												CY 1968 Annual Average Employ- ment	
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		
Office of the Governor	1	37	46	47	50	42	37	8	8	11	9	9	9	8	26
Administration	1	0	0	0	0	0	0	31	37	34	39	42	39	39	19
Law	3	8	6	8	6	8	8	9	9	7	10	9	10	8	8
Revenue	9	8	10	11	12	11	11	10	9	9	9	9	9	10	10
Education	283	347	364	352	347	359	325	334	334	340	359	368	376	376	350
Health & Welfare	53	103	104	105	106	103	111	110	110	111	106	110	109	109	107
Labor	23	18	18	19	18	19	19	19	18	19	21	19	20	19	19
Commerce	3	7	8	7	7	7	7	7	8	7	9	7	7	7	7
Natural Resources	9	20	22	22	23	23	33	31	30	29	24	23	24	24	25
Fish & Game	28	34	36	35	40	43	44	43	43	46	42	40	37	40	40
Public Safety	38	45	43	43	43	42	41	41	40	40	42	44	44	44	42
Public Works	37	43	42	42	41	38	39	39	44	42	43	40	43	43	41
Highways	385	252	252	257	265	295	335	349	338	334	294	268	251	291	291
Economic Development	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other ¹	38	36	38	40	39	37	37	38	35	37	37	36	35	37	37
Total, excl. Univ.	911	958	991	987	997	1,017	1,053	1,061	1,063	1,066	1,044	1,024	1,011	1,022	1,022
University of Alaska	511	807	857	836	903	864	887	887	840	953	982	969	978	905	905
Total, inc. Univ.	1,422	1,765	1,848	1,873	1,933	1,920	1,917	1,948	1,903	2,019	2,026	1,993	1,989	1,927	1,927

¹The "Other" category includes employees of the Legislative Council, Legislative Audit, and the Court System.
Source: Alaska Department of Labor, Employment Security Division, Research & Analysis Section, and University of Alaska.

TABLE 11.

GROSS RECEIPTS AS REPORTED IN BUSINESS LICENSE TAX RETURNS,¹ NORTH STAR BOROUGH
 CITY OF FAIRBANKS AND CITY OF NORTH POLE, CALENDAR YEARS 1963-1968

(in thousands of dollars)

Industry	1963	1964	1965	1966	1967	1968
Contract Construction	27,158	29,239	32,395	41,013	39,021	30,104
Manufacturing	761	981	681	1,233	327	2,454
Professional	5,460	4,279	3,668	4,142	3,500	6,498
Transportation, Communications & Utilities	12,276	15,056	12,886	5,955	14,150	11,527
Wholesale Trade	9,313	10,379	13,270	12,592	13,260	16,618
Retail Trade	41,147	41,272	46,167	49,188	46,735	50,573
Finance & Real Estate	8,757	8,198	8,489	9,066	8,802	15,118
Services	3,890	3,862	4,419	4,120	7,724	6,730
Miscellaneous	3	24	1	78	274	904
T O T A L S	108,766	113,290	121,976	127,387	133,791	140,525

¹Gross volume of business in wholesale trade is reported, as reflected in the above figures, but is not actually taxed. Not taxed and not included in the table above are receipts from wholesale liquor businesses, mining, oil and gas production, or payments to fishermen. Wholesale values of processed seafoods are, however, included under Manufacturing, and receipts for oil exploration services are included in the Miscellaneous category.

SOURCE: Alaska Department of Revenue.

TABLE 12.

SELECTED BANKING STATISTICS FOR FAIRBANKS CENSUS DISTRICT
AND FOR STATE OF ALASKA, 1965-1968 (in thousands of dollars)

	Fairbanks				State of Alaska			
	1965	1966	1967	1968	1965	1966	1967	1968
Total Assets	\$60,019	\$63,529	\$84,653	\$83,489	\$362,254	\$373,398	\$400,396	\$432,032
Total Deposits:	55,052	58,400	79,285	76,389	334,266	345,388	370,405	394,001

SOURCE: Department of Commerce, State of Alaska, and Overall Economic Development Plan, Fairbanks Census District, March 1969.

TABLE 13

Month-by-Month Comparisons of Passenger and Freight Movements
At Fairbanks Airport, Current Vs. Year-Ago Rates

	Jan. 1967	Feb. 1967	Mar. 1967	Apr. 1967	May 1967	June 1967	July 1967	Aug. 1967	Sept. 1967	Oct. 1967	Nov. 1967	Dec. 1967	Jan. 1968	Feb. 1968
Passenger: Total	11,275	9,554	12,152	12,438	15,989	23,166	29,505	25,367	20,180	14,700	12,771	14,092	15,723	12,326
Inbound	6,289	4,629	6,007	6,231	8,014	11,793	14,578	11,231	9,512	7,165	6,121	5,960	7,447	5,961
Outbound	4,818	4,751	5,961	6,045	7,418	10,927	14,668	13,727	9,883	7,256	6,456	7,962	5,985	6,588
Through	168	154	184	182	557	388	239	409	785	279	194	170	291	257
Freight, In & Outbound (thousands of pounds)	1,633	1,647	3,394	2,544	2,461	2,701	2,606	2,871	3,146	2,614	2,405	2,628	1,860	2,639
Inbound	730	735	866	931	1,103	1,097	1,077	1,404	1,675	1,146	1,155	905	992	903
Outbound	903	912	2,528	1,613	1,358	1,604	1,529	1,467	1,471	1,468	1,250	1,723	867	1,931
Aircraft Operations	1,858	3,139	4,291	7,649	9,925	10,455	11,462	10,609	7,257	4,624	2,963	2,287	1,923	3,500
Passenger: Total	13,723	12,826	15,672	15,130	18,663	24,813	30,399	33,731	22,703	19,037	16,341	19,014	19,001	17,931
Inbound	7,447	5,981	7,669	7,347	8,949	12,152	14,910	15,938	10,606	9,294	7,742	8,469	9,909	8,635
Outbound	5,985	6,588	7,804	7,499	9,125	12,308	14,915	16,588	11,377	9,073	8,165	10,046	8,531	8,796
Through	291	257	199	284	589	355	574	1,205	720	670	434	499	561	450
Freight, In & Outbound (thousands of pounds)	1,860	2,639	2,635	3,440	2,472	2,175	2,646	3,041	4,122	6,879	4,559	3,802	12,068	17,605
Inbound	993	908	975	1,590	873	829	948	1,014	1,243	1,262	1,122	1,075	1,007	1,436
Outbound	867	1,931	1,660	1,851	1,599	1,346	1,698	2,027	2,879	5,617	3,437	2,727	11,061	16,170
Aircraft Operations	1,823	3,500	6,096	10,514	12,656	14,184	13,806	13,169	11,078	8,415	6,025	3,787	3,771	6,249

Ratio of Current Rates to Year-Ago Rates

	Jan. 1968	Feb. 1968	Mar. 1968	Apr. 1968	May 1968	June 1968	July 1968	Aug. 1968	Sept. 1968	Oct. 1968	Nov. 1968	Dec. 1968	Jan. 1969	Feb. 1969
Passenger Total	1.22	1.35	1.29	1.21	1.17	1.07	1.03	1.33	1.13	1.30	1.23	1.35	1.38	1.40
Freight Total	1.14	1.72	.78	1.35	1.00	.81	1.02	1.05	1.31	2.63	1.90	1.45	6.49	6.20
Aircraft Operations	.98	1.12	1.42	1.37	1.23	1.36	1.20	1.24	1.53	1.62	2.03	1.66	2.07	1.79

Note: Above data do not include unscheduled flights by one of the chief suppliers to the Arctic North Slope. If the missing data could be included, the ratio of current to year-ago monthly freight totals would undoubtedly be much higher for the last quarter of 1968 and the first months of 1969.
Source: Unpublished records of the Office of the Airport Manager, Alaska Department of Public Works, Fairbanks Airport.

of unavailable data for unscheduled flights of one of the major carriers of air freight to the North Slope.

Further indication of the impact of North Slope activities on Fairbanks is provided by First Quarter 1969 sales tax receipts which are 18 per cent greater than receipts for the corresponding period in 1968. The 18 per cent rise probably understates the gain in total sales volumes, due to exclusion of sales of materials used in construction and several other nontaxable sales categories which increased sharply as a result of oil industry activities.

CHAPTER 3.
THE FAIRBANKS ECONOMIC BASE IN 1968

Components of the Base

Introduction:

Major economic base industry segments in the Fairbanks Census District are listed in Table 14. Several of the industry segments listed are combinations of basic and nonbasic economic activity. The proportion of each industry classified as basic is shown in Table 14 and is explained below in the description of each industry.

In general, the basis for classifying industries, or portions of industries, is the assumption method. However, the assumption approach is applied individually to small components of a broad industry category, and these components are often subdivided into basic and nonbasic parts. This reduces the assumption method's major weakness, discussed in Chapter 1, which results from arbitrary labeling of entire broad industry categories as either basic or nonbasic.

Military Personnel:

Fairbanks' largest economic base component, in terms of number of local employees involved, is the military force stationed in the area. The magnitude of military activity in the area is indicated in Tables 15 and 16. Table 15 shows that military personnel in the census district totaled 8,920 in 1968, compared to 36,380 civilians. Table 16 provides separate figures for military personnel by instal-

TABLE 14.

SUMMARY OF BASIC EMPLOYMENT IN THE FAIRBANKS CENSUS DISTRICT
BY INDUSTRY (1968 Annual Averages)

Column (1)	Column (2)	Column (3)	Column (4)
Industry	Total Number In Industry	Percentage of Industry Considered "Basic"	Number Considered "Basic"
(1) Military Personnel	8,920	100%	8,920
(2) Civilian Federal Government	2,544	84	2,137
(3) State Gov't (other than U of A)	1,022	25	256
(4) University of Alaska	905	95	860
(5) Construction	869	90	782
(6) Air Transportation	465	67	312
(7) Communications	295	75	221
(8) Tourism	250	100	250
(9) Regional Trade and Services	125	100	125
(10) Oil Industry	17	100	17
(11) Miscellaneous (incl. some manufacturing and mining)	300	100	300
TOTAL BASIC EMPLOYMENT (Sum of figures in Column 4) =			14,180

NOTE: Total basic employment of 14,180 is comprised of 8,920 military personnel plus 5,260 civilian wage and salary employees.

TABLE 15

Fairbanks Census District
Estimates of Total Resident Population
Including Military Personnel, 1960-1968

Year	Total Resident Population	Military Personnel	Estimated Civilian Population (12 Mo. Avg. Centered on 1 July)
1960	43,412	9,880	33,532 (April) ¹
1961	42,134	9,880	32,254
1962	44,820	10,032	34,788
1963	45,858	10,032	35,826
1964	45,370	9,520	35,850
1965	45,052	9,740	35,312
1966	45,501	9,610	35,891
1967	45,588	9,420	36,168
1968	45,300	8,920	36,380

¹Civilian population figure for April 1960 is the Census figure. For subsequent years, the civilian population figures are estimates of the 12-month moving averages centered on 1 July.

Source: Alaska Department of Labor, Employment Security Division, Research and Analysis Section.

TABLE 16

Fairbanks Census District
Military Population and Military Dependents,
By Installation, 1968

Installation	Military Personnel	Dependents	Sum of Military plus Dependents
Eielson A.F.B.	3,300	4,700	8,000
Fort Greely	800	800	1,600
Fort Wainwright	4,800	4,000	8,800
In Fairbanks, Unattached	20	40	60
Total	<u>8,920</u>	<u>9,540</u>	<u>18,460</u>

Source: Alaska Department of Labor, Employment Security Division, Research and Analysis Section.

lation and also shows the number of military dependents, who totaled 9,540 in 1968. Together, military personnel and their dependents accounted for 18,460 persons as compared to 26,840 other area residents. Table 17 compares the annual job total in civilian nonagricultural wage and salary employment to the total number of military personnel, showing that prior to 1963 military personnel outnumbered civilians in wage and salary jobs.

In this study, all military personnel are considered part of the economic base. National defense is a service to the entire nation, and military paychecks cause a flow of funds into the community. However, in evaluating the economic impact of military personnel, it should be remembered that most armed forces personnel live on military installations and spend the greater part of their income for on-base housing and for food and other items purchased at base commissaries and post exchanges. For this reason, they create far fewer nonbasic jobs in the community than would a similar number of civilian workers in basic industry. Table 17 shows that the relative importance of military personnel to the local economy has decreased in recent years, due to a decline in the number of military combined with some increase in civilian employment.

Civilian Federal Government:

Within the civilian sector, the largest economic base component is employment by the federal government. Although total figures for 1968 are available, the most recent figures for individual agencies are for December 31, 1967. The 1967 employment figures by agency

TABLE 17

**Comparison of Total Civilian
Nonagricultural Wage and Salary Employment
To Number of Military Personnel**

Year	Estimated Number of Military Personnel (on July 1)	Civilian Nonagricultural Wage & Salary Employment (Annual Average)	Ratio: Civilian Wage & Salary Employment to Military
1961	9,880	8,962	.907
1962	10,032	9,506	.948
1963	10,032	10,308	1.028
1964	9,520	10,456	1.098
1965	9,740	11,204	1.150
1966	9,610	11,405	1.187
1967	9,420	11,465	1.217
1968	8,920	11,854	1.329

Source: Alaska Department of Labor, Employment Security Division, Research and Analysis Section. All civilian employment figures shown above reflect downward revisions from previously published figures, due to the discovery of inaccuracies in University of Alaska employment reports which had been submitted to the Department of Labor.

are shown in Table 18. Also shown are the percentage and amounts of employment, by agency, which are treated in this study as basic employment in the Fairbanks community. Basic employment in all agencies combined totals 1,831, or 84 per cent of the December 1967 employment total.

The approach for classifying government employment as basic or nonbasic is more nearly like that attributed to Andrews, Maxine, Kurtz, and Forbat, than like the approach taken by Blumenfeld. That is, rather than classify all federal employment as basic, the classification is determined largely by the area served. For example, defense related employment is considered basic since it serves the entire nation, while post office employment is considered nonbasic. Further study of agency functions would be required in order to more accurately apply this approach, but the percentage of the total which is classified basic would probably not change greatly, due to the dominance of defense related employment. Applying the December 1967 basic employment percentage -- 84 per cent -- to the 1968 annual average of 2,544 produces an estimate of 2,137 federal civilian employees in basic employment in 1968.

All federal, state, and local government employment which is treated as nonbasic in this study is considered to result from the "expenditures" of local residents. These expenditures are largely in the form of tax payments, although some government agencies such as the Post Office are financed by nontax payments.

TABLE 18.
FEDERAL CIVILIAN EMPLOYMENT BY AGENCY, DECEMBER 31, 1967
FAIRBANKS CENSUS DISTRICT

Column (1)	Column (2)	Column (3)	Column (4)
Name of Agency	Employment on 12/31/67	Percentage of Agency Employment Considered "Basic"	Amount of 12/31/67 Employment Considered "Basic"
Army	927	100%	927
Air Force	539	100	539
Interior	157	100	157
H.E.W.	78	75	59
Transportation	298	50	149
Post Office	130	0	0
Agriculture	19	0	0
Other	37	0	0
TOTALS	2,185		1,831

SOURCE: U. S. Civil Service Commission.

Alaska State Government:

Table 10 lists state government employment by major agency. Excluding the university, this study treats 25 per cent of state government, or 256 jobs, as basic employment. Fairbanks, which is a trade, transportation, and service center for interior and arctic Alaska, also is a government center with many regional administrative functions performed in Fairbanks offices of state government agencies.

University of Alaska:

Also shown in Table 10 is employment at the University of Alaska's campus at College, near Fairbanks. The 1968 annual average of 905 is exclusive of university employment in other areas of the state, although the Alaska Department of Labor unfortunately published government employment figures for Fairbanks which include all university employment regardless of its actual location.²⁷ In 1968, university employment in areas other than Fairbanks averaged 543. Several previous economic studies of Fairbanks have erroneously included non-Fairbanks university employment in the government employment totals for Fairbanks.

In this study, 95 per cent of the 905 university jobs, or 860, are considered basic employment in Fairbanks. This high percentage is justified not only because most students are from areas other than Fairbanks, but also because more than half of the activities at the

²⁷ Interviews with the Comptroller, University of Alaska, and the Research and Analysis Head, Employment Security Division, Alaska Department of Labor.

College campus are research related.²⁸ Money for research comes from sources outside of Fairbanks.

Air Transportation:

Air transportation employment averaged 465 in 1968. This industry receives revenues from tourists, and from federal, state, university, and private employees on business trips. Some air transportation activity results from trade with small communities in interior and arctic Alaska. Also, beginning in the latter part of 1968, vast quantities of materials were air freighted from Fairbanks to the oil fields on Alaska's Arctic North Slope. In 1968, 312 air transportation jobs -- 67 per cent of the annual average -- are considered basic employment.

Communications:

Communications employment in the Fairbanks Census District is comprised largely of defense and space research workers. In 1963, communications employment averaged only 100 compared to 295 in 1968. There was some defense employment included in the 1963 total, and most of the increase since that time has undoubtedly occurred in space and defense work. However, regulations of the Alaska Department of Labor prevent disclosure of data concerning individual companies. Probably 75 per cent of the 1968 average -- or 221 jobs -- is basic.

²⁸Annual Overhead Report, University of Alaska, 1967-1968.

Tourism:

The contribution of tourism to the Fairbanks economic base cannot be measured with precision in the absence of expensive survey studies. A recent study of the tourism industry throughout Alaska estimated an annual average of 1,650 nongovernment wage and salary jobs were accounted for by tourism in 1967.²⁹ Judging from the rate of increase which the study estimated during the 1964-1967, tourism may have generated 1,890 jobs in 1968. The Fairbanks share of those jobs, based on the community's proportion of all employment in the state exclusive of government, would be about 250 jobs. An inspection of seasonal variations in Fairbanks' retail trade and personal service employment indicates that possibly as many as 600 jobs are created by tourism, exclusive of jobs in air transportation, during the peak of the season. This figure is consistent with an annual average estimate of 250 jobs, all of which are considered to be basic employment.

Regional Trade and Services:

Jobs in trade, services, and transportation are also created by virtue of Fairbanks' role as a distribution center for interior and arctic Alaska. Some of these jobs appear in air transportation, which has already been classified as 67 per cent basic, and in the U. S. Department of Transportation, which is classified as 50 per cent basic.

²⁹ A Program for Increasing the Contribution of Tourism to the Alaska Economy (prepared for the U.S. Economic Development Administration and the Alaska Department of Economic Development, December 1968), p. II-11.

Additional jobs resulting from Fairbanks' regional distribution role, including those in the trade and service industries, are estimated at 125. This is a fairly conservative estimate in view of the year-round nature of this activity. By comparison, employment in tourism related activity -- exclusive of air transportation employment -- is estimated at 250 on an annual average basis, even though tourism is very highly seasonal.

Oil Industry:

Oil industry employment in Fairbanks was reported at zero by the Alaska Department of Labor during the first three quarters of 1968 and at 69 in the final quarter for an annual average of 17. All of this is basic employment.

Miscellaneous:

Mining employment, exclusive of oil and gas, averaged 82 in calendar year 1968. Much of this is accounted for by sand and gravel operations, which are related to construction. Since construction is classified 90 per cent basic, in this study, a similar proportion of sand and gravel operations should be considered basic.

In addition, portions of Manufacturing employment are probably export oriented, although the precise amount is difficult to establish because of nondisclosure regulations of the Alaska Department of Labor. In 1968 Manufacturing employment averaged 273.

Also, small portions of several other industry classes not discussed previously are undoubtedly basic industry. Altogether, there

are probably at least 300 basic jobs other than those listed in categories (1) through (10) in Table 14.

Summary:

Percentages and amounts of basic employment in each industry discussed above are listed in Table 14. Total basic employment is 14,180, consisting of 8,920 military personnel and 5,260 civilian wage and salary workers.

Relationships Among Basic and Nonbasic Components

Together the military and civilian segments of the Fairbanks economic base generate, directly and indirectly, a total of 6,591 nonbasic wage and salary jobs. The nonbasic job total is the difference between civilian basic employment and total civilian employment.

One of the most difficult problems in analyzing the economy of Fairbanks is deciding how much nonbasic employment results from expenditures of military personnel, and how much results from expenditures of civilians in basic wage and salary jobs. Until that question is answered, it is impossible to accurately estimate the civilian employment multiplier in the Fairbanks economy.

An expensive survey of military and civilian expenditures would be required to determine the relative impact of military and civilian economic base segments in the creation of nonbasic jobs. Such a survey is beyond the resources available for this study. However, from the available information it is clear that the civilian employment multi-

plier is relatively low. Even if no nonbasic employment is attributed to the presence of a large military force in the area, the civilian employment multiplier can be no larger than the ratio of total civilian employment to basic civilian employment (TE:B), which in this case is $11,851/5,260$, or 2.25. Because some nonbasic employment must result from the expenditures of 8,920 military personnel, the civilian employment multiplier must be less than 2.25.

Before discussing further the relative impact of military and civilian economic base segments, it is necessary to distinguish between those nonbasic jobs created directly by expenditures of basic industry employees and those additional nonbasic jobs which result from the operation of the employment multiplier. Both types of nonbasic employment are included in the B:LM and LM:B ratios which are discussed at length in most economic base studies. In this study the nonbasic employment created directly by expenditures of basic workers will be designated LM(d). Thus, B:LM(d) is the ratio of basic industry jobs to nonbasic jobs generated directly by expenditures of basic workers, exclusive of additional nonbasic jobs created by operation of the employment multiplier.

It should be noted that the LM:TE ratio, discussed in Chapter 1, is the same as LM(d):B in simple cases in which all basic industry jobs are treated alike. However, if particular economic base segments have proportionally more or less than average impact in the creation of nonbasic jobs, it is useful to have an individual LM(d):B ratio for each base segment, none of which will necessarily be the same as LM(d):B for the economy as a whole or the same as LM:TE.

As an example, Table 19 presents two hypothetical values of LM(d):B, in Columns (1) and (2), which apply respectively to the civilian and military segments of the Fairbanks economic base.

As indicated in Column (1), Line (b), LM(d):B is assumed to be .5 for the civilian segment of the economic base. Consequently, expenditures of the 5,260 civilians in basic employment are assumed to directly create 2,630 (.5 X 5,260) nonbasic jobs. Expenditures by workers in these nonbasic jobs are assumed to create half of that number, or 1,315 additional nonbasic jobs, as indicated in Line (c). Lines (d) through (q) show further amounts of nonbasic employment resulting from subsequent steps in the employment multiplier operation. As shown in Line (r) the sum of all nonbasic employment thus created, including that initially generated by expenditures of basic workers, would be approximately the same as the civilian basic employment total, or 5,260. In other words, if the military and military generated nonbasic segments of the economy are excluded, the civilian B:LM is assumed to be 1.00 and the civilian employment multiplier, TE:B, is assumed to be 2.00.

Column (2) of Table 19 shows, in Line (b), that only 665.5 nonbasic jobs are assumed to be created directly by expenditures of military personnel. This is consistent with an LM(d):B of .07461 ($665.5 \div 8,920$). The operation of the civilian employment multiplier would double the number of military generated nonbasic jobs, as shown in Column (2).

In summary, based upon the assumptions used in preparing Table 19, 2,630 nonbasic jobs would be created directly by expenditures of

TABLE 19.
SCHEMATIC OF THE FAIRBANKS ECONOMY
ASSUMING A CIVILIAN EMPLOYMENT MULTIPLIER OF 2.00

	Column (1)	Column (2)
	Civilians in Basic Wage & Salary Employment	Military Personnel
Line (a) BASIC WAGE & SALARY EMPLOYMENT:	5,260.	8,920.
Line (b) Nonbasic wage & salary employment resulting directly from basic wage & salary employ- ment shown in Line (a).	2,630. [Using LM(d):B = .5]	665.5 [Using LM(d):B = .07461]
Line (c) Additional nonbasic jobs resulting from those in Line (b), based on civilian employment multiplier of 2.00.	1,315.	332.75
Line (d) Additional nonbasic jobs.	657.5	166.38
Line (e) Additional nonbasic jobs.	328.75	83.19
Line (f) Additional nonbasic jobs.	164.38	41.59
Line (g) Additional nonbasic jobs.	82.19	20.80
Line (h) Additional nonbasic jobs.	41.10	10.40
Line (i) Additional nonbasic jobs.	20.55	5.20
Line (j) Additional nonbasic jobs.	10.28	2.60
Line (k) Additional nonbasic jobs.	5.14	1.30
Line (l) Additional nonbasic jobs.	2.57	.65
Line (m) Additional nonbasic jobs.	1.29	.33
Line (n) Additional nonbasic jobs.	.65	.16

TABLE 19. (continued)

	Column (1)	Column (2)
Line (o) Additional nonbasic jobs.	.33	.08
Line (p) Additional nonbasic jobs.	.16	.04
Line (q) Additional nonbasic jobs.	.08	.02
Line (r) Nonbasic Wage & Salary Employment Sums (Lines b through q)	5,259.97	1,331.
Line (s) NONBASIC WAGE & SALARY EMPLOYMENT TOTAL (Sum of figures in Columns 1 and 2 in Line r)	6,591.	
Line (t) TOTAL CIVILIAN WAGE & SALARY EMPLOYMENT (Sum of Column 1 figures in Lines a and s).	11,851.	

civilian basic workers, and 665.5 would be created directly by expenditures of military personnel. Each of those two blocs of nonbasic employment would be doubled by the operation of a civilian employment multiplier of 2.00.

The ratios reflected in Table 19 -- including civilian LM(d):B of .5 and military LM(d):B of .07461 -- are merely assumed, in order to demonstrate the relationships among the various ratios and to show the working out of the employment multiplier. The assumed LM(d):B ratios indicate that per capita expenditures of civilian workers are more than six times ($.5 \div .07461$) as effective as the expenditures of military personnel in the direct creation of nonbasic jobs. The true ratio of civilian LM(d):B to military LM(d):B could be determined by an expenditure survey and supplementary studies.

Seven alternative pairs of civilian and military LM(d):B ratios are shown in Table 20, Lines (b) and (i). The ratio of civilian LM(d):B to military LM(d):B is presented in Line (j). This ratio is referred to below as "Ratio j." Other lines of Table 20 show intermediate steps in the calculation of the military LM(d):B, and Line (k) shows the civilian employment multiplier. All figures in a given column of Table 20 are consistent with each other.

If Ratio j were determined by a survey and other studies, the civilian LM:B and employment multiplier ratios could be estimated from Table 20. For example, if Ratio j were 3.0, which would be the case if per capita expenditures of civilian workers were 3.0 times as effective in creating jobs as expenditures of military personnel, all ratios

TABLE 20.
ALTERNATIVE SETS OF CONSISTENT ECONOMIC BASE RATIOS FOR THE FAIRBANKS ECONOMY

	Column (1)	Column (2)	Column (3)	Column (4)	Column (5)	Column (6)	Column (7)
Line (a) Civilian LM:B Ratio	1.1	1.0	.9	.8	.7	.6	.5
Line (b) Civilian LM(d):B Ratio (Calculated the same as LM:TE)	.5238	.5000	.4737	.4444	.4118	.3750	.3333
Line (c) Civilian LM(d):B ÷ Civilian LM:B	.4762	.5000	.5263	.5555	.5883	.6250	.6667
Line (d) Civilian LM (total) (Line <u>a</u> x 5,260)	5,786	5,260	4,734	4,208	3,682	3,156	2,630
Line (e) Civilian LM(d) (Line <u>c</u> x Line <u>d</u>)	2,755	2,630	2,492	2,338	2,166	1,973	1,753
Line (f) Military LM (6,591 minus Line <u>d</u>)	805	1,331	1,857	2,383	2,909	3,435	3,961
Line (g) Military LM(d) (Line <u>c</u> x Line <u>f</u>)	383	666	977	1,324	1,711	2,147	2,641
Line (h) Military LM:B (Line <u>f</u> ÷ 8,920)	.09025	.14922	.20818	.26715	.32612	.38509	.44406
Line (i) Military LM(d):B (Line <u>g</u> ÷ 8,920)	.04294	.07466	.10953	.14843	.19182	.24070	.29608
Line (j) Civilian LM(d):B ÷ Military LM(d):B (Line <u>b</u> ÷ Line <u>i</u>)	12.2	6.7	4.3	3.0	2.1	1.6	1.1
Line (k) Civilian Employment Multiplier (Line <u>a</u> plus 1.0)	2.1	2.0	1.9	1.8	1.7	1.6	1.5

in Column (4) would be applicable to the Fairbanks economy. Column (4) includes a civilian LM:B ratio of .8 and a civilian employment multiplier of 1.8. For any Ratio j not shown on Table 20, the formula for converting Ratio j to the civilian LM:B ratio is:

$$\text{LM:B} = \frac{6,591 j}{8,920 + 5,260 j}$$

where:

$$j = \text{Civilian LM(d):B} \div \text{Military LM(d):B.}$$

The civilian employment multiplier is equal to: civilian LM:B + 1.0. That is, if LM:B is .7, the employment multiplier is 1.7. Also, if LM:B is 1.05, the employment multiplier is 2.05. Therefore, to convert j into a civilian employment multiplier, the formula is:

$$\text{Civilian Employment Multiplier} = 1.0 + \frac{6,591 j}{8,920 + 5,260 j}$$

An examination of Table 20, with particular reference to Line (j), facilitates a judgement concerning the range within which the civilian employment multiplier probably falls. A multiplier as high as 2.00 seems unlikely, since this would require a Ratio j of 6.7, indicating that per capita expenditures of civilian workers are nearly seven times as effective in creating jobs as expenditures of military personnel. On the other hand, a multiplier as low as 1.5 seems unlikely, since this would require a Ratio j of only 1.1.

To provide additional perspective concerning the civilian employment multiplier in Fairbanks, the assumption approach to economic

base analysis was applied to the economy of Juneau, Alaska (see Appendix A). Juneau is, like Fairbanks, very highly dependent upon imports for the satisfaction of local consumption. Also, both communities are extremely isolated. The most conspicuous difference is that the economy of Juneau does not include any significant military force, thereby excluding one of the chief difficulties encountered in estimating the civilian employment multiplier in Fairbanks.

Using a conservative judgment of the economic base of Juneau, basic employment during the second quarter of 1968 was 3,191 wage and salary jobs of a total of 5,725. The employment multiplier is therefore $5,725 \div 3,191$, or 1.79. This relatively small multiplier is not surprising in view of the fact that in Juneau an extremely high proportion of all consumer goods must be imported. In Fairbanks, it is also true that very few consumer goods are locally produced. Consequently, it appears unlikely that the civilian employment multiplier for Fairbanks is greatly different than the multiplier in Juneau.

In conclusion, the Fairbanks employment multiplier is probably not far above or below 1.8. This means that for every 100 jobs in basic economic activity there are approximately 80 additional jobs which are directly or indirectly generated in nonbasic activities such as local trade, personal services, and local government. In other words, the nonbasic/basic ratio is believed to be around .80. Projected future increases in basic industry employment should be evaluated with reference to these relationships.

The more important sources of probable future increases in basic employment are discussed in the following chapter.

CHAPTER 4.

SPECIFIC BASIC INDUSTRIES WITH GROWTH POTENTIAL

Introduction

The industries discussed below are the more probable sources of future increases in basic employment. Although factors influencing growth in each of these industries are described, there is no attempt to provide quantitative projections for future points in time. Readers may wish to speculate regarding future employment growth in each of the basic industries in Fairbanks, and it is also possible that further studies will provide the basis for sound projections.

In any event, it is useful to bear in mind that each new job in basic industry will, as indicated in the preceding chapter, probably be accompanied by about .8 additional jobs in nonbasic industry.

Petroleum

During the final months of calendar year 1968 Arctic North Slope oil activities sharply increased Fairbanks' air transportation employment and provided sizable revenues to hotel, personal service, and retail trade establishments, as well as to certain business services and segments of communications and non-air transportation. Activity in these areas is expected to rise to new heights in 1969 and 1970, and remain at high levels at least until 1972.

It is anticipated that pipeline construction may employ up to 2,000 men, although it is not known how many of these will be Alaskans

or how many will be hired out of Fairbanks. An additional 200 to 300 workers may be employed to construct a refinery near Fairbanks. Both the pipeline and the refinery are tentatively scheduled for completion in 1972.

After completion of the pipeline, it is entirely possible that the economy of Fairbanks will cease to "boom" as a direct result of petroleum activities, although overall prospects for continued steady growth are favorable. Future growth factors other than oil are discussed in the next five sections.

The most important long range contribution of the oil industry to the economy of Fairbanks could be the construction of a small refinery to produce heating fuel and jet fuel. If the refinery is constructed it could lower heating and power costs, thereby improving the general outlook for further economic growth. Also, lower jet fuel costs would assist Fairbanks in capitalizing on its role as an Alaskan transportation center.

Transportation

Fairbanks is now the air transportation center for the northern half of Alaska, and is also connected by the Alaska Railroad to Anchorage and Seward. The Alaska-Canadian Highway connects Fairbanks to the rest of the North American continent, and also to Anchorage via an indirect route. A direct highway link to Anchorage is under construction, with completion expected in 1971 or, more probably, in 1972.

Other developments include a recent decision making Fairbanks a service stop for a New York to Tokyo air route. As a result, there is now two-way passenger traffic to both Tokyo and New York.

Because Fairbanks is on or near several important great circle routes, it is possible that additional international air routes may be approved through Fairbanks. Compared to Anchorage, which currently benefits from a great deal of international air traffic, Fairbanks has more days per year in which weather permits takeoffs and landings, and better landing approaches.³⁰ This last factor will be of increased importance when the new and larger commercial jets become operational.

The possible construction of a petroleum refinery near Fairbanks may lower the cost of jet fuel delivered to the airport, thereby improving the competitive position of Fairbanks in obtaining additional international routes.

The importance of rail transportation to the Fairbanks economy could be multiplied in the future by two potential developments. The first is the proposed extension of the Alaska Railroad north and west of Fairbanks for the purpose of developing mineral deposits.³¹ In addition, the Canadian government recently commissioned a rail study to evaluate possible linkage of the Canadian and Alaskan rail systems. If implemented, these two steps together could make Fairbanks the rail hub of Alaska.

³⁰ Interview with the manager of the Fairbanks International Airport.

³¹ Transportation and Economic Development in Alaska (A Policy Analysis prepared by the Transportation Task Force, Lyle K. Brown, Chairman for the Federal Field Committee for Development Planning in Alaska, 1968), pp. 180-190.

Further development of a rail network centered in Fairbanks and addition of new air routes would be mutually re-enforcing, due to creation of new possibilities for passenger and freight traffic patterns involving both modes of transportation. A rail spur to the airport freight docks could directly connect the two systems.

The combination of factors listed above could make transportation a more important -- and more permanent -- economic base component than the oil industry.

The University of Alaska

The main campus of the University of Alaska is at College, Alaska, just outside the City of Fairbanks. During recent years growth in enrollment and employment has been rapid. As shown in Table 9, the increase of 394 jobs at the University constitutes almost one-fourth of the total wage and salary employment increase during the 1963-1968 period. This job increase in basic industry provided additional customers for local trade and service establishments, thereby generating employment gains in those industry segments. The employment increase at the University itself, together with the resulting rise in nonbasic employment, may have accounted for 40 per cent of all economic growth in Fairbanks during 1963-1968.

Future enrollment and employment gains will depend in part upon such factors as the increase in the college age population of Alaska, the percentage of college age Alaskans attending institutions of higher

learning, and the extent to which growth in the University's undergraduate program occurs at locations other than College.

However, future growth of the campus at College will also depend largely upon the specific roles which that campus is planned to fulfill. Among the more important roles for which the College campus is suited are:

- (1) Arctic Research
- (2) Human Resources Development

(1) Arctic Research. The campus at College, near Fairbanks, is the most important arctic research center in the United States. Any future increase in the commitment of the United States to this area of scientific study can hardly fail to benefit the University of Alaska at College, and -- consequently -- the economic base of the Fairbanks community. The desirability of an increased U.S. effort in arctic research is suggested by the following statement about Russia by a leading authority on arctic studies:

The over-riding impression with which we are left is an interest in the Arctic exceeding that of any other nation, and competently served by a small army of trained enthusiasts (in 1956 Glavsevmoput employed 35,000 people). It is the preponderance in trained manpower which presents the most striking contrast with the West. Few of the things the Russians are known or thought to do in their Arctic are new or incomprehensible to specialists in the West; but they may have five hundred men able to do a particular job where the West has five. Their interest, supported by the trained specialists, is now being extended with apparent success to the Antarctic. In a world in which the importance of the polar regions cannot but increase, this is a major force to be reckoned with.³²

³² Terrence Armstrong, The Russians in the Arctic (Strand, London: Methuen and Co., Ltd., 1958), p. 175.

The above statement, made over ten years ago, has been borne out by subsequent developments, including recent petroleum discoveries in Alaska. Furthermore, a Russian newspaper recently stated:

At the present time there are about 3,380 known sub-marine deposits of gas and oil in the world The most important deposits, however, are yet to be discovered. In this respect, the Arctic Ocean is the most promising area. Its geologic structure is very similar to that of the Bay of Mexico which is known to have rich oil deposits.³³

A stepped-up U.S. program of arctic research would very likely bring about a vast increase in the total arctic research budget throughout Alaska, bringing attendant economic advantages not only to Fairbanks but to other Alaska communities as well.

(2) Human Resources Development. The human resources development role of the University of Alaska is already a "major industry" in the Fairbanks economy. Human resources development activities include all regular and special education programs, as well as manpower programs for specific job training and placement. There are several reasons for believing that education and training programs at the campus at College will continue to increase, even though coming years may see a proportionally more rapid growth in undergraduate training in Anchorage and in other Alaskan communities.

One factor is the overall increase in the number of college age Alaskans, combined with a tendency for proportionally more young people to obtain a college education. Also, students interested

³³Vodnyy Transport, February 7, 1969, p. 4.

in arctic and geophysical research will continue to be attracted to the College campus regardless of general growth in community colleges in Anchorage and elsewhere. The presence of strong programs in these specific areas of research, at College, will also tend to strengthen the entire spectrum of physical science instruction at that campus.

An increase in the total scope and variety of subprofessional vocational programs is also probable in coming years. For example, a two-year program in minerals technology is being instituted at College in the 1969-1970 school year. Graduates of this program will be qualified for existing jobs in minerals development, and will also have the option of earning a bachelor's degree by continuing their training for an additional two years. The College campus also offers a two-year program leading to a degree of Associate in Electronics Technology. More of these vocationally oriented programs are needed in order to match Alaska's workforce to the skill needs of the economy.

Another factor is the present location at College of programs directed specifically at Alaska Natives (Eskimos, Indians, and Aleuts). Education of the Native population presents unique problems resulting in part from language barriers. In addition, much of the Native population resides in small, rural communities scattered over a vast area. At the College campus, education programs directed specifically at problems of Alaska Native education are now pilot operations with relatively small numbers of participants. However, with adequate funding these programs could greatly increase in size.

The potential scope of this type of activity can be seen from school enrollment data in Table 21 showing over 15,000 Native elementary children and 4,500 Native secondary students in school year 1967-1968.

An effective attack on language and cultural problems of Native elementary school children must include bi-lingual instruction, and so-called "pre-school" programs for children who are not old enough for the regular first grade programs. However, the Bureau of Indian Affairs and the State Department of Education have only recently begun to provide these programs for a few of the Native children in rural schools. Consequently, many new persons would need to be trained in order to provide such programs in all rural schools.

Furthermore, only a few Native secondary students participate in "Upward Bound" summer programs at the University of Alaska, in which students with language and cultural problems are assisted in preparing for college. With additional funds, this program could also be expanded to many times its present size.

Any substantial increase in funding for the types of programs discussed above would add to the Fairbanks economic base by creating additional jobs at the University.

Wood Products

A recent report prepared for the Fairbanks North Star Borough stated:

The merchantable volume of timber in the Fairbanks District has been estimated in the neighborhood of 35,000 million board feet. . . .

TABLE 21
Total Enrollments of
Alaska School Children, By Race
(Including Native¹ Children in
Out-of-State Schools)

	ELEMENTARY			Total
	White	Native ¹	Other	
1962-63	35,187 (70.5%)	13,184 (26.4%)	1,503 (3.1%)	49,874 (100.0%)
1963-64	34,479 (68.4%)	14,300 (28.4%)	1,611 (3.2%)	50,390 (100.0%)
1964-65	31,298 (66.3%)	13,894 (29.5%)	1,980 (4.2%)	47,172 (100.0%)
1965-66	33,014 (67.1%)	14,288 (29.1%)	1,875 (3.8%)	49,177 (100.0%)
1966-67	37,031 (68.8%)	14,979 (27.8%)	1,815 (3.4%)	53,825 (100.0%)
1967-68	37,841 (68.4%)	15,482 (28.0%)	1,966 (3.6%)	55,289 (100.0%)
	HIGH SCHOOL			
1962-63	8,688 (75.0%)	2,676 (23.2%)	210 (1.8%)	11,574 (100.0%)
1963-64	8,968 (72.0%)	3,213 (25.8%)	275 (2.2%)	12,456 (100.0%)
1964-65	14,437 (78.0%)	3,668 (19.8%)	402 (2.2%)	18,507 (100.0%)
1965-66	14,885 (77.7%)	3,866 (20.2%)	402 (2.1%)	19,153 (100.0%)
1966-67	14,565 (76.3%)	3,939 (20.6%)	593 (3.1%)	19,097 (100.0%)
1967-68	16,596 (76.1%)	4,512 (20.7%)	703 (3.2%)	21,811 (100.0%)

¹The term "Native" refers to Eskimo, Indian, and Aleut persons indigenous to Alaska. The Bureau of Indian Affairs sends some Alaska Native children to out-of-state secondary schools.

Source: Alaska Department of Education, and the U.S. Bureau of Indian Affairs.

The annual mill value of logs fluctuates between \$400,000 and \$500,000 at present.³⁴

The same report stated that expanding lumber demands would, in time, probably result in a substantial industry in the area.

Because of construction activity on the Arctic North Slope, in connection with petroleum exploration and development, the demand for lumber increased sharply in interior and arctic Alaska beginning in the last months of 1968. Demand from this source may continue to increase, but little is known about the proportion of this new demand which will be met by timber from the Fairbanks area.

Also, Japanese interests made recent inquiries concerning timber resources in the Fairbanks area, but no sales have yet been made to Japan.

In summary, the forest products industry in the Fairbanks area has been of minor significance in the past and was almost entirely limited, prior to 1969, to the satisfaction of local lumber demands. Nondisclosure regulations of the Alaska Department of Labor prevent publication of employment statistics, but interviews with knowledgeable persons indicate that there were fewer than 100 wage and salary employees in this industry at the peak of the 1968 season. Some employment increase is believed to have occurred from 1968 to 1969 due to the export of lumber to the Arctic North Slope, and these shipments may increase. At some future time there may also be exports to Japan.

³⁴Fairbanks North Star Borough Official Statement (prepared by Dupere & Associates, in connection with a notice of sale), 1969. pp. 32-34.

Tourism

As previously stated, tourism may have generated an annual average of 250 jobs in Fairbanks during 1968, exclusive of air transportation jobs.

Continued growth in tourism activity will undoubtedly result from the increasing affluence of Americans. It is also possible that improving air transportation technology will result in lower air passenger fares, thereby encouraging travel to Alaska.

Regional Trade and Services, Including Government Services

Regional trade and service functions in Fairbanks, including federal and state government regional administration, will probably increase as the economy of northern Alaska expands. Much of the resulting employment growth will occur in transportation, previously discussed, but there will also be additional jobs in wholesale trade, business services, and government. The extent to which Fairbanks rather than Anchorage benefits from economic growth throughout northern Alaska will be influenced by a number of factors; the most important of these are discussed in the next chapter.

CHAPTER 5.

GENERAL FACTORS AFFECTING FUTURE GROWTH OF THE FAIRBANKS ECONOMY

Cost of Living

The high cost of living in Fairbanks and in other Alaskan cities, compared to Seattle, Washington, is shown in Table 22, which is based on data from annual surveys conducted by the U.S. Bureau of Labor Statistics (BLS). The "All Items" index for the autumn of 1968 is 132 for Fairbanks, indicating that costs in Fairbanks are 32 per cent higher than in Seattle. By comparison, the all items index for Anchorage is only 119. In Fairbanks, separate indexes for the basic expenditure categories of food and housing are even higher than the all items index. The food index in 1968 was 139 and the housing index was 141.

Further evidence of extremely high food costs in Fairbanks is provided by Table 23, showing prices on individual food items. Table 23 figures are based on data from a survey conducted by the U.S. Department of Agriculture. The Department of Agriculture's survey methods are somewhat different from those of the U.S. Bureau of Labor Statistics. However, the weighted index for all food items is approximately the same in both surveys. Table 23 shows that in March of 1969 food costs in Fairbanks were 43 per cent higher than in Seattle, based on Department of Agriculture data.

TABLE 22.
INDEXES OF INTERCITY DIFFERENCES IN THE COST OF
EQUIVALENT GOODS AND SERVICES
Fairbanks, Anchorage, Juneau, and Ketchikan, Alaska
compared with Seattle, Washington¹
Autumn 1964, 1965, 1966, 1967, and 1968
(Costs in Seattle = 100)

City and Year	All Items	Food	Housing		Apparel And Upkeep	Other Goods And Services	All Items Less Housing	
			Total	Rental				
<u>Anchorage</u>	1964	123	121	132	162	110	120	119
	1965	122	123	130	157	110	117	118
	1966	122	123	130	152	112	116	118
	1967	121	122	130	146	108	116	117
	1968	119	119	127	142	110	115	115
<u>Fairbanks</u>	1964	134	138	143	188	124	127	130
	1965	133	140	141	187	124	123	129
	1966	132	139	141	180	122	122	127
	1967	132	142	140	179	120	121	127
	1968	132	139	141	176	126	120	127
<u>Juneau</u>	1964	124	123	133	150	118	119	120
	1965	124	126	134	151	116	116	119
	1966	125	127	135	147	115	117	120
	1967	127	132	137	147	115	119	122
	1968	126	130	135	146	117	117	121
<u>Ketchikan</u>	1964	119	118	121	126	117	117	117
	1965	117	119	121	127	116	113	116
	1966	118	122	122	127	114	113	116
	1967	118	123	122	126	117	113	117
	1968	119	121	122	124	118	115	117

¹Based on the average pattern of expenditures of Alaska wage and clerical-worker families of two or more persons who were full-year residents in the State during 1959 or 1960. (Average expenditures of families living in Anchorage, Fairbanks, Juneau, or Ketchikan were combined with a system of weights based on the estimated number of consumer units in each city as derived from the 1960 Census of Population.)

SOURCE: U.S. Bureau of Labor Statistics.

TABLE 23
 March 1969 Average Retail Prices of 40 Items
 In Eleven Alaska Cities Compared With Seattle

Food Item	Unit	Seattle ¹	Ketchikan	Petersburg	Sitka	Juneau	Kodiak	Seward	Kenai Soldotna	Valdez	Anchorage	Palmer	Fairbanks
Flour	5 lb.	\$.66	\$.86	\$.86	\$.90	\$.93	\$.95	\$.91	\$.90	\$.84	\$.88	\$.86	\$.92
Rice	lb.	.28	.31	.36	.33	.28	.28	.34	.36	.34	.32	.33	.32
Corn flakes	12 oz.	.32	.42	.42	.39	.43	.40	.39	.40	.46	.40	.39	.42
Bread	1½ lb.	.30	.48	.45	.54	.48	.52	.49	.56	.55	.49	.49	.52
Round steak	lb.	1.16	1.29	1.30	1.42	1.19	1.37	1.49	1.32	1.39	1.26	1.32	1.25
Chuck roast	lb.	.61	.82	.92	.82	.88	.81	.89	.86	.91	.88	.82	1.09
Hamburger	lb.	.51	.72	.79	.68	.91	.69	.81	.72	.84	.62	.75	.81
Pork chops	lb.	1.04	1.22	1.11	1.28	1.13	.99	1.16	1.22	1.15	1.08	1.09	1.36
Bacon	lb.	.84	.96	1.01	1.04	.89	1.08	1.02	.96	1.07	.96	.97	1.08
Frankfurters	lb.	.68	.77	.79	.82	.89	.79	.81	.84	.89	.84	.79	.88
Frying chicken	lb.	.51	.61	.66	.67	.72	.64	.54	.59	.64	.69	.59	.70
Tuna fish	6½ oz.	.36	.46	.46	.47	.43	.45	.42	.46	.46	.44	.44	.48
Milk, fresh	½ gal.	.53	.79	.83	.84	.77	.92	.96	.96	1.03	.91	.90	1.05
Ice cream	½ gal.	.92	1.30	1.50	1.29	1.20	1.45	1.28	1.25	1.55	1.15	1.25	1.32
Butter	lb.	.81	.92	.98	.94	.92	.99	1.00	.98	1.10	.99	.92	1.04
Milk, evap.	14½ oz.	.17	.22	.24	.23	.22	.25	.24	.22	.24	.22	.22	.24
Eggs, large A	doz.	.58	.62	.65	.62	.62	.71	.70	.76	.94	.63	.61	.68
Orange juice, frozen	6 oz.	.24	.31	.36	.34	.33	.37	.34	.37	.36	.31	.37	.37
Apples	lb.	.27	.34	.34	.40	.36	.34	.36	.39	.49	.39	.32	.46
Bananas	lb.	.15	.28	.28	.37	.33	.37	.31	.30	.41	.26	.30	.40
Oranges	lb.	.24	.27	.33	.32	.28	.31	.34	.28	.40	.32	.28	.38
Potatoes	lb.	.08	.10	.12	.14	.11	.11	.13	.13	.15	.13	.11	.17
Onions	lb.	.14	.14	.18	.12	.15	.14	.22	.21	.17	.21	.22	.18
Carrots	lb.	.16	.25	.25	.30	.26	.22	.29	.28	.35	.30	.22	.34
Lettuce	lb.	.32	.34	.43	.40	.49	.47	.49	.46	.47	.42	.44	.52
Cabbage	lb.	.18	.20	.26	.28	.26	.25	.26	.27	.38	.28	.26	.29
Tomatoes	lb.	.46	.52	.48	.67	.60	.67	.58	.62	.64	.55	.64	.71

(Continued next page.)

Table 23 (Continued)

Food Item	Unit	Seattle ¹	Ketchikan	Petersburg	Sitka	Juneau	Kodiak	Seward	Kenai Soldotna	Valdez	Anchorage	Palmer	Fairbanks
Pineapple-grapefruit drink	46-oz. can	.36	.46	.52	.51	.46	.65	.53	.51	.58	.54	.47	.51
Pears	No. 2½ can	.49	.57	.61	.66	.59	.62	.61	.65	.70	.56	.60	.62
Fruit cocktail	303 can	.26	.36	.38	.36	.34	.36	.34	.38	.40	.36	.30	.40
Peas	303 can	.26	.34	.32	.34	.38	.31	.28	.43	.42	.33	.23	.36
Chicken soup	10½ oz.	.18	.24	.25	.24	.22	.24	.24	.22	.25	.24	.21	.24
Baby foods	4½-5 oz.	.12	.13	.16	.15	.19	.16	.14	.15	.16	.14	.14	.15
Coffee	lb.	.72	.98	.92	.92	.82	.95	.96	.87	.96	.85	.93	.96
Salad or cooking oil	24 oz.	.53	.71	.77	.74	.70	.72	.67	.79	.71	.69	.66	.75
Margarine	lb.	.30	.28	.38	.29	.37	.28	.28	.26	.36	.28	.27	.54
Salad dressing, Italian	8 oz.	.38	.51	.46	.53	.47	.47	.48	.50	.52	.50	.50	.54
Cola drink	6-pack, 12 oz.	.74	1.03	1.17	1.20	1.01	1.20	1.03	1.16	1.36	1.09	1.00	1.16
Beans, dried	lb.	.28	.33	.31	.32	.32	.28	.32	.34	.33	.32	.27	.32
Sugar	5 lb.	.64	.80	.87	.87	.85	.87	.90	.85	.94	.81	.82	.91
Total		<u>\$17.78</u>	<u>\$22.16</u>	<u>\$23.48</u>	<u>\$23.74</u>	<u>\$22.80</u>	<u>\$23.65</u>	<u>\$23.55</u>	<u>\$23.91</u>	<u>\$25.91</u>	<u>\$22.64</u>	<u>\$22.30</u>	<u>\$25.44</u>
% of Seattle		100	124	132	134	128	133	132	134	146	127	125	143
Total December 1968		<u>17.54</u>	<u>22.18</u>	<u>23.44</u>	<u>23.99</u>	<u>21.83</u>	<u>23.87</u>	<u>23.63</u>	<u>23.75</u>	<u>25.10</u>	<u>22.72</u>	<u>22.20</u>	<u>25.34</u>
Total March 1968		<u>17.08</u>	<u>21.14</u>	<u>22.37</u>	<u>22.65</u>	<u>21.24</u>	<u>22.61</u>	<u>22.60</u>	n.a.	n.a.	<u>21.75</u>	<u>21.19</u>	<u>23.89</u>
Total % Change: Mar. 1968-Mar. 1969		<u>+4.1</u>	<u>+4.8</u>	<u>+5.0</u>	<u>+4.8</u>	<u>+7.3</u>	<u>+4.6</u>	<u>+4.2</u>	—	—	<u>+4.1</u>	<u>+5.2</u>	<u>+6.5</u>

¹Based on January 1969 U.S. Department of Labor, BLS "Retail Food Prices by Cities."

Source: Quarterly Report on Alaska's Food Prices, published by the Alaska Agricultural Experiment Station, cooperating with the Crop Research Division, U.S. Department of Agriculture.

A weakness of the Bureau of Labor Statistics intercity comparisons, shown in Table 22, is their reliance upon expenditure patterns of Alaskan residents. This approach fails to show the amount of money which would be required in Alaska in order to maintain a standard of living which is typical of Americans in other states. As a matter of fact, the income of Alaskans is insufficient to permit them to maintain the average U.S. standard of living, because of high prices in Alaska. Table 24 shows, in Line 7, that per capita income in Alaska is only 16 per cent higher than in the U.S. as a whole, while living costs are much more than 16 per cent higher.

Recently, the Bureau of Labor Statistics processed data collected in the spring of 1967 for the purpose of showing the actual amount of money which would be required in Anchorage, Alaska, to live as a typical family lives in the rest of the nation. As shown in Table 25, the annual budget which would be required in Anchorage for a family on a moderate living standard is 41 per cent higher than in the rest of the United States.

Also shown in Table 25 are comparative annual budgets for families on lower and higher standards of living. These indicate that in Anchorage the lower standard of living would require a 55 per cent larger budget than in the rest of the nation, while the higher standard of living would require a 32 per cent larger budget.

Although the data in Table 25 apply to Anchorage, they support certain inferences with respect to the cost of living in Fairbanks. First, the intercity indexes in Table 22 probably understate comparative living costs in Fairbanks, just as they understate comparative living costs in

TABLE 24
Comparison of Alaska and U.S. Per Capita Incomes, 1950-1968

Calendar Year	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
(1) U.S. Total Personal Income ¹ (millions of dollars)	227,228	254,474	271,126	286,256	289,016	309,742	322,090	330,113	360,160	352,840	398,725	414,411	440,192	463,053	494,913	535,949	583,461	625,068	681,933
(2) Alaska Total Personal Income ¹ (millions of dollars)	322	448	494	511	495	505	548	537	528	562	649	635	666	704	791	658	915	1,017	1,130
(3) U.S. Total Resident Population ² (in thousands)	151,866	153,982	156,393	158,956	161,894	165,069	168,098	171,187	174,149	177,135	177,992	183,037	185,890	188,658	191,372	193,815	195,936	197,863	199,846
(4) Alaska Total Resident Population ² (in thousands)	135	158	169	205	215	222	224	231	224	224	228.2	235.5	242.8	250.0	255.8	264.6	272.0	278.0	284.9
(5) U.S. Per Capita Income ³ (dollars per person per year)	1,496	1,553	1,734	1,805	1,785	1,876	1,976	2,045	2,068	2,151	2,213	2,264	2,368	2,454	2,386	2,765	2,978	3,159	3,412
(6) Alaska Per Capita Income ³ (dollars per person per year)	2,385	2,835	2,614	2,493	2,302	2,275	2,446	2,325	2,357	2,509	2,846	2,696	2,743	2,816	3,092	3,243	3,364	3,658	3,966
(7) Ratio: Alaska to U.S. Per Capita Income (Line 6 ÷ Line 5)	1.59	1.72	1.51	1.38	1.29	1.21	1.24	1.14	1.14	1.16	1.28	1.19	1.16	1.15	1.20	1.17	1.13	1.16	1.16
(8) Ratio: Alaska to U.S. Per Capita Income, using Per Capita Income Data Provided in the U.S. Office of Business Economics Series. (Differences from Line 7 are asterisked.)	1.59	1.72	1.51	1.38	1.29	1.21	1.24	1.14	1.14	1.16	1.28	1.19	1.16	1.14*	1.19*	1.16*	1.16*	1.19*	1.21*

¹Source: Alaska and U.S. personal income data are from the series produced by the Office of Business Economics, U.S. Department of Commerce.

²Source: U.S. Department of Commerce, Bureau of the Census: Current Population Reports, Series P-23, Nos. 368, 369, and 384.

³Source: Figures for 1950 and 1960 are from the U.S. Bureau of the Census surveys in those years. Intercensus population totals for 1951-1959 are from the National Office of Vital Statistics' publication, Vital Statistics of the United States. All estimates after the 1960 census are by the Office of Statistical Services, Alaska Department of Health and Welfare, and the Alaska Department of Labor.

⁴Source: Computed directly from Lines 1 and 3. These figures do not in any year vary more than one dollar from the per capita income figures published by the Office of Business Economics, U.S. Department of Commerce.

⁵Source: For all years except 1960, computations were made directly from data in Lines 2 and 4. In 1960 the unrounded population total was used. The resulting per capita income figures for 1950-1960 are identical in all cases with the Alaska per capita income figures prepared by the U.S. Office of Business Economics. However, beginning in 1961 the per capita income figures in the two series are not the same because the Office of Business Economics relied on Census Bureau estimates of Alaska's population, while the per capita income figures in line 7 above are based on population estimates produced by the Office of Statistical Services, Alaska Department of Health and Welfare.

TABLE 25.

ANNUAL COSTS AND COMPARATIVE INDEXES OF BUDGETS FOR 3 LIVING STANDARDS FOR A 4-PERSON FAMILY¹
 ANCHORAGE, ALASKA, SPRING 1967

	Budget Costs			Indexes - U.S. = 100		
	Lower Standard	Moderate Standard	Higher Standard	Lower Standard	Moderate Standard	Higher Standard
TOTAL COST OF BUDGETS:	\$ 9,154	\$ 12,809	\$ 17,255	155	141	132
Renter Families	9,154	12,215	16,447	155	144	131
Homeowner Families	-----	13,007	17,398	---	140	132
Food	2,171	2,645	3,212	132	126	124
Food at home	1,920	2,294	2,790	135	129	132
Food away from home	251	351	422	116	107	89
Housing: Total	2,581	3,638	4,876	198	163	149
Renter family	2,581	3,199	4,309	198	182	150
Homeowner families	-----	3,784	4,976	---	159	150
Shelter: Total	2,207	3,025	3,681	218	173	159
Rental costs	2,207	2,586	3,114	218	203	161
Homeowner costs	-----	3,171	3,781	---	168	159
Housefurnishings	142	274	544	103	102	102
Household operations	232	339	611	152	156	151
Transportation:	760	1,206	1,377	170	138	122
Clothing	610	854	1,182	113	111	103
Personal Care	193	292	425	119	134	139
Medical Care: Total	645	649	676	136	136	136
Other Family Consumption	301	583	974	102	103	101
COST OF FAMILY CONSUMPTION: TOTAL	7,262	9,867	12,722	149	137	128
Renter families	7,262	9,428	12,155	149	140	127
Homeowner families	-----	10,013	12,822	---	136	128

TABLE 25. (continued)

	Budget Costs			Indexes - U.S. = 100		
	Lower Standard	Moderate Standard	Higher Standard	Lower Standard	Moderate Standard	Higher Standard
OCCUPATIONAL EXPENSES	\$ 50	\$ 80	\$ 85	100	100	100
SOCIAL SECURITY AND DISABILITY PAYMENTS	334	334	334	126	110	110
PERSONAL TAXES: TOTAL	1,172	2,027	3,248	248	191	165
Renter families	1,172	1,872	3,007	248	198	163
Homeowner families	-----	2,079	3,291	---	189	165
OTHER COSTS	336	501	866	127	122	119

¹The family consists of an employed husband, age 39, a wife not employed outside the home, an 8-year-old girl, and a 13-year-old boy.

SOURCE: Bureau of Labor Statistics.

Anchorage. Also, in Fairbanks as well as in Anchorage it is probably true that high prices have the greatest effect upon low income families.

As pointed out earlier, the separate intercity indexes for food and housing in Fairbanks are substantially higher than the all items index. Since low income families necessarily spend a larger share of total income for these categories than do families of moderate or high income, it is reasonable to assume that if intercity indexes similar to those in Table 22 were prepared using low income family expenditure patterns, the Fairbanks all items index would be higher than 132.

Also, if indexes of the type presented in Table 25 were prepared for Fairbanks, they would probably be much higher than the Anchorage indexes. To provide very rough estimates, the ratio of the Fairbanks and Anchorage intercity indexes shown in Table 22 have been multiplied by the three Anchorage indexes in Table 25. The results are indexes of 172, 156, and 146, respectively, for low, moderate, and high living standards.

In summary, living costs are extremely high in Fairbanks, resulting in high direct labor costs to all business and high costs of construction. Any development which would move Fairbanks' living costs closer to those in the rest of the nation would improve the prospects for economic growth.

Also, the cost of living data presented above indicate that low income families in Fairbanks may suffer extreme hardship because of the structure of prices. This conclusion has implications for health,

welfare, and education policy and also for tax policy. Taxes in Fairbanks are examined in a subsequent section of this study.

Factors Affecting the Quality of Life in Fairbanks

Introduction:

Although economists and other persons have habitually assumed that economic growth depends entirely upon natural resource and location factors, many recent economic analyses have focused upon those factors which cause a community to be a desirable place in which to live and work.

Many communities fail to experience economic growth not because they lack economic potential in the ordinary sense of that term, but because they lack qualities which are desirable in terms of livability, or because of negative institutional and political factors. One study observed that such communities "are characterized by neglect, inadequate services, and general deprivation."³⁵ By contrast, some communities experience continuous economic progress in the absence of significant advantages of location or natural resources.

Factors affecting the quality of life have the greatest impact on economic growth in communities with economic base activities requiring highly educated and trained workers. This is because professional and semi-professional workers are the most migratory of all occupational

³⁵ Henry L. Hunker and Alfred J. Wright. Factors of Industrial Location in Ohio. The Ohio State University Bureau of Business Research, 1963, p. 79.

groups.³⁶ Everett S. Lee explains this characteristic in the following words:

. . . for highly skilled technicians it has largely been a matter of weighing a good situation against a possibly better one elsewhere. Thus, engineers have been able to choose among many jobs in all parts of the country. For such people, the choice is not always an economic one -- it may rest upon such factors as climate, the quality of the schools, or the possibilities of the good life. Such considerations have become so important that employers increasingly place their establishments in places thought to appeal to the kind of employees they need.³⁷

Because Fairbanks is a government center and a university town, its economic growth rate will probably depend in substantial part upon the extent to which the community fully exploits its possibilities for "the good life" while taking steps to minimize its disadvantages. A few of the more obvious liabilities and assets are described below.

Liabilities:

(1) Severe winter weather and air pollution. During the winter, Fairbanks experiences an unusual variety of air pollution known as "ice fog" which occurs only at temperatures of -30° and below. Although nothing can be done to decrease the severity of winter temperatures, the resulting poisoning of the atmosphere could be more effectively controlled. A recent study reported:

Processes which produce conditions hazardous to health exist in interior Alaska. . . . Studies are still preliminary, but indications are that concentrations of some toxic materials in

³⁶ Everett S. Lee, "Internal Migration and Population Redistribution in the United States," Population: The Vital Revolution, p. 129.

³⁷ Ibid., p. 130.

the atmosphere in the Fairbanks area already may reach very much higher levels than they ever do in Los Angeles. The problem is thus extremely urgent.³⁸

Another study states:

It is worthwhile to emphasize that the present rate of polluting the atmosphere in the Fairbanks area will increase. This is apparent from the steady increase in human activity which seems destined to continue. . . .

If the industrial expansion of Fairbanks or any similar area should occur in accordance with current hopes and desires of local citizens, prospective industries as well as the communities should plan carefully to minimize the already serious problem of ice fog.³⁹

The possible construction of a petroleum refinery near Fairbanks is an important example of industrial development which should be planned in a way which will avoid further ice fog pollution.

(2) Inadequate investment in community facilities. There is inadequate investment in sewage treatment and disposal facilities. Very recently the Alaska Department of Health and Welfare directed the City of Fairbanks and the Fairbanks North Star Borough to program future capital investments which will prevent further contamination of the Chena River.⁴⁰

³⁸ Preliminary proposal to establish and use a controlled environment for study of air pollution, Research proposal, Geophysical Institute, University of Alaska, Murcray, W.B., 1969.

³⁹ Ice Fog Studies in Alaska: A Survey of Past, Present and Proposed Research. Edited by Gunther E. Weller, March 1969.

⁴⁰ Interview with Regional Sanitation for the Fairbanks Region, Alaska Department of Health and Welfare.

Fairbanks also lacks, at the present time, an adequate hospital facility. The total inadequacy of the present facility was announced in A Report to the People of the Fairbanks Area, December 1967, prepared by the Lutheran Hospitals and Homes Society for America, which has subsequently agreed it would operate the new hospital when completed. The report stated (p. 1)

Probably no city of comparable size in the United States has a worse situation than that which you have endured for the past several years and yet you have done nothing about it. It is doubtful that many states would permit the continued operation of a similar hospital without major changes.

Partly in response to the above report, strong local support for a new hospital did develop, resulting in substantial private contributions and pledges of additional contributions. Current planning calls for construction to begin early in the Spring of 1970. However, if the new hospital is to become a reality, continued local support is essential.

The two examples of inadequate public investment discussed above are by no means an exhaustive list, but are merely symptomatic of an apparent tendency. Inadequate investment in education is a related topic discussed separately in the next section.

(3) Inadequacies in the educational system. During the 1968-1969 school year the public high school in Fairbanks was placed in the "Warned" category by the Northwest Association of Colleges and Secondary Schools. The categories into which school systems are classified are, in descending order of quality, "Approved," "Advised," "Warned,"

and "Dropped." In 1968-1969 the "Warned" rating was applied to only 16 school systems in the states of Idaho, Montana, Nevada, Oregon, Utah, and Washington, contrasted to 152 rated "Advised" and 530 "Approved."

One factor in the low rating of the Fairbanks high school was an excessive pupil to teacher ratio. For the entire school system, including elementary schools, there were 40.96 teachers per thousand students, compared to a national median of 44.16.⁴¹ Inadequate library space was another cause of the "Warned" rating.⁴²

In January of 1969 a school bond issue was voted down by local property owners, who are the only Fairbanks residents allowed to vote on school bond issues. If subsequent bond issues are also turned down and if the population of Fairbanks grows as expected, the result must be increased over-crowding in the local schools.

Assets:

(1) Outdoor recreation: In the larger Fairbanks area, there are many excellent potential sites for camping, boating, hunting, trapping, and fishing.

Dog team sledding and snow-mobiling are two of the more unusual winter sports; also, both downhill and cross-country skiing are acquiring increasing numbers of participants. There are three commercial downhill skiing areas near Fairbanks, and it is not uncommon in winter to see persons going to work on cross country skis. Ski tournaments

⁴¹ Office of the Fairbanks Superintendent of Schools.

⁴² Ibid.

in recent years have attracted participants from the contiguous forty-eight states and from Canada.

In summer, baseball is a popular activity, with organized leagues for youngsters from age 8 and older. In addition, baseball fans can watch the Fairbanks Gold Panners, one of the nation's outstanding amateur teams.

(2) Potential for cultural enrichment: Construction of Alaskaland for the Alaska Centennial in 1967 provided Fairbanks with an excellent auditorium suitable for stage productions and musical performances. Some live theater and musical performances of high quality have been brought to the Alaskaland auditorium during its first three seasons. The presence of the auditorium will also serve to encourage more frequent local productions. A full theater season was scheduled for 1969 featuring both local and outside talent.

The existence of the University also enhances the cultural life and potential of Fairbanks, in part by bringing to the community a sizable group of individuals interested in supporting the arts. In addition, student performances -- including Choir of the North concerts, and stage productions -- add to the variety of artistic activities.

Cultural enrichment of a different sort is provided by the presence of the Eskimo and Indian culture of northern Alaska. The annual Potlatch -- a banquet featuring Native foods -- and the Eskimo Olympics add to the color and uniqueness of life in Fairbanks. The North American Dog Sled championship races are also held each winter in Fairbanks.

The Native people also perform at Alaskaland and sell hand-crafted, artistic and useful items such as parkas, mukluks, and ivory carvings.

(3) Research facilities: The University of Alaska provides Fairbanks with a source of highly trained research manpower and research facilities, including a large scale computer center, available to few cities of comparable size. Physical science research at the University is already directed towards the solution of the ice fog problem described earlier, although present funding permits only small scale efforts, and the Institute of Water Resources is available to assist in correcting existing inadequacies in the Fairbanks water and sewage systems.

In the social sciences, University staff contributed to preparation of Federal grant applications for the proposed new hospital by providing an analysis of the economic impact of the grants. More recently, the Institute of Social, Economic and Government Research was awarded a small grant to project demand for Alaskan timber resulting from North Slope oil activities. Information developed by this study could result in increased employment for the Fairbanks area, as well as for other areas of the state.

The University's resources are also available to assist in the process of community planning. The planning function is especially important to Fairbanks now because of anticipated rapid population growth resulting from petroleum industry activity.

Conclusions:

The economic base of Fairbanks consists of activities requiring large numbers of professional and semi-professional workers, who are the most migratory of all occupational groups. If conditions of life in Fairbanks are not attractive, the difficulty of recruiting the necessary workers will deter growth in basic economic activity. This has been a problem in the past, as evidenced by statements of government administrators. For example, the January 29, 1970 issue of the Fairbanks Daily News-Miner reported that the U.S. Bureau of Land Management (BLM) recently announced its intention of moving the adjudication function to Anchorage. The report stated:

The recently announced move, which has been partially blocked by local opposition, stemmed from the BLM's alleged difficulty in hiring land records adjudicators to live and work in Fairbanks.

Also, a letter written by the State Director of BLM, dated September 20, 1968, stated:

One of the first questions asked in connection with permanent employment in Fairbanks is the hospital situation, followed by the schools. Lack of, or inadequate, medical facilities is certainly a deterrent to the recruiting of good permanent people to carry out the Bureau of Land Management programs in Alaska.

The above quoted letter was written to the President of the Greater Fairbanks Community Hospital Association in support of an Economic Development Administration (EDA) grant for a new Fairbanks hospital. Similar letters were written by administrators of other government agencies, and by an official of the Alaska State Employees Association.

The evidence presented above provides a strong indication that Fairbanks' economic base might now be larger than it is if public services in the community were more adequate, and suggests that future growth will in part be determined by the quality of public services and by other controllable factors, such as air pollution, which affect the quality of life.

Government Financial Structure

The government financial structure is an important factor in determining a community's capability for improvement.

The Fairbanks North Star Borough property and sales tax rates are compared to rates in the Greater Juneau Borough and the Greater Anchorage Borough in Table 26. In most of the smaller Alaska communities, tax rates are lower than in the three larger cities, corresponding to fewer public services.

In fiscal year 1968 the combined property tax rates for persons living within the City of Fairbanks, including millage rates for borough administration and for schools, was 24.6 dollars for each thousand dollars of assessed valuation. This is almost identical to the 24.18 rate in Anchorage, but slightly higher than the 21.91 in Juneau. However, the sales tax rate is five per cent in Fairbanks compared to three per cent in Juneau, with no sales tax in Anchorage. It should also be noted that both Juneau and Anchorage have personal property taxes, while Fairbanks does not.

Table 27 shows property tax rates in Fairbanks compared to a list of other communities in the United States. Comparisons are based on

TABLE 26

PROPERTY AND SALES TAX RATES:
ORGANIZED BOROUGHES AND
CITIES WITHIN ORGANIZED BOROUGHES

Municipality	Property Tax (millage rate)			Sales Tax		
	1966	1967	1968	1966	1967	1968
Fairbanks North Star						
Fairbanks (City of)	9.60	9.60	9.60	3.0	3.0	3.0
Administration (Borough)	3.30	2.75	3.40	2.0	2.0	2.0
Schools	8.36	11.15	11.60			
Total	21.26	23.50	24.60	5.0	5.0	5.0
Greater Juneau Borough						
Juneau (City of)	10.65	10.30	9.00	2.0	2.0	2.0
Administration (Borough)	2.80	2.49	3.64			
School	8.20	9.45	9.27	1.0	1.0	1.0
Total	21.65	22.24	21.91	3.0	3.0	3.0
Greater Anchorage Area						
Anchorage (City of)	8.30	9.30	10.00	—	—	—
Administration (Borough)	1.50	1.50	1.87	—	—	—
Schools	9.40	11.00	12.31	—	—	—
Total	19.20	21.80	24.18	None		

Source: Reprinted from Borough and City Property Tax and Sales Rates: 1966-1967-1968, published by the Local Affairs Agency, Office of the Governor, State of Alaska.

TABLE 27
Property Tax Rates in Selected U.S. Communities
Fiscal Year 1966

	Column 1 Nominal Rate of Property Tax (annual tax billed as per cent of taxable assessed value)	Column 2 Effective rate of tax (annual tax billed as per cent of sales price)
	Median	Median
Fairbanks, Alaska	2.13	2.13
Tucson, Arizona	13.89	2.36
Sacramento, Calif.	9.49	2.15
San Jose, Calif.	9.82	2.14
Hartford, Conn.	4.99	2.82
New Haven, Conn.	4.48	2.30
Waterbury, Conn.	2.91	2.58
Atlanta, Georgia	2.84	2.41
Fort Wayne, Ind.	9.00	2.18
Indianapolis, Ind.	10.08	2.55
South Bend, Ind.	9.56	2.46
Des Moines, Iowa	12.65	3.06
Wichita, Kan.	8.73	2.58
Topeka, Kan.	11.74	2.44
Kansas City, Kan.	14.32	2.17
Baltimore, Md.	4.88	3.47
Boston, Mass.	10.10	3.01
New Bedford, Mass.	8.16	2.54
Springfield, Mass.	5.11	3.68
Worcester, Mass.	8.84	3.86
Lansing, Mich.	6.74	2.34
Omaha, Nebr.	7.76	2.89
Lincoln, Nebr.	9.51	2.94
Camden, N.J.	7.55	3.25
Newark, N.J.	6.03	4.06
Jersey City, N.J.	10.71	2.85
Trenton, N.J.	10.80	4.31
Patterson, N.J.	4.55	3.19
Buffalo, N.Y.	4.83	3.07
Rochester, N.Y.	6.61	2.30
Niagara Falls, N.Y.	12.71	3.06
Utica, N.Y.	7.81	3.40
Syracuse, N.Y.	6.57	2.80
Yonkers, N.Y.	5.72	2.53
Portland, Ore.	10.95	2.37
Philadelphia, Pa.	4.48	2.61
Providence, R.I.	3.90	2.62
Corpus Christi, Tex.	8.53	2.17
Fort Worth, Tex.	9.13	2.32
Wichita Falls, Tex.	7.68	2.14
Madison, Wis.	4.65	2.57
Milwaukee, Wis.	6.25	3.31

Source: 1967 Census of Governments, Volume 2: Taxable Property Values, U.S. Department of Commerce, Bureau of the Census, Table 21.

fiscal year 1966 data because more current information is not available for the other cities listed. Both the nominal and the effective tax rates are indicated. The effective tax rate is often lower than the nominal rate because many communities assess property at values which are only a fraction of the actual market value. Figures in Column 2 of Table 27 show the estimated effective tax rates.

For communities other than Fairbanks, the effective rate was estimated by comparing sale prices of properties to the most recently assessed value. This approach could not be applied to Fairbanks due to lack of adequate data, but local government officials and bankers in the community testify that in fiscal 1966, and subsequent years, property in Fairbanks has been assessed at 100 per cent of true market value. Even so, the effective tax rate in Fairbanks is seen to be lower than in any of the other communities shown in Table 27. This suggests that although Fairbanks property taxes are high, they do not exceed those paid by many other Americans.

Additional local government financial data are provided in Appendix B.

In evaluating the Fairbanks tax structure, note should also be taken of vastly increased state revenues in 1969 due to Arctic petroleum activities. As a result, prospects are good that the state will increase revenue sharing with local communities in the immediate future.

Conclusions

Extremely high living costs are undoubtedly a deterrent to economic growth. Any development which helps to bring living costs into

line with those in the rest of the nation will improve the prospects for increasing basic economic activity in the community.

The overall quality of life in Fairbanks is adversely affected by a number of controllable factors, including air and water pollution, and overcrowded schools. Unless public policy in these areas is changed, personnel recruitment difficulties, particularly with respect to professional workers, will cause public and private agencies to locate fewer functions in Fairbanks than would be the case in the absence of these problems.

The total tax picture in Fairbanks is difficult to assess, but the overall level of taxes appears to be similar to that of other large communities in Alaska -- with the exception of the sales tax, which is five per cent compared to three per cent in Juneau, with none in Anchorage. Property tax rates are not exceptionally high, when compared to other large Alaskan communities or to many communities in other states. Due to large state revenues from nonrenewable oil resources, state sharing of revenues with local communities in Alaska may increase in the immediate future, thereby alleviating local community financial problems.

CHAPTER 6.
IMPROVING THE PLANNING PROCESS

Introduction

Local government officials in Fairbanks recently invited government leaders from Edmonton, Alberta, to speak about development problems encountered during twenty-three years of rapid population growth.⁴³ During that period, Edmonton's population increased by 400 per cent, largely due to oil development in a large hinterland which Edmonton serves as a service center.⁴⁴ Because Fairbanks is a service center for the newly discovered Arctic Slope oil fields, there may be lessons which Fairbanks can learn from Edmonton. Among these is the importance of good, comprehensive planning. The visiting Edmonton officials referred to that city's planning department as "the most important department in our city."⁴⁵

By contrast, local government in Fairbanks is currently being administered in the absence of a comprehensive community plan. Therefore, it is clear that the first step in improving community planning in Fairbanks is a decision by responsible officials to commit adequate resources to this aspect of administration. Assuming such a decision, the suggestions in this chapter will, it is hoped, assist in improving the planning process of the Fairbanks North Star Borough.

⁴³ January 9, 1970 issue of the Fairbanks Daily News-Miner, p. 1.

⁴⁴ Ibid.

⁴⁵ Ibid.

Three more or less distinct areas of improvement are discussed below. These are: (1) improving the adequacy and timeliness of basic social and economic data programs, (2) creating a formal intelligence network to supply information about decisions which will affect the near-term future, and (3) relating the current situation to the medium- and long-term prospects.

Improving the Adequacy and Timeliness of
Basic Social and Economic Data Programs

Employment and Wage Data, by Industry:

The most important set of basic social and economic data is probably the Alaska Department of Labor's nonagricultural wage and salary employment series. Employment and wage data are published quarterly for the Fairbanks Census District, with separate industry data for each Standard Industrial Classification at the one-digit and two-digit levels. These data appear in the publication entitled Statistical Quarterly.

At present, there are several inadequacies in the Statistical Quarterly.

First, the published data for the Fairbanks Census District erroneously include all University of Alaska employment including that which is in other districts. As a direct result of work on this thesis, steps are being taken to correct this deficiency. Nonetheless, because of the magnitude of this error, amounting to more than 500 jobs, it is

important that Fairbanks community planners have available historical data which have been corrected with respect to this error. Table 5 provides a historical series which is believed to be reasonably accurate.

Also, data appearing in the Statistical Quarterly are typically out of date by approximately one year. This time lag can be reduced to approximately six months by obtaining unpublished data directly from the Alaska Department of Labor.

Furthermore, the Alaska Department of Labor compiles but does not publish wage and salary employment data for the Fairbanks metropolitan area, as distinguished from the more inclusive Fairbanks Census District. Fairbanks community planners need both sets of data.

It should be possible to obtain all needed unpublished data from the Fairbanks office of the Alaska Department of Labor, since that office recently added a full-time statistician to its staff. The Fairbanks office statistician can also provide current employment estimates for the Fairbanks Census Districts, by industry, based on a sample of area firms.

Population Estimates:

Without accurate and timely population estimates, efficient community planning is impossible.

Total civilian population estimates for the entire state and for each of Alaska's twenty-four census districts are prepared annually by the Alaska Department of Labor. That agency also obtains information

from the U.S. Department of Defense concerning military personnel. Both the total resident population, including military personnel, and the civilian resident population estimates are published with a time lag ranging from nine to twenty-one months.

The Department of Labor's population estimates are based on the U.S. Census Bureau's "Component Method II," which relies heavily upon changes in school enrollments to indicate migration patterns. Consequently, there is no insurmountable obstacle to the preparation of population estimates with a time lag not exceeding 12 months.

Another deficiency of the present estimates is failure to produce information about population characteristics, especially race. To remedy this shortcoming, the author of this thesis prepared historical data for the school years 1958-1959 through 1968-69 showing, for each census district in Alaska, total elementary school enrollment by race, and total secondary enrollment by race. These data will be valuable in improving total civilian population estimates and in providing separate estimates by race. The historical series for the Fairbanks Census District is shown in Table 28.

Further improvements in population estimates using Component Method II could be made if information is obtained regarding school enrollment by race -- by grade. Also helpful would be information about the occupation and employer of students' parents, and the residence of the parents during the preceding school year. This information could be obtained when parents register their children in the Fairbanks schools. One use of information about parents' employers

TABLE 28

TOTAL ELEMENTARY AND SECONDARY SCHOOL ENROLLMENTS,
 BY RACE, FAIRBANKS CENSUS DISTRICT
 (Including Schools on Military Installations)

YEAR	ELEMENTARY SCHOOL				HIGH SCHOOL				TOTAL
	WHITE	NATIVE	OTHER	SUB-TOT	WHITE	NATIVE	OTHER	SUB-TOT	
1958-59	5674	450	239	6363	1119	63	62	1244	7607
1959-60	5399	400	298	6097	1070	97	28	1195	7292
1960-61	5473	466	324	6263	1122	70	61	1263	7526
1962-63	6352	572	505	7429	1544	106	69	1719	9148
1963-64	6335	611	575	7521	1728	120	83	1931	9452
1964-65	6389	643	885	7917	1855	161	81	2097	10014
1965-66	6778	804	723	8305	1981	158	121	2260	10565
1966-67	6934	687	532	8153	1993	170	121	2284	10437
1967-68	6777	599	637	8013	1963	187	126	2276	10289
1968-69	6989	761	678	8428	2071	208	117	2396	10824

SOURCE: Alaska Department of Education.

would be to distinguish children of military personnel from those of civilian workers. This is necessary in order to properly apply Component Method II. Information about the year-ago residence of parents would provide valuable clues to the amount of in-migration. Occupation and employer information would help show the impact on Fairbanks of individual large employers and of particular industries.

Occupational Data:

In the past, information about the occupations of jobs in the Fairbanks community, and the levels and types of education or training required, has been virtually nonexistent. The only important source of occupational data has been the 1960 census reports, which provide data only for very broad categories of occupations such as: professional and technical, clerical, craftsmen and foremen, operatives, and laborers. For individual industries, information is lacking even for broad occupational groups. However, occupational data are urgently needed for long range human resources planning, and also for short range purposes such as job placement and job training programs.

Appendix C, Table C-1, shows state government employment (excluding the University of Alaska) in the Fairbanks Census District on December 31, 1968, by occupation. This table and similar tables for every other community in Alaska were produced by the author of this thesis. Comparable tables will probably be produced for December 1969. Furthermore, the author and other members of the staff of the Institute of Social, Economic and Government Research recently submitted to the

Division of Data Processing, Alaska State Department of Administration, a proposal for re-design of the state government employee data bank which would make possible the development of turnover information. The Data Processing Division requested the Institute staff's ideas on this subject.

Table C-2 shows City of Fairbanks employment by occupation. A similar table could be obtained from the borough government. Most borough employees are in the school system.

Table C-3 shows University of Alaska employment in the Fairbanks area, by agency and by broad occupational category. Furthermore, as a direct result of work on this thesis, monthly data for University of Alaska employment by town and by specific occupation will be produced beginning in February of 1970. In addition, full-time workers will be distinguished from part-time workers.

At the present time, very little occupational information is available concerning civilian federal employment. However, inquiries which were made in connection with this thesis show that data for specific occupations of federal employees in Fairbanks, and in every other Alaska community, could be produced on a periodic basis. Steps are now being taken to accomplish this. In Fairbanks, government jobs at the federal, state, and local levels combined accounted for 45 per cent of all civilian wage and salary jobs during 1968. Statewide, 40 per cent of all jobs were in government employment.

The 1970 census will soon provide statewide occupational data for most two-digit Standard Industrial Classifications. However, a

special computer printout will need to be requested and funded in order to obtain an occupational profile of each industry within a single census district. If this is done, the 1970 occupational pattern of each industry in the private sector could be projected on the basis of industry employment data produced quarterly by the Alaska Department of Labor. This technique could be supplemented by other methods, including surveys. This general approach could provide fairly accurate occupational data concerning the private sector.

By dividing the occupational data system into a government sector and a private sector, it would be possible to make full use of the unusual potentialities of computerized government personnel systems. Such systems can produce certain types of information, such as turnover data, which are difficult to obtain for jobs in private employment. Also, because every government job is assigned to a job class, for which formal minimum qualifications are established, it is possible to computerize a series of reports showing total employment by level and type of education, training, and experience. Table C-4 shows state government employment in the Fairbanks Census District classified according to minimum qualifications. The same code, or a similar code system, could be applied to employment at the University of Alaska and to federal and local government employment. The coding might be extended also to occupational data for the private sector. Information on education, training, and experience requirements of occupations is available from the Occupational Outlook Handbook of the U.S. Department of Labor.

Other Social and Economic Data Series:

A detailed account of the features of each set of social and economic data presented in this study can be obtained from the sources indicated in the tables. There are numerous examples of data which can be obtained on a more timely basis, and in some cases in more suitable form, by utilizing direct contact with the source rather than relying exclusively upon published data.

Creating a Formal Intelligence Network to Supply Information About Decisions Affecting the Near-term Future

Decisions by private firms and government agencies can, in some cases, have very important employment and population consequences for a community. In many such cases, there is no secrecy involved. Therefore, there is much to be gained by institutionalizing the collection and promulgation of information from a wide variety of sources.

Typically, each separate agency -- such as a local school system, or the welfare department -- which needs to know the probable employment and population changes in the immediate future, must start "from scratch" to gather information which may be of value in improving short-term future estimates. This results in much duplication of effort, and the final result for each agency is usually not very satisfactory.

The solution is to contact private and government entities which are large enough to significantly influence employment and population levels, and request that whenever possible future plans be reported to a specific authority. This authority should have a routine method of

channeling such information to a central agency, probably the local government planning office.

Relating the Current Situation to the
Long- and Medium-term Prospects

The accuracy of all future demographic and economic projections is limited by the accuracy of knowledge about current levels of population and economic activity. Therefore, the steps indicated in the two preceding sections, which are directed at obtaining better information about the present and the near-term future, can result in improved forecasts of the medium- and long-term future. However, this result will not be automatic. If Fairbanks planning personnel assemble up-to-date packages of social and economic data and obtain other current information, but do not provide this information to the persons who prepare long range forecasts, the desired feedback will not occur.

Therefore, it is suggested that a schedule of meetings be established at the Institute of Social, Economic and Government Research, University of Alaska, at which the latest revisions of basic data, and other information, are reviewed by those economists in Alaska who are engaged in long range forecasting of basic industry and population. Because several important types of basic data are developed on a quarterly basis, there should probably be four such meetings per year.

On an annual basis, a revised set of short-, medium-, and long-range forecasts concerning population and basic industry activity in

Fairbanks should be published. In addition, quarterly supplements should be prepared as a result of the above described meetings. These supplements could be given a limited circulation only.

CHAPTER 7.
CONCLUSIONS

The economic base of Fairbanks, Alaska consists largely of national defense functions and other government activities, including research and education. Fairbanks is also a transportation, communications, and service center for interior and arctic Alaska.

During 1963-1968 the greatest increase in basic employment occurred at the University of Alaska. The job increase at the University together with resulting increases in nonbasic employment may have accounted for 40 per cent of the total employment gain in the community.

Beginning in the last quarter of 1968, the local economy was sharply stimulated by oil industry activities on the Arctic North Slope. Construction of an oil pipeline and possible construction of a small refinery in or near Fairbanks will result in continued economic growth at least through 1972.

The available evidence suggests that in Fairbanks every civilian job in basic economic activity generates, directly and indirectly, about .8 additional jobs in nonbasic activities such as retail trade, personal services, and local government. Therefore, community planning should be based on the assumption that for every 100 new jobs which are projected in basic employment there will be an accompanying increase of approximately 80 nonbasic jobs.

Long term economic growth in Fairbanks will result primarily from continued expansion at the College campus of the University

of Alaska, near Fairbanks, and from the continuing role of Fairbanks as a trade, service, and government center for interior and arctic Alaska. Economic expansion almost anywhere in the northern half of Alaska will probably bring some benefits to Fairbanks, and growth in northern Alaska during the coming decades will probably be at a greater rate than during 1963-1968. In part, the more rapid growth rate will be the direct result of petroleum activities. An important contributing factor may be increased public investments throughout Alaska in human resources development and in communications and transportation services. Increased levels of public investment will be made possible by large state government revenues received for the extraction of petroleum resources.

Furthermore, a final settlement of the Alaska Native land claims would contribute to much more rapid economic growth throughout northern Alaska. Various bills now being considered in the U. S. Congress would provide up to one billion dollars in payment for Native lands previously taken and for additional lands to which Native claims would be extinguished. A large share of any settlement will go to Natives of northern Alaska.

Because the economic base of Fairbanks consists of industries requiring high levels of education and skill, many new job openings will be filled by in-migrants from outside of Alaska. Strong programs of education and job training, not only in Fairbanks but throughout northern Alaska, would eventually help to bring about a better balance between the skill needs of the economy and the characteristics of the

resident workforce. However, it is also important in the meantime to attract highly qualified persons from other areas to perform key roles in the economy, because the absence of key personnel will result in fewer jobs for persons with less education and training.

A major question which remains unanswered is to what extent will Fairbanks rather than Anchorage be the chief beneficiary of economic expansion throughout northern Alaska. The answer to this question will be determined, during the next decade, in part by the degree to which public programs for health, education, and community planning are improved in Fairbanks. In the absence of such improvements, the difficulty of attracting and holding the high caliber workforce required in economic base activities will deter public and private agencies from locating functions in Fairbanks. Therefore, the number of new jobs in basic economic activity will undoubtedly be greater if public policies are adopted which make Fairbanks a more attractive place in which to live and work. Such policies will also, over a relatively long time span, tend to increase the ratio of nonbasic employment to basic employment. This will mean that for a given increase in basic economic activity there will be a greater total growth in employment, income, and population.

APPENDICES

APPENDIX A.

THE ASSUMPTION APPROACH TO ECONOMIC BASE ANALYSIS, APPLIED TO JUNEAU, ALASKA

Table A-1 shows second quarter 1968 employment data, by detailed industry category, for Juneau, Alaska. Also shown are percentages and amounts of employment in each industry which are assumed to be "basic." The resulting total is 3,191 employees in basic industry, compared to 2,534 employees in nonbasic employment -- for a nonbasic/basic ratio of .79 and an employment multiplier of only 1.79.

Although these ratios are quite low, they are based upon fairly conservative assumptions concerning the amount of basic employment. For example, only 80 per cent of state government employment is treated as basic. Only 10 per cent of trade employment is considered basic, although Juneau benefits from an extensive tourism industry. No business, insurance, or real estate employment has been assigned to the basic classification. In the services category, only hotel employment is treated as basic. In fact, however, some additional services employment is undoubtedly the result of tourism. If less conservative assumptions were employed, the nonbasic/basic and employment multiplier ratios would be still smaller.

TABLE A-1
 JUNEAU CENSUS DISTRICT
 NONAGRICULTURAL EMPLOYMENT AND PAYROLL, BY INDUSTRY, 2nd QUARTER, 1968

Industrial Classification	Average Employment	Total Quarterly Payroll	Percentage Employment Considered "Basic"	Amount of Employment Considered "Basic"
<u>Total</u>	5,725	\$12,902,268	56	3,191
<u>Mining</u>	*	*		
10 Metal Mining	0	0		
11 Anthracite Mining	0	0		
12 Bituminous Coal & Lignite Mining	0	0		
13 Crude Petroleum & Natural Gas	0	0		
14 Mining & Quarrying of Nonmet. Min., exc. Fuels	*	*		
<u>Contract Construction</u>	357	1,392,386	90	321
15 Building Construction - General Contractors	87	257,664		
16 Construction Other than Bldg. - General Contractors	221	1,011,239		
17 Construction - Special Trade Contractors	49	123,483		
<u>Manufacturing</u>	83	152,090		
19 Ordnance & Accessories	0	0		
20 Food & Kindred Products	*	*		
21 Tobacco Manufactures	0	0		
22 Textile Mill Products	0	0		
23 Apparel & Oth. Fin. Prod. from Fab. & Sim. Mat.	0	0		

TABLE A-1 (continued)

Industrial Classification	Average Employment	Total Quarterly Payroll	Percentage Employment Considered "Basic"	Amount of Employment Considered "Basic"
24 Lumber & Wood Products, excl. Furniture	*	*		
25 Furniture & Fixtures	*	*		
26 Paper & Allied Products	0	0		
27 Printing, Publishing & Allied Industries	43	61,833	90	39
28 Chemicals & Allied Products	0	0		
29 Petroleum Refining & Related Industries	0	0		
30 Rubber & Miscellaneous Plastic Products	0	0		
31 Leather & Leather Products	0	0		
32 Stone, Clay & Glass Products	*	*		
33 Primary Metal Industries	0	0		
34 Fab. Metal Prod., excl. Mach. & Trans. Equip.	0	0		
35 Machinery, excl. Electrical	0	0		
36 Electrical Machinery, Equipment & Supplies	0	0		
37 Transportation Equipment	0	0		
38 Prof., Sci., & Cont. Inst.; Photo., & Clocks	0	0		
39 Misc. Manufacturing Industries	0	0		
<u>Transportation, Communication & Utilities</u>	548	1,123,166		
40 Railroad Transportation	0	0		
41 Local & Sub. Transit & Interurban Pass. Transp.	*	*		
42 Motor Freight Transp. & Warehousing	63	123,226		
44 Water Transportation	44	68,084		
45 Transportation by Air	267	542,928	66	176

TABLE A-1. (continued)

Industrial Classification	Average Employment	Total Quarterly Payroll	Percentage Employment Considered "Basic"	Amount of Employment Considered "Basic"
46 Pipe Line Transportation - Petroleum	0	0		
47 Transportation Services	*	*		
48 Communication	70	134,265	50	35
49 Electric, Gas & Sanitary Services	83	220,923	50	42
<u>Wholesale and Retail Trade</u>	755	1,373,684	10	76
50 Wholesale Trade	112	302,209		
52 Retail Trade - Bldg. Mat., Hardware & Farm Equipment	74	138,609		
53 Retail Trade - General Merchandise	64	85,262		
54 Retail Trade - Food	129	233,249		
55 Automotive Dealers & Gasoline Service Stns.	81	151,238		
56 Retail Trade - Apparel & Accessories	22	26,752		
57 Retail Trade - Furniture, Home Furn., & Equip.	5	8,297		
58 Retail Trade - Eating & Drinking Places	163	217,733		
59 Retail Trade - Misc. Retail Stores	105	210,335		
<u>Finance, Insurance & Real Estate</u>	146	289,082		
60 Banking	73	138,060		
61 Credit Agencies Other than Banking	*	*		
62 Security & Commodity Brkers., Dealers, Exch. & Sav.	0	0		
63 Insurance Carriers	7	13,141		
64 Insurance Agents, Brokers, & Services	30	70,973		

TABLE A-1 (continued)

Industrial Classification	Average Employment	Total Quarterly Payroll	Percentage Employment Considered "Basic"	Amount of Employment Considered "Basic"
65 Real Estate	22	30,474		
66 Combinations of R. E., Insurance, Loans, Law Off.	0	0		
67 Holding & Other Investment Companies	*	*		
<u>Services</u>	604	922,714		
70 Hotels, Rooming Houses, Camps, and Other Lodging Places	143	161,014	100	143
72 Personal Services	65	99,780		
73 Misc. Business Services	24	80,507		
75 Automobile Repair, & Services, & Garages	*	*		
76 Misc. Repair Services	5	9,493		
78 Motion Pictures	*	*		
79 Amus. & Recreation Serv., excl. Motion Pics.	*	*		
80 Medical & Other Health Services	142	203,984		
81 Legal Services	23	43,295		
82 Educational Services	24	22,119		
84 Museums, Art Galleries, Bot. & Zool. Gardens	0	0		
86 Nonprofit Membership Organizations	88	152,638		
88 Private Households	0	0		
89 Miscellaneous Services	45	105,786		
<u>Government</u>	3,223	7,625,568		
91 Federal Government	1,115	2,788,598	90	1,004

TABLE A-1 (continued)

Industrial Classification	Average Employment	Total Quarterly Payroll	Percentage Employment Considered "Basic"	Amount of Employment Considered "Basic"
92 State Government	1,694	n.a.	80	1,355
93 Local Government	413	n.a.		
<u>Agriculture, Forestry, & Fisheries</u>	*	*		
01 Commercial Farms	0	0		
02 Noncommercial Farms	0	0		
07 Agricultural Service & Hunting & Trapping	*	*		
08 Forestry	0	0		
09 Fisheries	0	0		
<u>Nonclassifiable Establishment</u>	0	0		

* Information cannot be disclosed due to Employment Security Division regulations forbidding disclosure of data which might indicate the approximate employment or wages of individual firms.

SOURCE: Alaska Department of Labor, Employment Security Division, Research & Analysis Section.

APPENDIX B

LOCAL GOVERNMENT FINANCIAL DATA

TABLE B-1
Fairbanks North Star Borough
Budget Summary
Fiscal Year 1969-70

Expenses		Revenues	
Education		Ad Valorem	
School - Operational	\$ 8,611,000	Taxes	
Special Funds -		16.5 Mills	\$ 3,331,065
Schools	817,900	Uncollectable	(63,065)
Rental - School		Prior Years	35,000
Facilities	40,400	Sales Tax	1,467,900
Debt Service -		Total Local	
Schools	1,162,000	Taxes	\$ 4,770,900
Capital - School	700,000		
Other Borough		Licenses, Permits	1,700
Function	989,000	Revenues - Use	
Capital	35,000	of Money	140,000
		Gov. Agencies	6,736,900
		Service Charges	470,800
		Shared Revenues	
		Tobacco Tax	235,000
Total Budget	\$12,355,300		\$12,355,300

Source: Fairbanks North Star Borough Capital Improvements Program: 1968-69 - 1974-75. June 1969.

TABLE B-2
Assessed Valuation: Fairbanks North Star Borough

	City of North Pole	City of Fairbanks	Fairbanks North Star Borough (including Cities of North Pole and Fairbanks, as well as other areas in the borough)
1964	\$627,564	\$ 90,694,500	\$150,005,675
1965	699,625	93,343,675	160,529,825
1966	700,325	109,869,175	174,725,100
1967	665,775	114,404,225	182,319,350
1968	689,925	112,303,650	182,475,950
1969	673,975 ¹	121,100,175 ¹	200,036,175 ¹

¹Estimated.
Source: Office of Borough Chairman, Fairbanks North Star Borough.

TABLE B-3
City of Fairbanks
General Government
Revenue and Appropriations Summary

	1966 Actual Revenues	1967 Actual Revenues	1968 Estimated Revenues	1969 Estimated Revenues
REVENUES				
GENERAL FUND				
Real Property	\$1,023,455	\$1,083,285	\$1,064,563	\$1,295,500
Real Property Shortfall Recovery			100,000	
Sales Tax 1%	469,475	573,736	558,000	640,000
Admissions Tax		4,132		4,000
Licenses and Permits	80,433	67,157	79,900	91,600
Fines and Penalties	183,313	90,737	79,635	100,000
Revenues From City Property	88,120	97,134	88,500	100,000
Revenues From Other Agencies	555,144	487,298	489,500	530,000
Other Revenues	365,598	243,720	308,500	395,000
Penalties and Interest Taxes/Spec. Asmts.		89,762		
Uncollectable Accounts	(9,805)	(10,000)	(10,000)	(10,000)
Sub-Total	<u>\$2,766,733</u>	<u>\$2,726,961</u>	<u>\$2,758,398</u>	<u>\$3,146,100</u>
ALASKALAND FUND			50,000	117,000
WORKING CAPITAL FUND			196,000	196,000
SALES TAX FUND:				
Sales Tax 2%	938,124	1,147,223	1,116,000	1,280,000
TOTAL REVENUES	<u>\$3,704,857</u>	<u>\$3,874,184</u>	<u>\$4,120,398</u>	<u>\$4,739,100</u>

(Continued)

APPROPRIATIONS

GENERAL FUND:

General Government
Public Safety
Public Works
Health Department
Library
Recreation and Parks Department
Community Promotion and General
Debt Service

Sub-Total

ALASKALAND FUND

WORKING CAPITAL FUND

SALES TAX FUND 2%:

Capital Outlay
Capital Improvement-Maintenance
Capital Improvement-Construction
Debt Service
Capital Improvement Re-appropriated
from 1968 Budget

Sub-Total

TOTAL APPROPRIATIONS

Source: Office of City Manager, Fairbanks, Alaska.

TABLE B-3 (Continued)

\$ 295,390	\$ 349,623	\$ 546,368	\$ 543,950
1,016,560	1,189,159	1,342,779	1,451,045
589,262	194,241	253,000	413,844
40,737	43,599	33,511	34,561
29,593	29,646	2,541	
21,911	15,372	32,255	79,408
64,643	125,013	96,228	80,000
	583,602	564,195	679,612
<u>\$2,058,096</u>	<u>\$2,530,255</u>	<u>\$2,870,877</u>	<u>\$3,282,420</u>
		150,000	251,769
		236,189	224,198
\$ 3,563	\$ 24,650	\$ 25,000	
213,180	751,805	1,008,000	\$ 750,000
594,848	451,640	83,000	147,900
		108,000	110,500
<u>\$ 811,591</u>	<u>\$1,228,095</u>	<u>\$1,224,000</u>	<u>\$1,008,400</u>
<u>\$2,869,687</u>	<u>\$3,758,350</u>	<u>\$4,481,066</u>	<u>\$4,766,782</u>

TABLE B-4			
Debt Situation of the Borough			
	Bonds Maturing	Per Cent of Outstanding Bonds	Compare Juneau Borough ¹
Bonds maturing after June 30, 1969:			
Due in 5 years	\$ 4,010	48.3%	40.4%
Due in 10 years	6,384	76.8%	77.2%
Direct and Overlapping Debt			
Outstanding Bonds, June 30, 1969	<u>\$ 8,304,000</u>		
Direct Debt to Assessed Valuation, 1969 of \$201,800,000		4.11%	4.9%
Direct Debt to Estimated Full Value, 1969 of \$242,700,000		3.41%	4.8%
Per Capita Debt (Estimated Borough Population 33,000)		\$ 251.63	\$422.15
General Overlapping Debt			
City of Fairbanks 1/1/69	\$ 6,905,000		
City of North Pole 6/30/69	<u>24,000</u>		
Subtotal	<u>\$ 6,929,000</u>		
Total Direct and Overlapping Debt	<u>\$15,233,000</u>		
Direct and Overlapping Debt to Assessed Value		7.55%	7.2%
Direct and Overlapping Debt to Full Value		6.25%	7.0%
Per Capita Assessed Valuation		\$6,115	
Per Capita Full Valuation		\$7,385	
Per Capita Debt - Overall Net Debt		\$ 461.76	\$610.52
Group Median Report by Dun and Bradstreet, Inc:			
Overall Net Debt - Per Capita		\$ 283.27	
Overall Percentage to Full Value		5.2%	
Public Facility Loan Standards:			
Overall Net Debt - Per Capita		\$ 350.00	
Direct and Overlapping Debt to Actual Value		12%	
¹ Debt Factors for the Juneau Borough were reflected as Favorable (+) by one rating bureau and thus used for comparison. Sources: Fairbanks North Star Borough Capital Improvements Program: 1958 - 1964-75. June 1969.			

TABLE B-5
**Fairbanks North Star Borough
 Millage Rate Distribution
 Based Upon Per Cent of
 Total Areawide Appropriations**
 (Fiscal Year 1969-70)

	Appropriation	% of Total	Share of Millage Rates
Budgetary Reserve	\$ 150,000	1.2	
General Government	591,900	4.7	
Planning and Zoning	90,200	.7	
Library	105,600	.8	
Canine Control	51,300	.4	
Capital	35,000	.2	
Subtotal	\$ 1,024,000	8%	1.3 Mills
Education			
Operating	\$ 8,611,000		
School-Other	817,900		
School Rentals	40,400		
School Capital Outlay	700,000		
Debt Service	1,162,000		
Subtotal	\$11,331,300	92%	15.2 Mills
Total	\$12,355,300	100%	16.5 Mills
Capital & Principal			
Principal	\$ 802,000		
Capital Outlay	735,000		
Total	\$ 1,537,000	12.5%	2.1 Mills

Source: Fairbanks North Star Borough Capital Improvements Program:
 1968-69 — 1974-75. June 1969.

TABLE B-6
City of Fairbanks
General Bonded Debt
Statement of Future Debt Service Requirements
December 31, 1968

Year To Be Provided	Bonds Payable in Future Years	Interest Payable in Future Years	Total Bonds and Interest Payable in Future Years
1969	\$ 381,000	\$ 297,612	\$ 678,612
1970	520,000	282,247	802,247
1971	526,000	258,724	784,724
1972	530,000	235,622	765,622
1973	531,000	212,259	743,259
1974	475,000	190,437	665,437
1975	491,000	170,195	661,195
1976	490,000	149,130	639,130
1977	496,000	128,100	624,100
1978	490,000	106,855	596,855
1979	495,000	85,588	580,588
1980	495,000	65,425	560,425
1981	425,000	45,700	470,700
1982	250,000	29,090	279,090
1983	155,000	17,050	172,050
1984	155,000	8,525	163,525
	<u>\$6,905,000</u>	<u>\$2,282,559</u>	<u>\$9,187,559*</u>

*Does not include \$200,000 General Obligation Bonds in Municipal Utilities System Account.
Source: Office of City Manager, Fairbanks, Alaska.

TABLE B-7
City of Fairbanks
General Obligation Bonds Outstanding

Date of Issue	Description	Ordinance Authorizing Issue	Average Interest Rate	Maturity	Total Bonds Issued	Balance 12-31-68	Principal Payment in 1969
1957	Fire Station	892	3.50	1977	\$ 110,000	\$ 50,000	\$ 6,000
1960	Public Improvements	1041	4.21	1980	1,500,000	900,000	75,000
1961	Public Improvements	1078	4.18	1981	1,415,000	910,000	70,000
1961	Public Improvements	1090	3.89	1981	2,100,000	1,365,000	105,000
1962	Public Improvements	1174	3.65	1982	1,500,000	1,140,000	70,000
1963	Water Extensions	1206	2.85	1973	550,000	290,000	55,000
1968	Water & Sewer Extensions	1751	5.48	1984	2,250,000	2,250,000	---
					<u>\$9,425,000</u>	<u>\$6,905,000</u>	<u>\$381,000</u>
					Interest Payment for 1969	\$297,612	
					Principal Payment for 1969	381,000	
					Debt Service for 1969	<u>\$678,612</u>	

Source: Office of City Manager, Fairbanks, Alaska.

APPENDIX C.

SELECTED GOVERNMENT OCCUPATIONAL DATA AND SAMPLE EDUCATION AND TRAINING REQUIREMENTS DATA

Tables C-1 and C-2 provide occupational data for, respectively, state and city government in Fairbanks. University of Alaska employment data by occupational class are provided in Table C-3. University data for detailed occupations will be available beginning in March 1970 as a result of work on this thesis. Also, interviews conducted in preparation of this thesis revealed that federal and borough occupational data could also be collected on a regular, recurring basis.

Table C-4 shows state government employment data classified according to the education and training requirements of state positions. The coding system which is applied in Table C-4 to state government occupational data could also be applied readily to other government occupational data and also to jobs in the private sector.

TABLE C-1

ALASKA STATE GOVERNMENT EMPLOYMENT IN THE
FAIRBANKS CENSUS DISTRICT, DECEMBER 31, 1968
BY JOB CLASS TITLE AND PAY RATE
(Excluding Hourly and Temporaries)

Number of Employees	Job Class Title	Pay Grade	Beginning Monthly Pay Rate
231	Teachers		
1	Messenger II	6	506
2	Clerk II	7	545
3	Clerk III	8	586
3	Clerk IV	9	631
2	Clerk V	11	732
2	Driver's License Examiner I	9	631
6	Radio Dispatcher	9	631
1	Police Operations Assistant	11	732
2	Clerk Typist I	6	506
31	Clerk Typist II	7	545
11	Clerk Typist III	8	586
1	Teletype Operator I	8	586
1	Clerk Transcriber III	8	586
1	Clerk Stenographer I	7	545
19	Clerk Stenographer II	8	586
12	Clerk Stenographer III	9	631
7	Secretary I	10	680
3	Secretary III	12	787
1	Executive Secretary I	13	848
1	(Unknown)		
1	(Unknown)		
1	(Unknown)		
3	Accounting Clerk I	8	586
3	Accounting Clerk II	9	631
1	Accountant I	12	787
1	Field Auditor	15	983
1	Revenue Agent	16	1053
1	Senior Revenue Agent	18	1219
1	Head Revenue Agent	19	1312
4	Supply Clerk I	8	586
1	Supply Officer II	15	983

TABLE C-1 (continued)

Number of Employees	Job Class Title	Pay Grade	Beginning Monthly Pay Rate
1	Supply Officer IV	18	1219
1	Administrative Assistant I	12	787
1	Administrative Assistant II	14	913
1	Administrative Assistant III	16	1053
2	Administrative Officer II	19	1312
1	Airport Manager IV	19	1312
1	Election Supervisor II	15	983
1	Loan Examiner II	18	1219
1	Industrial Safety Inspector	14	913
3	Motor Vehicle Inspector	12	787
1	Weights and Measures Inspector I	15	983
1	Appraiser III	18	1219
1	Right of Way Assistant I	11	732
1	Right of Way Agent I	15	983
2	Right of Way Agent II	16	1053
1	Right of Way Agent III	18	1219
1	District Right of Way Supervisor	19	1312
1	Realty Assistant I	12	787
1	Vocational Rehabilitation Specialist I	14	913
1	Vocational Rehabilitation Specialist II	16	1053
3	Public Welfare Worker I	12	787
2	Public Welfare Worker II	13	848
1	Child Welfare Worker	14	913
1	Casework Supervisor	16	1053
5	District Welfare Worker	15	983
1	District Welfare Representative	17	1133
1	Regional Welfare Officer	18	1219
1	Human Rights Field Representative	17	1133
4	Probation Officer I	16	1053
1	Probation Officer II	18	1219
1	Employment Interviewer Aide	9	631
1	Employment Interviewer I	12	787
2	Employment Interviewer II	13	848
2	Employment Counselor	14	913
1	Employment Office Manager II	17	1133
1	Assistant Commissioner of Labor	17	1133
1	Nursing Aide	6	506
5	Nurse I	11	732
1	Nurse III	14	913
2	Public Health Nurse III	15	983

TABLE C-1 (continued)

Number of Employees	Job Class Title	Pay Grade	Beginning Monthly Pay Rate
1	Public Health Nursing Supervisor I	16	1053
1	Public Health Nursing Supervisor II	17	1133
1	Mental Health Nursing Consultant	16	1053
1	Medical Officer I	23	1682
1	Senior Clinical Psychologist	20	1412
1	Microbiologist II	15	983
1	X-ray Technician I	9	631
2	Sanitarian III	16	1053
1	Sanitarian IV	17	1133
1	Fishery Biologist I	13	848
1	Fishery Biologist II	14	913
2	Fishery Biologist III	16	1053
4	Game Biologist II	14	913
2	Game Biologist III	16	1053
3	Game Biologist IV	18	1219
3	Game Biologist V	20	1412
2	Protection Assistant	13	848
1	Protection Officer	15	983
2	Senior Protection Officer	17	1133
1	Regional Protection Officer	19	1312
1	Agricultural Inspector II	16	1053
1	Forester III	16	1053
1	Forester IV	18	1219
1	Attorney I	15	983
2	Attorney III	20	1412
2	Attorney IV	22	1587
1	Attorney V	24	1783
4	Deputy Clerk of Court I	8	586
5	Deputy Clerk of Court II	9	631
4	Deputy Clerk of Court III	10	680
2	Chief Deputy Clerk of Court III	12	787
1	Clerk of Court III	17	1133
1	Court Transcript Supervisor	12	787
1	Claims Examiner I	9	631
1	Claims Examiner II	11	732
1	Claims Examiner III	13	848
1	Security Officer I	14	913
21	State Trooper	15	983

TABLE C-1 (continued)

Number of Employees	Job Class Title	Pay Grade	Beginning Monthly Pay Rate
3	Corporal, State Police	16	1053
3	Sergeant, State Police	17	1133
1	Lieutenant, State Police	19	1312
1	Captain, State Police	20	1412
6	Correctional Aide	9	631
16	Correctional Officer I	14	913
6	Correctional Officer II	15	983
1	Correctional Supervisor I	16	1053
1	Correctional Supervisor II	18	1219
11	Firefighter Guard	11	732
4	Supervisory Firefighter Guard	12	787
1	Assistant Fire Marshal	18	1219
1	Highway Engineering Technician II	9	631
3	Highway Engineering Technician III	11	732
9	Highway Engineering Technician IV	13	848
12	Highway Engineering Technician V	14	913
1	Materials Laboratory Technician Aide II	11	732
2	Materials Laboratory Technician I	12	787
5	Materials Laboratory Technician II	14	913
4	Materials Laboratory Technician III	15	983
1	Assayer	16	1053
1	X-Ray Mineralogist	19	1312
1	Assayer Chemist	17	1133
2	Chemist II	17	1133
1	Chemist III	19	1312
1	Electronic Technician Assistant	12	787
1	Electronic Technician	16	1053
1	Electronic Technician Supervisor	17	1133
3	Mining Geologist II	20	1412
3	Geologist I	15	983
3	Geologist II	17	1133
2	Draftsman II	11	732
2	Draftsman III	14	913
2	Mining Engineer	19	1312
1	Sanitary Engineering Supervisor I	20	1412
1	Director, Division of Mines and Minerals	24	1783
3	Highway Engineering Assistant I	14	913

TABLE C-1 (continued)

Number of Employees	Job Class Title	Pay Grade	Beginning Monthly Pay Rate
20	Highway Engineering Assistant II	16	1053
13	Highway Engineering Assistant III	18	1219
7	Highway Engineer I	19	1312
2	Highway Engineer II	20	1412
4	Highway Engineer III	22	1587
1	Materials Engineering Assistant II	16	1053
1	materials Engineering Assistant III	18	1219
29	Custodial Worker I	6	506
14	Custodial Worker II	8	586
9	Building Custodian	10	680
1	Housekeeping Aide I	6	506
1	Housekeeping Aide II	8	586
4	Waitress	5	470
3	Kitchen Helper	6	506
1	Cook I	11	732
2	Cook II	12	787
1	Cook III	15	983
1	Steward	13	848
1	Utility Worker	8	586
4	Laborer	10	680
1	Stationary Fireman I	11	732
3	Stationary Fireman II	13	848
2	Stock Handler I	11	732
2	Stock Handler II	12	787
1	Storekeeper I	12	787
1	Storekeeper III	14	913
3	Carpenter	14	913
1	Electrician I	14	913
1	Electrician II	16	1053
4	Maintenance Mechanic I	12	787
10	Maintenance Mechanic II	14	913
4	Maintenance Mechanic III	15	983
2	Maintenance Mechanic Foreman I	16	1053
1	Maintenance Mechanic Foreman II	17	1133
4	Automotive Equipment Operator I	11	732
20	Automotive Equipment Operator II	13	848
22	Automotive Equipment Operator III	14	913
2	Highway Maintenance Foreman I	15	983
10	Highway Maintenance Foreman II	16	1053

TABLE C-1 (continued)

Number of Employees	Job Class Title	Pay Grade	Beginning Monthly Pay Rate
2	Highway Maintenance Foreman III	18	1219
1	Automotive Equipment Supervisor III	19	1312
1	Equipment Dispatcher	11	732
1	Automotive Mechanic Helper	11	732
2	Automatic Mechanic I	13	838
19	Automotive Mechanic II	14	913
2	Automotive Shop Foreman	17	1133
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SOURCE: Institute of Social, Economic and Government Research.

TABLE C-2.

CITY OF FAIRBANKS EMPLOYMENT, MARCH 1969
By Job Class Title and Pay Rate
(Excluding Part-Time and Temporary Employees)

Number of Employees	Job Class Title	Beginning Monthly Pay Rate
1	Clerk II	564
2	Clerk IV	634
1	Utilities Billing Supervisor I	685
3	Utilities Billing Supervisor II	740
1	Utilities Credit Manager	740
1	Secretary I	610
3	Secretary II	634
3	Secretary III	634
1	Secretary IV	685
1	Court Clerk I	634
1	Court Clerk II	685
1	Legal Secretary II	659
1	Administrative Assistant to City Manager	1386
1	Secretary to City Manager	685
1	Secretary to General Manager	866
1	Duplicating Machine Operator	685
1	Billing Machine Operator	610
1	Bookkeeping Machine Operator	634
5	Accounting Specialist I	634
1	Chief Accountant	1233
3	Accountant	740
1	Purchasing Agent & Property Mngmt. Off.	1333
1	Warehouseman, Plant Accountant and Deputy Purchasing Agent	801
1	Utilities Comptroller	1896
1	Senior Accountant	866
1	Chief Clerk	740
2	Billing Clerk	634
1	Director of Finance	1896
1	Utilities Distribution Superintendent	1499
1	Power Plant Superintendent	1499
1	Telephone Superintendent	1896
1	Utilities Superintendent of Planning and Inspection	1499

TABLE C-2 (continued)

Number of Employees	Job Class Title	Beginning Monthly Pay Rate
1	Assistant Telephone Superintendent- Inside Plant	1386
1	Assistant Telephone Superintendent- Outside Plant	1386
1	Customer Service Advisor	1054
1	Revenue Agent	866
1	Revenue Officer	974
1	Deputy City Clerk I	634
1	Deputy City Clerk II	712
3	Service Representative I	610
1	Service Representative II	634
2	Toll Clerk	634
1	Safety Inspector & Insurance Coordinator	833
1	Recreation Director	1686
1	Park Maintenance Foreman	685
3	Parks Caretaker	740
14	Firefighter	901
7	Fire Vehicle Driver and Fighter	974
3	Fire Lieutenant	1054
4	Fire Captain	1140
1	Fire Marshal	1140
1	Assistant Fire Chief	1499
1	Fire Chief	1896
1	Director of Civil Defense	1233
13	Patrolman	901
4	Police Corporal	974
4	Police Sergeant	1054
3	Police Investigator	1054
2	Police Lieutenant	1140
1	Assistant Police Chief	1499
1	Police Chief	1896
1	Juvenile Officer	1054
1	Warrant Officer	901
2	Meter Maid	685
1	Chief Matron	833
2	Matron-Cook	740
5	Jailer	801
2	Engineering Aide F-I	801
2	Engineering Aide F-II	833
2	Engineering Aide F-III	866
4	Engineering Aide O-II	685

TABLE C-2 (continued)

Number of Employees	Job Class Title	Beginning Monthly Pay Rate
3	Engineering Aide O-III	740
2	Engineering Aide O-IV	770
2	Civil Engineer I	901
2	Civil Engineer III	1096
1	Chief Civil Engineer	1621
1	Works Engineer	1621
1	Building Official	1333
1	City Code Administrator	1096
1	Building Inspector	974
1	Plumbing and Gas Inspector	974
1	Electrical Inspector	974
1	Public Works Storekeeper	833
1	Director of Public Works	2133
2	Public Works Employee II	801
9	Public Works Employee IV	866
1	Public Works Employee V	901
6	Public Works Employee VI	974
1	Public Works Employee VII	1013
1	Assistant Works Foreman	1386
1	Electrician	866
1	Works Foreman	1499
1	Chief Mechanic	1386
4	Public Works Employee M-I	974
3	Public Works Employee M-II	974
2	Public Works Employee M-III	974
2	Public Works Employee M-IV	974
1	Parking Meter Maintenance Man	866
1	Carpenter	974
4	Telephone Switchman	1013
17	Telephone Installer	1013
8	Telephone Lineman	1013
2	Telephone Cable Splicer	1096
9	Telephone Operator	501
1	Telephone Foreman	1096
1	Utility Distribution Foreman	1096
1	Utility Distribution Electrician	1013
1	Utility Distribution Groundman	866
2	Utility Distribution Meter Reader	740
1	Utility Distribution Foreman	1096
1	Utility Distribution Fitter	1013
1	Utility Distribution Chemist	1096

TABLE C-2 (continued)

Number of Employees	Job Class Title	Beginning Monthly Pay Rate
1	Treatment Plant Chief Operator	1054
1	Treatment Plant Operator II	866
1	Power Plant Foreman	937
5	Power Plant Engineer	1396
3	Power Plant Mechanic	901
1	Power Plant Coal and Ash Handler	833
1	Power Plant Clerk	937
1	Director, Alaskaland	1333
1	Administrative Assistant	685
1	Custodian	685
1	Park Aide	n/a
1	Ticket Taker	n/a
1	Big Stampede Operator	n/a
1	Native Village Operator	n/a
1	Receptionist	564
1	Data Processing Supervisor	634
5	Key Punch Operator	564
1	Head Key Punch Operator	n/a

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TABLE C-3

UNIVERSITY OF ALASKA SCHEDULE OF TOTAL EMPLOYMENT IN FAIRBANKS
VICINITY, FALL 1969

	Profes- sional Staff	Manual Trades Techn.	Graduate Students Employed	Clerical Staff
Executive Offices	3			3
Student Affairs	8			6
Admissions - Registrar	2			11
University Relations	6			4
Business Mgmt., Food Service, Bookstore	20	33	2	45
College of Arts and Letters	54		5	4
College of Math, Physical Sciences, Engineering	44	3	16	3
College of Behavioral Sciences	34	3	5	6
College of Biological Sciences	14	1	10	2
College of Business, Economic and Government	20		9	2
College of Earth Sciences & Min. Industry	18		8	3
Geophysical Institute	38	22	19	19
Institute of Marine Science	15	23	8	8
Institute of Arctic Biology	19	21	13	7
Institute of Social, Economic and Government Research	28	3	4	15
Experimental Farm, Musk Ox, Forestry, Computer Center	11	12	2	7
Institute of Water Resources	6	3	2	3
Arctic Environmental Engineering Lab	10	3	2	3
Library	13			28
Museum	1	1		1
Statewide Public Service, Extension and A/V	11	2		10
Cooperative Extension Service	15			11
Planning and Inspection	3	6		3
Plant Maintenance and Operations	2	134		3
TOTAL - Employees residing in Fairbanks vicinity, Fall 1969	395	270	105	207

SOURCE: University of Alaska.

TABLE C-4

STATE GOVERNMENT EMPLOYMENT IN FAIRBANKS, CLASSIFIED
BY EDUCATION AND TRAINING REQUIREMENTS

Education and Training Requirements Code	Number of Employees
0	42
&	4
1	83
2	44
3	89
4	122
5	54
6	52
7	23
8	4
9	321
10	<u>28</u>
TOTAL	866

KEY TO EDUCATION AND TRAINING REQUIREMENTS CODE

0 = Entry level job class, requiring less than high school graduation.

& = Entry level job class, requiring high school graduation.

1 = Job class requiring one year of appropriate work experience*
(for which appropriate training or education may be substituted).

Table C-4; KEY TO EDUCATION AND TRAINING REQUIREMENTS CODE (continued)

- 2 = Job class requiring two years of appropriate work experience* (for which appropriate training or education may be substituted).
- 3 = Job Class requiring three years of appropriate work experience* (for which appropriate training or education may be substituted).
- 4 = Job class requiring four years of appropriate work experience* (for which appropriate training or education may be substituted).
- 5 = Job class requiring five years of appropriate work experience* (for which appropriate training or education may be substituted).
- 6 = Job class requiring six years of appropriate work experience* (for which appropriate training or education may be substituted).
- 7 = Job class requiring seven years of appropriate work experience (for which appropriate training or education may be substituted).

NOTE: Codes "0" through "7" (defined above) apply to job classes for which there are no mandatory requirements for formal training or education beyond high school. HOWEVER, Codes "8" and "9" (defined below) do have mandatory training or education requirements, beyond high school, for which ordinary work experience may not be substituted.

- 8 = Job class requiring formal post-high school training or education other than a four-year college program.**
- 9 = Job class requiring a bachelor's degree or a bachelor's degree plus additional education, training, or work experience.
- 10 = Job class requiring more than seven years of appropriate work experience (for which appropriate training or education may be substituted) but having no mandatory requirements for post-high school training or education.

* In any job class series in which entry positions require high school graduation, nongraduates may be required to have an additional year of experience -- beyond the amounts stipulated in the code definitions given above.

** In a few cases, minimum requirements include mandatory specialized training which, however, need not have been preceded by high school graduation.

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