

THE UNIVERSITY OF MANITOBA

A METHODOLOGY
FOR THE EVALUATION
OF ALTERNATIVE
SINGLE ENTERPRISE COMMUNITIES

BY

LOUIS PAUL JOSEPH RICHARD

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE
STUDIES IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER
OF CITY PLANNING

DEPARTMENT OF CITY PLANNING

WINNIPEG, MANITOBA

SEPTEMBER, 1979

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ACKNOWLEDGEMENTS

The guidance of Professor Mario Carvalho in the preparation of this thesis is appreciated. The assistance of the readers, Dr. Kent Gerecke and Dr. James B. Nickels is also acknowledged. A special appreciation is also extended to the numerous people who provided written and verbal information which was most helpful in preparing this thesis. Finally, I must express my most sincere appreciation to my wife Jean and my two sons, Kevin and Stephen who provided encouragement, support and most of all patience during the preparation of this thesis.

ABSTRACT

This thesis was written to overcome a current problem in the planning of isolated single enterprise communities; namely the lack of detailed evaluation of alternative community types. The three basic community types considered in this thesis are the family community with housing and other community services for the family; the short term community where the employee commutes usually on a weekly basis between the work site and a regional centre where his family lives; and the long term community which is similar to the short term community except the employee commutes on a six to twelve month schedule.

A detailed methodology based on Morris Hill's Goals-Achievement Matrix was developed to evaluate the three alternative community types. The selection of economic and quality of life factors used in the evaluation was based on an extensive review of literature. For the long term community, literature was quite limited so the author had to rely on information obtained from site visits and discussions with residents of long term communities. An appendix on quality of life in isolated single enterprise communities is provided to give the unfamiliar reader a better understanding and a "feel" for this topic.

The methodology was tested by applying it in three case studies which examined the decision to build a particular type of community. Leaf Rapids, Manitoba was selected as the example of the family community;

Rabbit Lake, Saskatchewan, the short term community; and Hall Beach, N.W.T., the long term community. The results of the evaluation showed that the preferred community type was only built in the case of Rabbit Lake. In the other two case studies, the "second-best" choice of community type had been built. This shows the value of using the methodology proposed in this thesis to improve the quality of recommendations to decision-makers.

In all three case studies, the short term community was the preferred choice but this will not always be the outcome. In the case of Leaf Rapids, the results were almost a "tie". For Hall Beach, the long term community was the most economical and had the second highest quality of life index. This shows that all three community types are viable alternatives for consideration in any evaluation of alternative community types. The requirements of future communities will vary with many factors which precludes any generalization of the order of preference of the alternative community types.

The methodology used in the evaluation is flexible. Additional factors or values can be introduced to the evaluation to reflect unique characteristics of the population, the major employer or the proposed community site. During the research for this thesis, it was noted that literature was very limited on the long term effects of family separation for employment reasons. This is an important topic requiring future research.

The evaluation showed that the failure to fully consider alternative community types can result in the construction of a community

which is costlier for the major employer and provides a lower quality of life for the residents. The use of the methodology proposed in this thesis should prevent a reoccurrence of such results. In addition, it may indicate better ways of achieving national objectives such as northern development and native employment.

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Chapter 1
INTRODUCTION

1. Purpose

The purpose of this thesis is to develop and test the feasibility of a methodology to evaluate various community types for isolated single enterprise communities. Isolated single enterprise communities are communities with a single major employer usually located in a remote area of the country.¹ The major employer is the primary reason for the establishment of the community and employs the majority of the working population. The term single enterprise community rather than single industry or resource community is used since it encompasses a wider range of major employers. In addition to the extraction of non-renewable resources or the development of renewable resources, the major employer could be involved in transportation, communications, defence or government administration.

The three basic community types considered in this thesis are:

- a. the family community
- b. the short term commuting community
- c. the long term commuting community

The methodology will provide a detailed evaluation of these three community types to assist decision-makers in selecting which community type is best suited to accommodate the work force. This detailed evaluation will maximize choice since alternative community types would not be casually dismissed.

¹ J. Douglas Porteous, "Creating Cities for Northern Canadians", Habitat, Vol. 18, No. 415, p.7.

This thesis is considered a first step in the planning of isolated single enterprise communities. From a review of literature and information from the major employer, a scenario for each of the three community types can be generated and evaluated by an interdisciplinary planning team. Alternative planning concepts for each community type can also be developed but this and subsequent activities described in the next paragraph are beyond the scope of this thesis.

Based on the preceding information, a methodology must be developed to obtain user and resident inputs into the planning process. These inputs would confirm or deny the assumptions made by the planners and give them guidance for future planning of the community. With this additional information, the planners can adjust their initial evaluation of the three community types. Based on the revised evaluation, the planners can recommend to decision-makers an order of preference for the three community types along with a detailed evaluation of each. After the decision is made, the planners, with further inputs from the users and residents, can then commence on the detailed design of the selected community type.

2. Definitions

Due the variations in terminology which may be applied to the three community types, the following definitions have been developed by the author to clarify their use in this thesis.

Family Community. The family community is one which provides accommodation for both the employee and his family. Included in the community are commercial and institutional services to meet some of the basic needs of the family members. This category includes variations of the family community such as the "company" town, and the "open" or "self-governing" town. The concept of expanding an existing nearby

community rather than building a new community as advocated by West² is not discussed since this thesis deals with isolated communities where the nearest community would not be within daily commuting distance. The mobile or non-permanent community where the employee and the family live in mobile or transportable homes would also be included in the term "family community".³

2b. Short Term Commuting Community. The short term commuting community is a single status community where facilities are provided only for the employees at the work site. The employee commutes a long distance on a predetermined schedule between the work site and the home community or regional centre where his family resides. The long distance precludes daily commuting. For the short term commuting community, the employee works less than one month (usually one week) at the work site and returns home for a rest period of usually one week. Porteous uses the term "long range commute-in town" to describe this type of community.⁴ This term refers only to the commuting distance and does not distinguish between a short duration of stay (1-4 weeks) at the work site and a longer period (4-6 months). For the preceding reason, the author's terminology is necessary. Hereafter, this community type will be referred to as the short term community.

2c. Long Term Commuting Community. The long term commuting community is a single status community similar in concept to the short term community except the employee remains at the work site for a period of four

² W.R. West "An Evaluation of Alternative Resource Community Plans by Cost Benefit Analysis", MCP Thesis, University of Manitoba, April, 1976.

³ V.J. Parker, The Planned Non-Permanent Community, Department of Northern Affairs and Natural Resources, Northern Co-ordination and Research Centre, Ottawa, 1963.

⁴ Porteous (1975), p.9.

or more months before returning home for a holiday of one month or more. It is necessary to distinguish between the two types since the duration of the work period affects the economics and the quality of life of the single status communities. As for the previous definition, the word commuting will be deleted in future references to this community type.

2d. Quality of Life. Quality of life "implies not only a person's mental (or physical) health but also his adaptation to the world, his satisfaction with it and his adjustive attempts either to harmonize himself with it or to alter it for his greater fulfillment."⁵ In his study, Lucas noted that residents of single enterprise communities learn to live within their limitations, lower their level of expectations, become resigned to events or leave the community.⁶ In this manner residents fit themselves to the community or try to change the community to fit their expectations. Quality of life will be further described in terms of its component factors or elements in the next chapter and also in Appendix A.

3. Historic Perspective

Development of Canada's hinterland has given rise to many single enterprise communities which have a single major employer involved in resource development, administration, transportation or defence. As pointed out by Ira M. Robinson, "one of the distinctive features of Canada's settlement patterns has been the creation of completely new towns, located beyond the settled areas of the south, each built around

⁵ James B. Nickels and John P. Kehoe, Northern Communities: Mental Health and Social Adaptation, Centre for Settlement Studies, University of Manitoba, Winnipeg, December, 1972, p.17.

⁶ Rex A. Lucas, Minetown, Milltown, Railtown, University of Toronto Press, Toronto, 1971, p.406.

a single resource-based industrial enterprise".⁷ Map 1 shows the location of some of the single enterprise communities mentioned in this thesis.

In the early and mid-twentieth century, the company town version of the family community predominated. The single major employer usually provided the workers and their families with all community facilities such as housing, entertainment, recreation and education. Examples of such company towns are Schefferville, P.Q. and Lynn Lake, Manitoba.

In the 1950's, long and short term communities received attention. The military built long term communities in the high Arctic to meet national defence requirements. These included the Distant Early Warning (DEW) Line sites and Canadian Forces Station Alert, N.W.T., where personnel work for a period of six or more months at a time. In 1956, an article was written in the journal, The Canadian Architect, which described the concept of workers commuting weekly from a regional community to a work site.⁸

Two decades later the three community types are still being considered. The family community has changed from a company town to the self-governing town. A general dissatisfaction with the company towns by residents caused the provincial, territorial and/or federal governments to become involved in the planning and establishment of

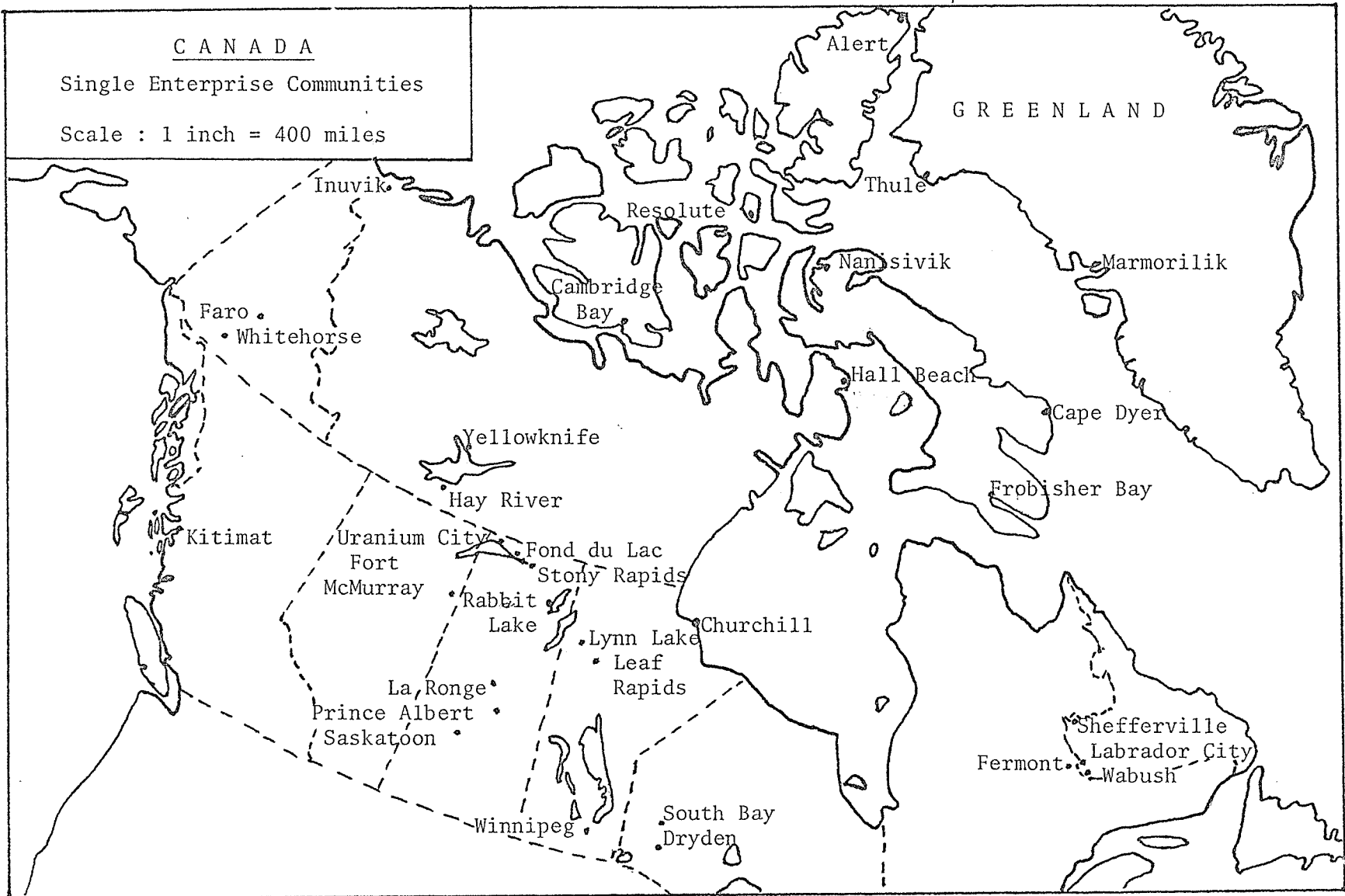
⁷ Ira M. Robinson, New Industrial Towns on Canada's Resource Frontier, Dept. of Geography, University of Chicago, Research Paper No. 73 (Chicago 1962), p. iii.

⁸ "The Northern Habitat" The Canadian Architect, November 1956, p. 29. An adaptation by C. Ross Anderson of a document prepared by Ross Anderson, Frank Chapman, Peter Goering, Kunio Hidaka, Fraser Milne, Anthony Roberts, Peter Stokes and Jacqueline Tyrwhitt.

CANADA

Single Enterprise Communities

Scale : 1 inch = 400 miles



single enterprise communities to meet the needs of the workers. Recent examples include Leaf Rapids, Manitoba and Nanisivik, N.W.T.. In 1972, a long term community was built at Marmorilik, Greenland where mining employees work a period of four months and then receive a one month paid holiday.⁹ In 1975, Gulf Minerals Canada Limited started operating its short term community for its mine at Rabbit Lake, Saskatchewan. The short term community is also being considered for potential mining operations at Cluff Lake, Saskatchewan and Little Cornwallis Island, N.W.T. In 1977, the Science Council of Canada identified the commuting by air from urban areas to northern mines as an area requiring further assessment.¹⁰ For the more recent communities, some consideration has been given to one alternative community type but the evaluation of the other two community types, if even considered, has often been shallow.

4. Problems

Single enterprise communities have unique problems due to their development and purpose. A basic problem is the very limited evaluation which is usually given to alternative community types when deciding which community type to build. Other problems include high rates of labour turnover and a low quality of life in the community.

4a. Evaluation

An extensive review of literature for this thesis produced very little evidence to indicate a detailed evaluation of alternative community

⁹ P.J. Noakes, "Development of a Stable Social Unit at the Black Angel Mine", CIM Bulletin, February, 1978, p. 56.

¹⁰ Northward Looking, A Strategy and a Science Policy for Northern Development, Science Council of Canada, Report No. 26, Supply and Services Canada, Ottawa, August, 1977, p. 78.

types was carried out for new isolated single enterprise communities. Where alternative community types are considered, the evaluation has been cursory with most of the attention focused on the alternative designs of a predetermined community type.

A recent example is the feasibility study for the mining development at Nanisivik on northern Baffin Island. This study considered three types of communities: a short term community, a closed company town, and an open town with private home ownership and local government. "All parties associated with the planning of the project to date have expressed their preference for the third alternative."¹¹ In this report of almost 500 pages, the preceding sentence is the only explanation given for the selection of the community type. There is no rationale given for the preference of the selected alternative nor any reference to any study or report which thoroughly evaluated the alternatives.

Arvik Mines Ltd. is examining the feasibility of a short term community for a lead-zinc mine on Little Cornwallis Island, N.W.T.¹² As well, the Saskatchewan government expects the French consortium, Amok Ltd. to establish a similar community for its uranium mine at Cluff Lake in 1979.¹³ The Department of National Defence is considering a long term community for its proposed "Arctic Base". In most cases, only a casual consideration is given to either of the other two alternative community types.

¹¹ Watts, Griffis and McOuat Limited, Feasibility Study of the Strathcona Sound Project, 1973, p.237.

¹² J.E. Barrett and Associates, "The Polaris Project and the Inuit," Vancouver, B.C., November 1976.

¹³ Ray Gainer and Hedley Auld, "Economic Base Study, Uranium City, Saskatchewan", report for the Airports and Properties Branch of the Ministry of Transport Central Region, September, 1976, p.12.

The chief advantage of the single status communities is the lower capital cost which is recognized in the preceding examples. However, for a fair comparison of the three types of communities, other tangible costs such as operation and maintenance costs as well as intangible costs such as quality of life for the residents must be examined in a rational analysis of the three community types. These costs are usually considered in the design of a preconceived community type, but usually little or no detailed evaluation is made of alternative community types. This is contrary to the concept of a learning society which Friedmann states "must be reluctant to say "no" to any new design for living without full knowledge of its expected consequences."¹⁴

By not fully evaluating the alternative community types, the reasonableness of any decision to build a specific community type may have been decreased.¹⁵ Also the decision may be less than optional for the major employer, the employees, their families and the environment.

4b. Labour Turnover

Labour turnover has often been used to justify changes in community planning. Although the size of the community and its degree of isolation have some effect on labour turnover in mining communities, work related factors were by far the most frequent reasons given for

¹⁴ John Friedmann, Retracking America, Anchor Press/Doubleday, Garden City, New York, 1973, p. 205.

¹⁵ Paul Davidoff and Thomas A. Reiner, "A Choice Theory of Planning", A Reader in Planning Theory, Andreas Faludi (ed). Pergamon Press, Oxford, England, 1973, p. 15.

high labour turnover.¹⁶ Annual turnover rates varied from zero to 384% with an average turnover cost of \$1,012 per worker in 1972. Average replacement costs for a married worker can be as high as \$10,000.¹⁷

Labour turnover costs can be reduced by selective recruitment of employees. Research has shown that married employees change jobs less frequently than single employees. Labour turnover could also be reduced by improvements in working conditions and to a lesser extent improvements in the communities. Characteristics of the community which cannot be improved such as the distance to larger urban centres could have attention diverted from them through the use of imaginative and attractive townsite design.¹⁸ With annual turnover costs in the mining industry estimated at \$48 million in 1974, a careful evaluation of alternative community types and their design can well be afforded.¹⁹

¹⁶ J.A. MacMillan, J.R. Tulloch, D. O'Brien and M.A. Ahmad, Determinants of Labour Turnover in Canadian Mining Communities, Centre for Settlement Studies, University of Manitoba, Winnipeg, Manitoba, May 1974, p.65; "Resource-Based or One-Industry Towns and the Natural Environment", Report on the Yellowknife Symposium sponsored by the Canadian Participation Secretariat for Habitat; United Nations Conference on Human Settlements, Vancouver, 1976, held at Yellowknife, N.W.T. September 12-13, 1975 (mimeographed), p.9; J.E. Winston Jackson and Nicholas W. Poushinsky, Migration to Northern Mining Communities; Structural and Social-Psychological Dimensions, Centre for Settlement Studies, University of Manitoba, Winnipeg, Manitoba, 1971, p.43.

¹⁷ L.B. Siemens, Single Enterprise Community Studies in Northern Canada, Centre for Settlement Studies, University of Manitoba, Winnipeg, Manitoba, December, 1973, p.21.

¹⁸ H.D. Linn and J.C. Stabler "Economic, Social and Planning Requirements for Northern Communities", Saskatoon, Saskatchewan, March 1976, p.3 - 29.

¹⁹ Ibid, p.2 - 10.

Linn and Stabler's review of migration studies in Canada revealed a strong preference among migrants for the larger cities of over 100,000 population. This trend of increased urbanization may make it more difficult to attract people to remote single enterprise communities.²⁰ This trend has also been noted in the mining industry in its attempts to attract and maintain a stable workforce in remote communities.²¹

2c. Quality of Life

Isolated communities also have problems with the quality of life afforded to the residents. The limited opportunities and facilities, as compared to an urban centre, greatly restrict people's choice of activities. These restrictions in choice are particularly noticeable in the availability of housing, medical services, education facilities, recreation/entertainment facilities, and goods and services. Although the natural physical environment may be desirable, the climate is usually harsher than that accustomed to by southern Euro-Canadians. The isolated nature of the community usually restricts the residents' ability to travel outside the community as well as to communicate with the "outside world". Such restrictions contribute to a reliance on interpersonal relationships among the residents. The susceptibility of the major employer to changes in technology, markets or government policy creates an air of impermanence which makes it difficult for the community to fully develop.

The single status communities also pose special problems. Frequent air travel for the short term community affects the safety of

²⁰ Linn and Stabler, p.3-11, C.D. Burke, D.J. Ireland "Holding the Line: A Strategy for Canadian Development", Urban Prospects, Ministry of State for Urban Affairs, 1976, p.11.

²¹ Noakes, p.52.