BRITISH COLUMBIA HYDRO AND POWER AUTHORITY

HAT CREEK PROJECT

Strong, Hall and Associates Ltd., Cornerstone Planning Group Ltd. and Urban Systems Ltd. - Hat Creek Project - Detailed Environmental Studies - Impacts, Mitigation Compensation and Enhancement - Appendices - November 1978

ENVIRONMENTAL IMPACT STATEMENT REFERENCE NUMBER: 61b

B.C. HYDRO &

POWER AUTHORITY

HAT CREEK

SOCIO-ECONOMIC STUDIES

APPENDICES

IMPACTS, MITIGATION

COMPENSATION

AND ENHANCEMENT

by:

STRONG HALL & ASSOCIATES LTD.

and

CORNERSTONE PLANNING GROUP LIMITED

and

URBAN SYSTEMS LIMITED

November 1978

APPENDICES

APPENDIX K

HOUSING SUPPLY PROCESS

The process involved in converting vacant developable land into occupied residential areas is outlined in Figure K-1. As illustrated in the figure, the process is rather involved, and progress in the overall process is largely dependent upon successful coordination and completion of each of the numerous interrelated activities which must be carried out. Because of the sequential nature of the process, delays in any of the required activities, particularly in the early stages, will be reflected as delays throughout the entire development process, and ultimately the delivery of housing accommodation to new consumers.

1. Step One - Vacant Developable Land to Serviced Residential Land

   a. Community Plan and Development Control Baylaws. As outlined in Section 5.8 - Local and Regional Government, each local study area community will have in place, by late 1978 or early 1979, an Official Community Plan, as well as upgraded implementation or development control bylaws (zoning, subdivision control). The plan and bylaws will provide, among other things, policies, guidelines, and servicing standards which can be used as a basis for managing new development.

   b. Development Approval Process. With a plan and zoning bylaw in place, development approval will generally be confined to the granting of subdivision approval. Delays in the process will be likely, however, if the municipality is suddenly confronted with the necessity of reviewing and approving three or four relatively large-scale developments in a very short time period (as will likely be the case in the first several years after project commencement), or if

developers seek to amend the plan or zoning bylaw to accommodate a different use.

c. Expansion of Community Infrastructure. As outlined in Section 5.7 - Community Infrastructure, in order to open up new land for development, particularly to accommodate the population levels predicted with the project, the expansion of a number of major infrastructure components will be required. This process also involves a number of steps, including engineering study and design, arranging of financing (including grants from senior governments), tender calls and contract awards, and construction. With the very rapid growth in housing demand projected for the first four years following project commencement, there will be an immediate need upon project commencement for upgrading of the required infrastructure components. Because of the sharp increase in the level of activity required to undertake the necessary expansion of the infrastructure components, delays may also arise in this process. Delays are likely in the arranging of financing, which entails passage of money bylaws and are subject to approval by the Ministry of Municipal Affairs and Housing, and the securing of commitments for grants from senior governments under the various assistance programs which are available to municipalities.

d. Installation of On-Site Services. Intallation of on-site services will be the responsibility of the individual developers, subject to final approval by the municipality. Because the process is relatively straightforward, no major delays are foreseen.

2. Step Two - Serviced Residential Land to Completed Housing Units

a. Construction of Housing Units. Given the availability of an adequate supply of serviced residential land, with the

construction capabilities of the local Ashcroft/Cache Creek and Kamloops housing construction industry, it is likely that an adequate supply of new housing units can be constructed to accommodate projected demands, even in the initial years of exceptionally high demand levels.

b. Housing Mix. Even though the construction industry may be capable of building the required number of dwelling units to accommodate demand, there is a possibility that the cumulative decisions of numerous developers and builders may result in the oversupply of certain housing types (e.g., single-family, multi-family) and the undersupply of other housing types (e.g., mobile homes). This could lead to a distortion of the housing market, in terms of price levels, the ability of certain sectors to pay for housing, and the actual level of demand for new housing units.

c. Building Inspection. Although there will be a sharp increase in the level of building inspection activity, no significant delays in the approval process are anticipated.

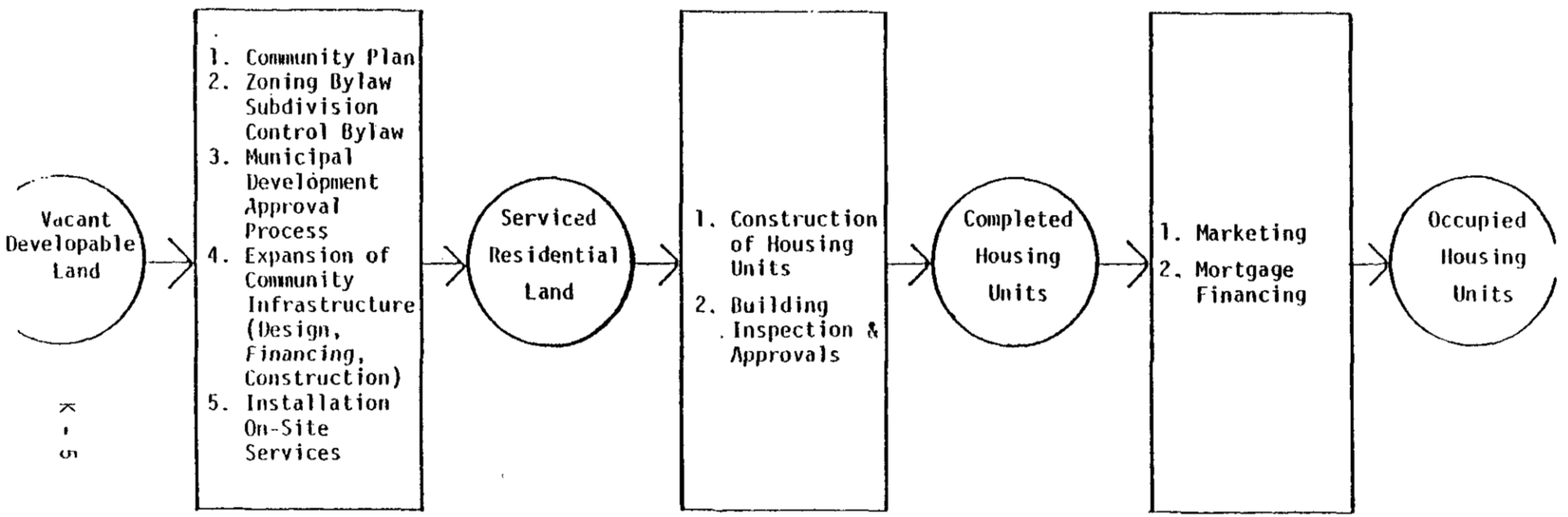
3. Step Three - Completed Housing Units to Occupied Housing Units

The final steps in the housing supply process - marketing and arranging of mortgage financing - are expected to keep pace with the other elements of the supply process. There is a possibility that in the initial years following project commencement, there may be a disproportionately high demand for rental accommodation compared to owner-occupied accommodation. If the marketing of housing units is not adequately flexible to reflect this situation, a temporary shortage in the availability of rental accommodation will likely arise. In the longer term, when growth rates are expected to moderate, the proportionate demand for rental units will likely decline. In absolute terms, it is expected that the number of rental units demanded will be relatively stable during

the projection period after the first two or three years following project commencement. The implication of this is that there would likely be a requirement for an acceleration in the construction of rental units (typically apartment units) during the initial years following project commencement.

FIGURE K-1

HOUSING SUPPLY PROCESS



SOURCE: Urban Systems Ltd., 1978.

APPENDIX L
PROJECTION OF SERVICE REQUIREMENTS WITH PROJECT

Introduction

The methods for projecting future service requirements attributable to the Hat Creek Project are described in Section 5.9. In addition, Section 5.9 summarizes the total costs and other requirements necessary to maintain existing levels and qualities of service to 1990.

This Appendix provides the supporting base for Section 5.9. The following tables provide the detailed annual calculations used to make projections of service requirements. Individual footnotes for each table describe the assumptions and standards identified with each defined service delivery agency.

TABLE L-1

ELEMENTARY EDUCATION
ASHCROFT - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976*	1976-77 enrolment: 391 students (354 in Ashcroft Elem. and 37 in Coppervale Elementary)	Elementary Education	2 elementary schools. Total capacity 480 students. (Cap. of Ashcroft Elem. is 360 and Coppervale Elem. is 120 students)	Staffing Requirements Pupil/teacher ratio for B.C. - 19 to 1 (1976), 24 to 1 for Ashcroft Elem. schools. Facility Requirements Average building size - 26,200 sq. ft. (1976. Average of 330 pupils per building. Land Requirements Average acreage - 6 acres Capital Costs** $43.00 per sq. ft. (1976) Operating Costs*** $1,490 per student (1976)	Total space of existing facilities not available.	Total teaching staff 1976/77 is 16****	Existing land total not available.	Existing*****	$582,590******
1977	Scenario #1 and #2 405 students				No additional facilities required	No additional staff required	No additional land required	No additional	$603,450
1978	Scenario #1 410 students				No additional	No additional	No additional	No additional	$610,900
	Scenario #2 405 students				No additional	No additional	No additional	No additional	$603,450

* The 1976 data provide existing information for elementary education in Ashcroft. Data for 1977-1990 are forecasts and numbers have been rounded off to the nearest 5.

** Capital costs given here do not include cost of site development, fees and contingencies.

*** Operating costs include salaries and the costs of maintenance and services.

**** The pupil/teacher ratio for 1976-77 in Ashcroft's elementary schools was assumed in determining all staff projections.

***** Projections of capital costs consist of the costs of constructing new facilities and the costs of furnishings and equipment for new facilities and portables.

****** *Projections of operating costs consist of $1,490 per student year, and the leased cost of portables including the costs of setting up, transportation, and removal based on a 12 year life span.*

TABLE L-1

ELEMENTARY EDUCATION - ASHCROFT - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1979	Scenario #1 495 students				Scenario #1 require 450 sq.ft (min.) extra space to accommodate 15 students.	Scenario #1 total teaching staff required for 1979-80 is 21 (5 additional staff required)	no additional	$ 2,835	$739,980
	Scenario #2 475 students				Scenario #2 no additional	Scenario #2 total teaching staff required for 1979-80 is 20 (4 additional staff required)	no additional	no additional	$707,750
1980	Scenario #1 570 students				Scenario #1 require 2,250 sq. ft. (min.) extra space to accommodate 75 students	Scenario #1 total teaching staff required for 1980-81 is 24 (3 additional staff required)	no additional	$14,175	$863,880
	Scenario #2 510 students				Scenario #2 require 900 sq. ft. (min.) extra space to accommodate 30 students	Scenario #2 total teaching staff required for 1980-81 is 21 (1 additional staff required)	no additional	$ 5,670	$764,760
1981	Scenario #1 635 students				Scenario #1 require 1,950 sq. ft. (min.) extra space to accommodate 65 students	Scenario #1 total teaching staff required for 1981-82 is 26 (2 additional staff required)	no additional	$12,285	$971,260
	Scenario #2 540 students				Scenario #2 require 900 sq. ft. (min.) extra space to accommodate 30 students	Scenario #2 total teaching staff required for 1981-82 is 23 (2 additional staff required)	no additional	$ 5,670	$814,320

TABLE L-1

ELEMENTARY EDUCATION - ASHCROFT - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1982	Scenario #1 750 students				Scenario #1 require 3,450 sq. ft. (min.) extra space to accommodate 115 students	Scenario #1 total teaching staff required for 1982-83 is 31 (5 additional staff)	no additional	$21,735	$1,161,240
	Scenario #2 590 students				Scenario #2 require 1,500 sq. ft. (min.) extra space to accommodate 50 students	Scenario #2 total teaching staff required for 1982-83 is 25 (2 additional staff required)	no additional	$ 9,450	$ 896,920
1983	Scenario #1 800 students				Scenario #1 new facility required - 26,200 sq. ft. with capacity of 330 students	Scenario #1 total teaching staff required for 1983-84 is 33 (2 additional staff required)	Scenario #1 6 acres required	$1,811,730	$1,235,740
	Scenario #2 615 students				Scenario #2 require 750 sq. ft. (min.) extra space to accommodate 25 students	Scenario #2 total teaching staff required for 1983-84 is 26 (1 additional staff required)	Scenario #2 no additional	$ 4,725	$ 938,220
1984	Scenario #1 850 students				Scenario #1 require 1,200 sq. ft. (min.) extra space to accommodate 40 students	Scenario #1 total teaching staff required for 1984-85 is 35 (2 additional staff required)	no additional	$ 7,560	$1,316,720
	Scenario #2 630 students				Scenario #2 require 450 sq. ft. (min.) extra space to accommodate 15 students	Scenario #2 total teaching staff required for 1984-85 is 26 (no additional)	no additional	$ 2,835	$ 963,000

TABLE L-1
ELEMENTARY EDUCATION - ASHCROFT - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1985	Scenario #1 840 students				Scenario #1 no additional	Scenario #1 no additional	no additional	no additional	$1,301,820
	Scenario #2 650 students				Scenario #2 require 600 sq. ft. (min.) extra space to accommodate 20 students	Scenario #2 total teaching staff required for 1985-86 is 27 (1 additional staff required)	no additional	$ 3,780	$ 996,040
1986	Scenario #1 850 students				Scenario #1 no additional	Scenario #1 no additional	no additional	no additional	$1,316,720
	Scenario #2 650 students				Scenario #2 no additional	Scenario #2 no additional	no additional	no additional	$ 996,040
1987	Scenario #1 915 students				Scenario #1 require 1,950 sq. ft. (min.) extra space to accommodate 65 students	Scenario #1 total teaching staff required for 1987-88 is 38 (3 additional staff required)	no additional	$12,285	$1,424,100
	Scenario #2 695 students				Scenario #2 require 1,350 sq. ft. (min.) extra space to accommodate 45 students	Scenario #2 total teaching staff required for 1987-88 is 29 (2 additional staff required)	no additional	$ 8,505	$1,070,380
1988	Scenario #1 925 students				Scenario #1 require 300 sq. ft. (min.) extra space to accommodate 10 students	Scenario #1 total teaching staff required for 1988-89 is 39 (1 additional staff required)	no additional	$ 1,890	$1,440,620
	Scenario #2 695 students				Scenario #2 no additional	Scenario #2 no additional	no additional	no additional	$1,070,380

TABLE L-1
ELEMENTARY EDUCATION - ASHCROFT - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1989	Scenario #1 935 students				Scenario #1 require 300 sq. ft. (min.) extra space to accommodate 10 students	Scenario #1 no additional	no additional	$ 1,890	$1,457,140
	Scenario #2 695 students				Scenario #2 no additional	Scenario #2 no additional	no additional	no additional	$1,070,380
1990	Scenario #1 960 students				Scenario #1 require 750 sq. ft. (min.) extra space to accommodate 25 students	Scenario #1 total teaching staff required for 1990-91 is 40 (1 additional staff required)	no additional	$ 4,725	$1,498,440
	Scenario #2 725 students				Scenario #2 require 900 sq. ft. (min.) extra space to accommodate 30 students	Scenario #2 total teaching staff required for 1990-91 is 30 (1 additional staff required)	no additional	no additional	$1,119,940

TABLE L-2

ELEMENTARY EDUCATION
CACHE CREEK - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976*	1976-1977 enrolment; 313 students	Elementary Education	1 elementary school - total capacity of 337 students	Staffing Requirements Pupil/teacher ratio for B.C. 19 to 1 (1976), 20 to 1 for Cache Creek Elementary School Facility Requirements Average building size - 26,200 sq. ft. (1976) Average of 330 pupils per building Land Requirements Average acreage - 6 acres Capital Costs** $43.00 per sq. ft. (1976) Operating Costs *** $1,490 per student (1976)	Total space of existing facility not available	Total teaching staff 1976-77 is 15	Existing land total not available	Existing*****	$ 466,370 ******
1977	Scenario #1 and #2 320 students				no additional facilities required	no additional staff required****	no additional land required	no additional	$ 476,800
1978	Scenario #1 320 students				no additional	no additional	no additional	no additional	$ 476,800
	Scenario #2 325 students				no additional	no additional	no additional	no additional	$ 484,250

* 1976 data provide existing information for elementary education in Cache Creek. Data for 1977-1990 are forecasts, and numbers have been rounded off to the nearest five.

** Captial costs given here do not include cost of site development, fees and contingencies.

*** Operating costs include salaries and the costs of maintenance and services.

**** The pupil-teacher ratio for 1976-77 in Cache Creek's elementary schools was assumed in determining all staff projections.

***** Projections of capital costs consist of the costs of constructing new facilities, and the costs of furnishings and equipment for new facilities and portables.

****** Projections of operating costs consist of $1,490 per student year, and the leased costs of portables including the costs of setting up, transportation, and removal based on a 12 year lifespan.

TABLE L-2
ELEMENTARY EDUCATION - CACHE CREEK - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS CAPITAL	COSTS OPERATING
1979	Scenario #1 355 students				Scenario #1 require 540 sq. ft. (min.) extra space to accommodate 18 students	Scenario #1 total teaching staff required for 1979-80 is 18 (3 additional staff required)	no additional	$ 3,402	$ 531,866
	Scenario #2 365 students				Scenario #2 require 840 sq. ft. (min.) extra space to accommodate 28 students	Scenario #2 total teaching staff required for 1979-80 is 18 (3 additional staff required)	no additional	$ 5,292	$ 548,386
1980	Scenario #1 395 students				Scenario #1 require 1,200 sq. ft. (min.) extra space to accommodate 40 students	Scenario #1 total teaching staff required for 1980-81 is 20 (2 additional staff required)	no additional	$ 7,560	$ 597,946
	Scenario #2 450 students				Scenario #2 require 2,550 sq. ft. (min.) extra space to accommodate 85 students	Scenario #2 total teaching staff required for 1980-81 is 23 (5 additional staff required)	no additional	$ 16,065	$ 688,806
1981	Scenario #1 425 students				Scenario #1 require 900 sq. ft. (min.) extra space to accommodate 30 students	Scenario #1 total teaching staff required for 1981-82 is 21 (1 additional staff required)	no additional	$ 5,670	$ 647,506
	Scenario #2 530 students				Scenario #2 require 2,400 sq. ft. (min.) extra space to accommodate 80 students	Scenario #2 total teaching staff required for 1981-82 is 26 (3 additional staff required)	no additional	$ 15,120	$ 820,966

TABLE L-2

ELEMENTARY EDUCATION - CACHE CREEK - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1982	Scenario #1 480 students				Scenario #1 require 1,650 sq. ft. (min.) extra space to accommodate 55 students	Scenario #1 total teaching staff required for 1982-83 is 24 (3 additional staff required)	Scenario #1 no additional	$ 10,395	$ 738,366
	Scenario #2 655 students				Scenario #2 new facility required - 26,200 sq. ft. with capacity of 330 students	Scenario #2 total teaching staff required for 1982-83 is 33 (7 additional staff required)	Scenario #2 6 acres required	$1,811,730	$1,007,216
1983	Scenario #1 505 students				Scenario #1 require 750 sq. ft. (min.) extra space to accommodate 25 students	Scenario #1 total teaching staff required for 1983-84 is 25 (1 additional staff required)	no additional	$ 4,725	$ 779,666
	Scenario #2 710 students				Scenario #2 require 1,290 sq. ft. (min.) extra space to accommodate 43 students	Scenario #2 total teaching staff required for 1983-84 is 36 (3 additional staff required)	no additional	$ 8,127	$1,096,132
1984	Scenario #1 525 students				Scenario #1 require 600 sq. ft. (min.) extra space to accommodate 20 students	Scenario #1 total teaching staff required for 1984-85 is 26 (1 additional staff required)	no additional	$ 3,780	$ 812,706
	Scenario #2 760 students				Scenario #2 require 1,500 sq. ft. (min.) extra space to accommodate 50 students	Scenario #2 total teaching staff required for 1984-85 is 38 (2 additional staff required)	no additional	$ 9,450	$1,178,732

TABLE L-2
ELEMENTARY EDUCATION - CACHE CREEK - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1985	Scenario #1 530 students				Scenario #1 require 150 sq. ft. (min.) extra space to accommodate 5 students	Scenario #1 no additional	no additional	$ 945	$ 820,966
	Scenario #2 740 students				Scenario #2 no additional	Scenario #2 no additional	no additional	no additional	$1,148,932
1986	Scenario #1 530 students				Scenario #1 no additional	Scenario #1 no additional	no additional	no additional	$ 789,700
	Scenario #2 745 students				Scenario #2 no additional	Scenario #2 no additional	no additional	no additional	$1,110,050
1987	Scenario #1 570 students				Scenario #1 require 1,200 sq. ft. (min.) extra space to accommodate 40 students	Scenario #1 total teaching staff required for 1987-88 is 29 (3 additional staff)	no additional	$ 7,560	$ 887,046
	Scenario #2 800 students				Scenario #2 require 1,200 sq. ft. (min.) extra space to accommodate 40 students	Scenario #2 total teaching staff required for 1987-88 is 40 (2 additional staff required)	no additional	$ 7,560	$1,244,812
1988	Scenario #1 570 students				Scenario #1 no additional	Scenario #1 no additional	no additional	no additional	$ 849,300
	Scenario #2 795 students				Scenario #2 no additional	Scenario #2 no additional	no additional	no additional	$1,184,550
1989	Scenario #1 570 students				Scenario #1 no additional	Scenario #1 no additional	no additional	no additional	$ 849,300
	Scenario #2 800 students				Scenario #2 no additional	Scenario #2 no additional	no additional	no additional	$1,192,000

TABLE L-2

ELEMENTARY EDUCATION - CACHE CREEK - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1990	Scenario #1 595 students				Scenario #1 require 750 sq. ft. (min.) extra space to accommodate 25 students	Scenario #1 total teaching staff required for 1990-91 is 30 (1 additional staff required)	no additional	$ 4,725	$ 928,346
	Scenario #2 825 students				Scenario #2 require 750 sq. ft. (min.) extra space to accommodate 25 students	Scenario #2 total teaching staff required for 1990-91 is 41 (1 additional staff required)	no additional	$ 4,725	$1,286,112

TABLE L-3

ELEMENTARY EDUCATION
CLINTON - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING ******
1976	1976-1977 enrolment: 217 students	Elementary Education	1 elementary school - total capacity of 255 students	Staffing Requirements Pupil/teacher ratio for B.C. - 19 to 1 (1976), 23 to 1 for Clinton Elementary School Facility Requirements Average building size - 26,200 sq. ft. (1976) Average of 330 pupils per building Land Requirements Average acreage - 6 acres Capital Costs** $43.00 per sq. ft. (1976) Operating Costs*** $1,490 per student (1976)	total space of existing facility not available	total teaching staff 1976-1977 is 9	existing land total not available	existing*****	$323,330
1977	215 students				no additional facilities required	no additional staff required****	no additional land required	no additional	$320,350
1978	220 students				no additional	total teaching staff required for 1978-78 is 10 teachers (1 additional)	no additional	no additional	$327,800

* 1976 data provide existing information for elementary education in Clinton. Data for 1979-1990 are forecasts and numbers have been rounded off to the nearest five.

** Capital costs given here do not include cost of site development, fees and contingencies.

*** Operating costs include salaries and the costs of maintenance and services.

**** The pupil-teacher ratio for 1976-77 in Clinton's elementary school was assumed in determining all staff projections.

***** Projections of capital costs consist of the costs of constructing new facilities, and the costs of furnishings and equipment for new facilities and portables.

****** Projections of operating costs consist of $1,490 per student year, and the leased costs of portables including the costs of setting up, transportation, and removal based on a 12 year life span.

TABLE L-3
ELEMENTARY EDUCATION - CLINTON - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1979	225 students				no additional	total teaching staff required for 1979-80 is 11 (1 additional)	no additional	no additional	$335,250
1980	250 students				no additional	no additional	no additional	no additional	$372,500
1981	330 students				require 2,250 sq. ft. (min.) extra space to accommo-75 students	total teaching staff required for 1981-82 is 14 (3 additional)	no additional	$14,175	$508,710
1982	360 students				require 900 sq. ft. (min.) extra space to accommo-date 30 students	total teaching staff required for 1982-83 is 16 (2 additional)	no additional	$ 5,670	$558,270
1983	375 students				require 450 sq. ft. (min.) extra space to accommo-date 15 students	no additional	no additional	$2,835	$583,050
1984	385 students				require 300 sq. ft. (min.) extra space to accommo-date 10 students	total teaching staff required for 1984-85 is 17 (1 additional)	no additional	$ 1,890	$599,570
1985	375 students				no additional	no additional	no additional	no additional	$584,670
1986	375 students				no additional	no additional	no additional	no additional	$584,670
1987	390 students				require 150 sq. ft. (min.) extra space to accommo-date 5 students	no additional	no additional	$ 945	$607,830
1988	385 students				no additional	no additional	no additional	no additional	$600,380

TABLE L-3
ELEMENTARY EDUCATION - CLINTON - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1989	390 students				no additional	no additional	no additional	no additional	$607,830
1990	390 students				no additional	no additional	no additional	no additional	$607,830

TABLE L-4

SECONDARY EDUCATION
ASHCROFT - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS********	
								CAPITAL	OPERATING
1976*	1976-1977 enrolment: 573 students**	Secondary Education	1 secondary school - total capacity 595 students	Staffing Requirements Pupil/teacher ratio for B.C. - 19 to 1 (1976), 19 to 1 for secondary school in Ashcroft Facility Requirements Average building size for secondary school - 90,000 sq. ft. (1976) Average 1,000 students per building Land Requirements Average acreage - 9 acres Capital Costs*** $45.00 per sq. ft. (1976) Operating Costs**** $1,490 per student (1976)	Total space of existing facility not available	Total teaching staff 1976-1977 30 teachers	Existing land total not available	Existing	$ 853,770
1977	585 students*****				no additional facilities required	total teaching staff 1977-1978 31 teachers (1 additional)*******	no additional	no additional	$ 871,650

* 1976 data provided by existing information for secondary education in Ashcroft. Data for 1979-1990 are forecasts, and numbers have been rounded off to the nearest five.

** Existing enrolment and forecasts are for all secondary school age children from Ashcroft and Cache Creek and for senior secondary school age children from Clinton. The proportion of junior and senior secondary students is based on existing figures.

*** Capital costs given here do not include costs of site development, fees and contingencies.

**** Operating costs include salaries and the costs of maintenance and services.

***** An average of one school age child per four residents has been used to determine projected school enrolments in the study area. That proportion was attained from Administrative Data Services Branch, Ministry of Education, Province of B.C. and represents the B.C. average ratio. The actual number of school age children in the study area is higher than the 1:4 used in calculating the forecasts. The ratio for School District 30 from 1971 Census data is 1:3.4. Also, an average of 66% elementary students and 34% secondary students was used in developing the forecasts. In fact, these proportions are not constant, but change as birth rate, in-migration, drop-out rates, etc. vary in the area.

****** All costs are given in 1976 dollars. $1,490 is the estimated cost per student for 1975-1976 academic year.

******* The pupil-teacher ratio in Ashcroft Secondary School was assumed in determining all staff projections.

******** See footnote regarding projections of operating and capital costs under elementary education.

TABLE L-4
SECONDARY EDUCATION - ASHCROFT - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1978	595 students				no additional facilities required	no additional	no additional	no additional	$ 886,550
1979	670 students				require 2,250 sq. ft. (min.) extra space to accommodate 75 students	total teaching staff required for 1979-80 is 35 (4 additional)	no additional	$16,538	$1,010,450
1980	755 students				require 2,550 sq. ft. (min.) extra space to accommodate 85 students	total teaching staff required for 1980-81 is 40 (5 additional)	no additional	$18,742	$1,150,870
1981	875 students				require 3,600 sq. ft. (min.) extra space to accommodate 120 students	total teaching staff required for 1981-82 is 46 (6 additional)	no additional	$26,460	$1,349,110
1982	990 students				require 3,450 sq. ft. (min.) extra space to accommodate 115 students	total teaching staff required for 1982-83 is 52 (6 additional)	no additional	$25,358	$1,539,090
1983	1050 students				require 1,800 sq. ft. (min.) extra space to accommodate 60 students	total teaching staff required for 1983-84 is 55 (3 additional)	no additional	$13,230	$1,638,210
1984	1090 students				require 1,200 sq. ft. (min.) extra space to accommodate 40 students	total teaching staff required for 1984-85 is 57 (2 additional)	no additional	$ 8,820	$1,704,290
1985	1080 students				no additional	no additional	no additional	no additional	$1,689,390
1986	1080 students				no additional	no additional	no additional	no additional	$1,689,390

TABLE L-4

SECONDARY EDUCATION - ASHCROFT - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1987	1155 students				require 1,950 sq. ft. (min.) extra space to accommodate 65 students	Scenario #1 total teaching staff required for 1987-88 is 61 (4 additional)	no additional	$14,332	$1,811,670
1988	1155 students				no additional	no additional	no additional	no additional	$1,811,670
1989	1155 students				no additional	no additional	no additional	no additional	$1,811,670
1990	1190 students				require 1,050 sq. ft. (min.) extra space to accommodate 35 students	total teaching staff required for 1990-91 is 63 (2 additional)	no additional	$ 7,718	$1,869,490

TABLE L-5

SECONDARY EDUCATION
CLINTON - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS******** CAPITAL	COSTS******** OPERATING
1976*	1976-1977 enrolment: 104 students**	Secondary Education	1 junior secondary school - total capacity of 225 students	Staffing Requirements Pupil/teacher ratio for B.C. - 19 to 1 (1976), 13 to 1 for junior secondary school in Clinton Facility Requirements Average building size for secondary school - 90,000 sq. ft. (1976) Average 1,000 students per building Land Requirements Average acreage - 9 acres Capital Costs**** $45.00 per sq. ft. (1976) Operating Costs***** $1,490 per student (1976)	Total space of existing facility not available	Total teaching staff 1976-1977 is 8	Existing land total not available	Existing	$154,960
1977	105 students**				no additional facilities required	no additional staff required*******	no additional land required	no additional	$156,450

* 1976 data provide existing information for secondary education in Clinton. Data for 1979-1990 are forecasts, and numbers have been rounded off to the nearest five.

** Existing enrolment and forecasts are for junior secondary school age children from Clinton only. The proportions of junior secondary school age children in the population are based on existing figures.

*** An average of one school age child per four residents has been used to determine projected school enrolments in the study area. That proportion was attained from Administrative Data Services Branch, Ministry of Education, Province of B.C. and represents the B.C. average ratio. The actual number of school age children in the study area is higher than the 1:4 used in calculating the forecasts. The ratio for School District 30 from 1971 Census data is 1:3.4. Also, an average of 66% elementary students and 34% secondary students was used in developing the forecasts. In fact, these proportions are not constant, but change as birthrate, in-migration, drop-out rates, etc. vary in the area.

**** Capital costs given here do not include costs of site development, fees and contingencies.

***** Operating costs include salaries and the costs of maintenance and services.

****** All costs are given in 1976 dollars. $1,490 is the estimated cost per student for 1975-1976 academic year.

******* The pupil-teacher ratio in Clinton's junior secondary school was assumed in determining all staff projections.

******** See footnote regarding projections of operating and capital costs under elementary education.

TABLE L-5
SECONDARY EDUCATION - CLINTON - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1978	110 students				no additional	no additional	no additional	no additional	$163,900
1979	120 students				no additional	total teaching staff required for 1979-80 is 9 (1 additional)	no additional	no additional	$178,800
1980	140 students				no additional	total teaching staff required for 1980-81 is 11 (2 additional)	no additional	no additional	$208,600
1981	160 students				no additional	total teaching staff required for 1981-82 is 12 (1 additional)	no additional	no additional	$238,400
1982	180 students				no additional	total teaching staff required for 1982-83 is 14 (2 additional)	no additional	no additional	$268,200
1983	190 students				no additional	total teaching staff required for 1983-84 is 15 (1 additional)	no additional	no additional	$283,100
1984	200 students				no additional	no additional	no additional	no additional	$298,000
1985	200 students				no additional	no additional	no additional	no additional	$298,000
1986	200 students				no additional	no additional	no additional	no additional	$298,000
1987	210 students				no additional	total teaching staff required for 1987-88 is 16 (1 additional)	no additional	no additional	$312,900
1988	210 students				no additional	no additional	no additional	no additional	$312,900

TABLE L-5

SECONDARY EDUCATION - CLINTON - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1989	215 students				no additional	total teaching staff required for 1989-90 is 17 (1 additional)	no additional	no additional	$320,350
1990	220 students				no additional	no additional	no additional	no additional	$327,800

TABLE L-6

HOSPITAL - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	5,280 - total patient day volume 6,057 days - 720 cases admitted	Hospital	Ashcroft and District General Hospital - capacity patient day volume of 9,000-10,000 days*	- 4.25 hospital beds per 1,000 population - 25-40 bed hospital for communities of 6,000 - 10,000 people - Ashcroft hospital had 6.25 beds per 1,000 population in 1976 and a hospital occupancy rate of 46.2%** Staffing Requirements 30 bed hospital -- 40-45 staff Operating Costs (1977) 25 bed hospital - $114 per patient day	existing facility - 370,784 sq. ft. 33 acute care beds 8 extended care beds	total 1976 staff: 22 nursing staff 2½ medical lab technicians 2¼ radiologists ½ physiotherapist 5¼ administration staff 1 medical records 6 dieticians 2 laundry staff 5½ housekeeping staff 1 3/4 plant operation	existing land: 17 acres	existing	$932,809***
1977	5,395				no additional facilities required**	no additional staff required****	no additional land required	not projected	not projected
1978	5,630				no additional	1-5 additional	no additional	not projected	not projected
1979	6,615				no additional	1-5 additional	no additional	not projected	not projected
1980	7,620				no additional	1-5 additional	no additional	not projected	not projected
1981	9,620				no additional	5-10 additional	no additional	not projected	not projected

* A 70% occupancy rate was assumed to be a suitable rate for a hospital of 33 beds. Source: Research Division, Hospital Programs Ministry of Health, Province of B.C.

** An examination of historical data shows a decline in hospital occupancy over the past few years which may be a trend that continues in the future. However, the 1976 occupancy rate of 46.2% was assumed in determining all projected requirements.

*** Amount budgeted for 1976.

**** Projections of staffing requirements have been based on 1-5 additional staff for an increase of 1,000 people in the service population, and 5-10 additional staff for an increase of 2,000 people.

TABLE L-6

HOSPITAL - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1982	11,435				no additional	5-10 additional	no additional	not projected	not projected
1983	11,965				no additional	1-5 additional	no additional	not projected	not projected
1984	11,730				no additional	no additional	no additional	not projected	not projected
1985	10,085				no additional	no additional	no additional	not projected	not projected
1986	10,540				no additional	no additional	no additional	not projected	not projected
1987	11,015				no additional	no additional	no additional	not projected	not projected
1988	10,695				no additional	no additional	no additional	not projected	not projected
1989	10,750				no additional	no additional	no additional	not projected	not projected
1990	11,075				no additional	no additional	no additional	not projected	not projected

TABLE L-7

MEDICAL - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	5,280	Medical	1 medical centre 1 physician's office	- 1 general practitioner for 2,200 population - 8,000 population necessary for 1 specialist in internal medicine - 11,000 population necessary for general surgeon or psychiatrist - 13,000-14,000 population necessary for anaesthetist - no standards available for facility and land requirements, construction and operating costs - existing ratio for service study area is 1 general practitioner for 1,320 population Costs to the Province are $80,000/physician (1977 dollars)	medical centre - facility space not available physician's office - 500 sq. ft.	medical centre has: 3 doctors 1 bookkeeper 2 receptionists physician's office has: 1 doctor 1 nurse/receptionist total: 4 doctors	existing land usage not available	existing	$320,000***
1977	5,395				no additional facilities required	no additional physicians required*	no additional land required	no additional	$320,000
1978	5,630				no additional	no additional	no additional	no additional	$320,000
1979	6,615				no additional	total of 5 physicians required (2 additional) as well as support staff	no additional	no additional	$400,000
1980	7,620				no additional**	no additional	no additional	no additional	$400,000

* The practitioner to population ratio for 1976 was assumed in determining all staff projections.
** The medical centre in Ashcroft has space for one additional physician.
*** Operating costs are based on $80,000/physician per year. It is assumed that this cost includes office rental. If this is not the case, a rental cost of $2,750.00 per year per additional physician should be added. (Rental cost is based on $8.50/sq. ft.)

TABLE L-7
MEDICAL - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1981	9,620				additional facility space required for 2 physicians	total of 7 physicians required (2 additional) as well as support staff	no information	$54,310*	$560,000
1982	11,435				additional facility space required for 1 physician	total of 8 physicians required (1 additional) as well as support space	no information	$27,155**	$640,000
1983	11,965				additional facility space required for 1 physician	total of 9 physicians required (1 additional) as well as support space	no information	$27,155	$720,000
1984	11,730				no additional	no additional	no additional	no additional	no additional
1985	11,085				no additional	no additional	no additional	no additional	no additional
1986	10,540				no additional	no additional	no additional	no additional	no additional
1987	11,015				no additional	no additional	no additional	no additional	no additional
1988	10,695				no additional	no additional	no additional	no additional	no additional
1989	10,750				no additional	no additional	no additional	no additional	no additional
1990	11,075				no additional	no additional	no additional	no additional	no additional

* Capital costs for 2 physicians' offices.
** Capital costs for 1 physician's office.

TABLE L-8

DENTAL - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	5,280	Dental	-	- 1 dentist for 2,500 population in rural areas - 3.5 dentists required for 10,000 population in rural areas	no service in study area in 1976	-	-		
1977	5,395		2 dentists' offices	Footnotes on next page.	500 sq. ft. each total of 1,000 sq. ft.	2 dentists 2 receptionists 2 dental assistants 2 chairside dental assistants	no land required	$90,000 or $140,000*	$160,000**
1978	5,630				no additional space required	no additional staff required	no additional land required	no additional	no additional
1979	6,615				no additional	no additional	no additional	no additional	no additional
1980	7,620		1 dentist's office		500 sq. ft.	1 dentist 1 receptionist 1 dental assistant 1 chairside dental assistant (total of 3 dentists)	no land required	$45,000 or $70,000	$240,000
1981	9,620				no additional	no additional	no additional	no additional	no additional
1982	11,435		1 dentist's office		500 sq. ft.	1 dentist 1 receptionist 1 dental assistant 1 chairside dental assistant (total of 4 dentists)	no land required	$45,000 or $70,000	$320,000
1983	11,965				no additional	no additional	no additional	no additional	no additional
1984	11,730				no additional	no additional	no additional	no additional	no additional
1985	11,085				no additional	no additional	no additional	no additional	no additional

TABLE L-8

DENTAL - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1986	10,540				no additional	no additional	no additional	no additional	no additional
1987	11,015				no additional	no additional	no additional	no additional	no additional
1988	10,695				no additional	no additional	no additional	no additional	no additional
1989	10,750				no additional	no additional	no additional	no additional	no additional
1990	11,750				no additional	no additional	no additional	no additional	no additional

* $90,000 represents the capital costs of establishing 2 dental offices in rental facilities and $140,000 the capital costs in facilities built by the College of Dental Surgeons.

** Operating costs are based on $80,000 per dental office, not including rental costs. If facilities are rented, the $5.50/sq. ft. per year should be added to the operating costs.

TABLE L-9

PUBLIC HEALTH - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	7,500* (including Lillooet)	Public Health	South Central Health Unit, Ashcroft Branch Office	Staffing Requirements 1 Public Health Nurse (PHN) for 4,000 population 1 Public Health Inspector (PHI) for 15,000 population	existing facility - 2,260 sq. ft. of leased space	existing staff 1 PHI 1 Senior PHN 2 PHN's 2 HCN's 1½ clerks	no land (in leased space)	existing	$120,663**
1977	7,615			No standards available for Home Care Nurses (HCN) Ashcroft has 1 PHN for 4,000 people and 1 PHI for 11,800 people	4,500 sq. ft. total needed	1 additional PHN and 1 HCN required No additional PHI required	no additional land required	not projected	$157,450
1978	7,850			Facility Requirements Public Health Nurse - 120 sq. ft. plus 30 sq. ft. additional	no additional space required	no additional staff required	no additional	not projected	$194,650
1979	8,835			Public Health Inspector - 120 sq. ft. plus 60 sq. ft. additional	no additional	no additional	no additional	not projected	$194,650
1980	9,840				no additional	no additional	no additional	not projected	$194,650
1981	11,840			Operating Costs $20,000 per year for PHN (1977) $20,000 per year for PHI (1977) $17,200 for Home Care Nurse (1977) (includes equipment, salaries, but no rent) $12,200 for support staff (1977)	no additional	no additional	no additional	not projected	$194,650
1982	14,220				150 sq. ft. additional space required	1 additional PHN required	no additional	not projected	$215,475
1983	14,750				no additional	no additional	no additional	not projected	$215,475
1984	14,515				no additional	no additional	no additional	not projected	$215,475
1985	13,870				no additional	no additional	no additional	not projected	$215,475
1986	13,325				no additional	no additional	no additional	not projected	$215,475
1987	13,800				no additional	no additional	no additional	not projected	$215,475
1988	13,480				no additional	no additional	no additional	not projected	$215,475
1989	13,535				no additional	no additional	no additional	not projected	$215,475
1990	13,860				no additional	no additional	no additional	not projected	$215,475

*Spences Bridge is included in the Public Health Service Area but is not included in the figures in this table.
**Operating costs include $5.50/sq. ft. as well as staff costs.

TABLE L-10

MENTAL HEALTH - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	5,280	Mental Health	No facility in area presently	Staffing Standards 1 Mental Health Worker for 10,000 population	-	-	-	-	-
1977	5,395		Mental Health Centre		250 sq. ft. (in rental space)	1 Mental Health Worker 1 clerk	none (in rental space)	$3,000 establishment costs	$27,375[A]
1978	5,630				no additional space required	no additional staff required	no additional	no additional	$27,375
1979	6,615				no additional	no additional	no additional	no additional	$27,375
1980	7,620				no additional	no additional	no additional	no additional	$27,375
1981	9,620				no additional	no additional	no additional	no additional	$27,375
1982	11,435				180 sq. ft. additional required	1 additional mental health worker may be required by this year	no additional	no additional	$54,365
1983	11,965				no additional	no additional	no additional	no additional	$54,365
1984	11,730				no additional	no additional	no additional	no additional	$54,365
1985	11,085				no additional	no additional	no additional	no additional	$54,365
1986	10,540				no additional	no additional	no additional	no additional	$54,365
1987	11,015				no additional	no additional	no additional	no additional	$54,365
1988	10,695				no additional	no additional	no additional	no additional	$54,365
1989	10,750				no additional	no additional	no additional	no additional	$54,365
1990	11,750				no additional	no additional	no additional	no additional	$54,365

[A] Operating costs include $26,000 for 1 mental health worker and 1 support staff, and $5.50/sq. ft.

TABLE L-11

AMBULANCE
ASHCROFT AND CACHE CREEK
WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	3,080	Ambulance	Ambulance Unit	1 ambulance for 5,000 population Ashcroft and Cache Creek have 1 ambulance for 2,000 population	amount of existing facility space not available	existing staff - 1 full-time employee	no land required	existing	$ 37,500**
1977	3,195			(Note: assumes all construction camps have own ambulance service)	no additional space required	1 additional full-time employee for Ashcroft and Cache Creek	no additional land required	no additional	$ 63,850
1978	3,250			* Capital costs of 1 additional ambulance. ** Based on 250 calls, at $150/call. Projections of operating costs include the costs of additional full-time employees and an increased number of calls pro-rated to the service population.	no additional	no additional staff required	no additional	no additional	$ 65,950
1979	3,885				no additional	no additional	no additional	no additional	$ 72,250
1980	4,525				1 additional ambulance required	1 additional full-time employee for Ashcroft and Cache Creek	no additional	$15,000*	$105,050
1981	5,060				no additional	no additional	no additional	no additional	$111,650
1982	6,010				1 additional ambulance may be required	1 additional full-time employee may be required	no additional	$15,000	$148,200
1983	6,420				no additional	no additional	no additional	no additional	$153,150
1984	6,790				no additional	no additional	no additional	no additional	$157,650
1985	6,790				no additional	no additional	no additional	no additional	$157,650
1986	6,815				no additional	no additional	no additional	no additional	$157,650
1987	7,405				no additional	no additional	no additional	no additional	$165,150
1988	7,360				no additional	no addjtional	no additional	no additional	$164,550
1989	7,410				no additional	no additional	no additional	no additional	$165,300
1990	7,725				no additional	no additional	no additional	no additional	$169,050

TABLE L-12

AMBULANCE
CLINTON - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	810	Ambulance	no existing facility	1 ambulance for 5,000 population	-	-	-	-	$5,500**
1977	810		1 ambulance unit		amount of facility space not available	volunteer staff	no land required (in rental space)	$15,000*	$5,500
1978	820				no additional space required	no additional staff required	no additional	no additional	$5,500
1979	855				no additional	no additional	no additional	no additional	$5,500
1980	975				no additional	no additional	no additional	no additional	$5,500
1981	1,420				no additional	no additional	no additional	no additional	$5,500
1982	1,595				no additional	no additional	no additional	no additional	$5,500
1983	1,670				no additional	no additional	no additional	no additional	$5,500
1984	1,710				no additional	no additional	no additional	no additional	$5,500
1985	1,670				no additional	no additional	no additional	no additional	$5,500
1986	1,675				no additional	no additional	no additional	no additional	$5,500
1987	1,730				no additional	no additional	no additional	no additional	$5,500
1988	1,725				no additional	no additional	no additional	no additional	$5,500
1989	1,730				no additional	no additional	no additional	no additional	$5,500
1990	1,735				no additional	no additional	no additional	no additional	$5,500

* Capital costs of 1 additional ambulance.
** Operating costs for vehicle and administration only. Does not include volunteer costs. (Source: Financial Plan for Tumbler Ridge Northeast Sector, B.C., Thompson, Berwick, Pratt and Partners et. al., 1978)

TABLE I.-13

RECREATION
ASHCROFT - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	Scenario #1 and #2	Public Recreation	13.6 - 23.6 acres of park 1 swimming pool 1 community hall 1 arena secondary school gymnasium elementary school activity room children's playground 2 tennis courts stampede grounds baseball diamond Secondary school: - soccer field - playing field - running track Elementary school: - soccer field - baseball backstop - children's playground - playing field	Open Space Standards Sub-neighbourhood park - less than 1 acre/1,000 population Neighbourhood park - 4 acres/1,000 population Community Park - 3 acres/ 1,000 population Activities/Facilities Standards badminton - 1500-1800 sq.ft. basketball - 6000 baseball field - 90,000 bowling - 14,400 (8 lanes) community hall - 40,000 curling rink - 8,400 football field - 93,600 indoor pool - 25 metres 5 lanes outdoor pool - 25 metres 5 lanes soccer field - 64,000 - 86,000 sq.ft. skating rink - 17,000 softball diamond - 62,500 tennis court - 7,200 volleyball court - 4,000	space projections given below	staff projections have not been prepared as staffing requirements depend on type of programs being offered and the type of recreation facilities provided.	see projections given below	existing	$52,658
1977	Scenario #1 and #2			*See footnotes on next page.	existing community hall should be upgraded and enlarged. Additional recreation facilities such as curling rink, bowling alley or a multi-purpose facility may be required, but their additions should be determined by the community.		A total of 32 acres (approx) would be needed to meet the projected population to 1990 (an additional 8 acres). As well, existing parks could be upgraded.	no projections*	no projections*

TABLE L-13
RECREATION - ASHCROFT - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1978	Scenario #1 2,140				Any additional facilities could be planned for joint use by Ashcroft, Cache Creek and Clinton residents.				
	Scenario #2 2,115								
1979	Scenario #1 2,615								
	Scenario #2 2,520								
1980	Scenario #1 3,060		* Capital and operating costs have not been projected. Capital costs for some facilities are: Community Hall - $58.10/sq. ft. for new addition Curling Rink - $61.00/sq. ft. Bowling Alley - $39.00/sq. ft. or $25,000/lane Multi-purpose Facility - $67.00/sq. ft. (not including a pool) Removable cover for a pool - $5,000 - $10,000 Indoor Swimming Pool - $80.00/sq. ft. Air inflated structure to cover a pool - $7.50/sq. ft.					
	Scenario #2 2,715								
1981	Scenario #1 3,435								
	Scenario #2 2,875								
1982	Scenario #1 4,100								
	Scenario #2 3,160								
1983	Scenario #1 4,385								
	Scenario #2 3,285								
1984	Scenario #1 4,645								
	Scenario #2 3,395								
1985	Scenario #1 4,610								
	Scenario #2 3,510								

TABLE L-13
RECREATION - ASHCROFT - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1986	Scenario #1 4,630								
	Scenario #2 3,515								
1987	Scenario #1 5,010								
	Scenario #2 3,780								
1988	Scenario #1 4,980								
	Scenario #2 3,765								
1989	Scenario #1 5,015								
	Scenario #2 3,780								
1990	Scenario #1 5,200								
	Scenario #2 3,965								

TABLE L-14

RECREATION
CACHE CREEK - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	Scenario #1 and #2 1,050	Public Recreation	5 acres of park 1 swimming pool 1 community hall elementary school activity room children's playground lawnbowling tennis court skating rink (outdoor) Elementary school: - soccer field - baseball backstop - children's playground - playing field	Open Space Standards Sub-neighbourhood park - less than 1 acre/1,000 population Neighbourhood park - 4 acres/1,000 population Community Park - 3 acres/1,000 population Activities/Facilities Standards badminton - 1500-1800 sq.ft. basketball - 6000 baseball field - 90,000 bowling - 14,400 (8 lanes) community hall - 40,000 curling rink - 8,400 football field - 93,600 indoor pool - 25 metres 5 lanes outdoor pool - 25 metres 5 lanes soccer field - 64,000 - 86,000 sq.ft. skating rink - 17,000 softball diamond - 62,500 tennis court - 7,200 volleyball court - 4,000		staff projections have not been prepared as staffing requirements depend on type of programs being offered and the type of recreation facilities provided.	see projections given below	existing	$36,661
1977	Scenario #1 and #2 1,095			*See footnoes under Recreation - Ashcroft.	Existing community hall could be upgraded. Additional recreation facilities such as a curling rink, bowling alley or a multi-purpose facility may be required, but their additions should be determined by the community.		A total of 24-32 acres (approx) would be needed to meet the projected population to 1990. (An additional 19-27 acres)	no projections*	no projections*

TABLE L-14
RECREATION - CACHE CREEK - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1978	Scenario #1 1,110				Any additional facilities could be planned for joint use by Ashcroft, Cache Creek, and Clinton residents				
	Scenario #2 1,135								
1979	Scenario #1 1,270								
	Scenario #2 1,365								
1980	Scenario #1 1,465								
	Scenario #2 1,810								
1981	Scenario #1 1,625								
	Scenario #2 2,185								
1982	Scenario #1 1,910								
	Scenario #2 2,850								
1983	Scenario #1 2,035								
	Scenario #2 3,135								
1984	Scenario #1 2,145								
	Scenario #2 3,395								
1985	Scenario #1 2,180								
	Scenario #2 3,280								

TABLE L-14

RECREATION - CACHIL CREEK - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1986	Scenario #1 2,185								
	Scenario #2 3,300								
1987	Scenario #1 2,395								
	Scenario #2 3,625								
1988	Scenario #1 2,380								
	Scenario #2 3,395								
1989	Scenario #1 2,395								
	Scenario #2 3,630								
1990	Scenario #1 2,525								
	Scenario #2 3,760								

TABLE L-15

RECREATION
CLINTON - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	810	Public Recreation	13 acres of park 1 community hall secondary school gymnasium elementary school activity room skating rink (outdoor) wading pool rodeo grounds baseball diamond Secondary school: - soccer field - playing field Elementary school: - soccer field - baseball backstop - children's playground	Open Space Standards Sub-neighbourhood park - less than 1 acres/1,000 population Neighbourhood park - 4 acres/1,000 population Community park - 3 acres/ 1,000 population Activities/Facilities Standards badminton - 1500-1800 sq.ft. basketball - 6000 baseball field - 90,000 bowling - 14,400 (8 lanes) community hall - 40,000 curling rink - 8,400 football field - 93,600 indoor pool - 25 metres 5 lanes outdoor pool - 25 metres 5 lanes soccer field - 64,000 - 86,000 sq.ft. skating rink - 17,000 softball diamond - 62,500 tennis court - 7,200 volleyball court - 4,000		staff projections have not been prepared as staffing requirements depend on type of programs being offered and the type of recreation facilities provided.	see projections given below	existing	$2,518
1977	810			*See footnoes under Recreation - Ashcroft.	Existing community hall could be upgraded. Additional recreation facilities such as a curling rink, bowling alley, swimming pool or multi-purpose facility may be required, but their additions should be determined by the community.		No additional open space needed to meet projected population to 1990. Existing parks could be upgraded.	no projections*	no projections*

TABLE L-15
RECREATION - CLINTON - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATIN(
1978	820				Any additional facilities could be planned for joint use by Ashcroft, Cache Creek, and Clinton residents.				
1979	855								
1980	975								
1981	1,420								
1982	1,595								
1983	1,670								
1984	1,710								
1985	1,670								
1986	1,675								
1987	1,730								
1988	1,725								
1989	1,730								
1990	1,735								

TABLE L-16

SOCIAL (HUMAN RESOURCES)
WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	5,280	Social	Human Resources Office	Staffing Requirements A B.C. average of 1 Human Resources worker for 2,600 population. 1.3 clerical staff to 2 Human Resources workers. Facility Requirements - 140 sq. ft. per Human Resources worker - 200 sq. ft./clerical staff and waiting space - 45 sq. ft. storage - additional 40% for washrooms and circulation	size of existing facility not available	existing staff: 1 supervisor 2 social workers 1 financial assistance worker 2 clerical	amount of existing land usage not available	existing	$ 98,707
1977	5,359				no additional space required	no additional staff required	no additional land required	no additional	no additional
1978	5,630				no additional	no additional	no additional	no additional	no additional
1979	6,615				no additional	no additional	no additional	no additional	no additional
1980	7,620				no additional	no additional	no additional	no additional	no additional
1981	9,620				may be sufficient space in existing facility to accomodate 2 additional staff	1 additional social worker 1 additional clerical (total 3 social workers)	no additional	no additional	$128,707
1982	11,435				may be sufficient space in existing facility to accomodate 1 additional staff	1 additional social worker (total 4 social workers)	no additional	no additional	$147,457

TABLE L-16

SOCIAL (HUMAN RESOURCES) - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1983	11,965				no additional	no additional	no additional	no additional	no additional
1984	11,730				no additional	no additional	no additional	no additional	no additional
1985	11,085				no additional	no additional	no additional	no additional	no additional
1986	10,540				no additional	no additional	no additional	no additional	no additional
1987	11,015				no additional	no additional	no additional	no additional	no additional
1988	10,695				no additional	no additional	no additional	no additional	no additional
1989	10,750				no additional	no additional	no additional	no additional	no additional
1990	11,075				no additional	no additional	no additional	no additional	no additional

TABLE L-17

LIBRARY - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	5,280	Cultural	Ashcroft, Cache Creek and Clinton libraries	Community library - under 10,000 population Major library - over 10,000 population Staffing Requirements 1 staff person for first 4,000 population 1 full time staff for each additional 2,000 people Mobile library - requires 2 staff Facility Requirements Up to 999 pop'n. 1300 sq.ft 1000 - 2499 1300 - 1850 sq.ft 2500 - 4999 1850 - 3500 sq.ft 5000 - 9999 3500 - 6000 sq.ft	existing space: Ashcroft - 3500 sq.ft. Cache Creek - 1500 sq.ft. Clinton 2000 sq.ft.	existing staff: (all part time) Ashcroft: 3 Cache Creek: 2 Clinton: 3	no figures on existing land usage	existing	$52,800*
1977	5,395				no additional space required	no additional staff required	no additional land required	not projected	$53,950
1978	5,630				no additional	no additional	no additional	not projected	$56,300
1979	6,615				no additional	no additional	no additional	not projected	$66,150
1980	7,620				no additional	no additional	no additional	not projected	$76,120
1981	9,620				no additional	no additional	no additional	not projected	$96,120
1982	11,435				Cache Creek may need additional space, but the amount would have to be determined by usage.	1 additional staff required for Ashcroft, Scenario #1	no additional	not projected	$119,350
1983	11,965				no additional	no additional	no additional	not projected	$124,650
1984	11,730				no additional	no additional	no additional	not projected	$122,300

TABLE L-17

LIBRARY - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1985	11,085				no additional	no additional	no additional	not projected	$115,850
1986	10,540				no additional	no additional	no additional	not projected	$110,400
1987	11,015				no additional	no additional	no additional	not projected	$115,150
1988	10,695				no additional	no additional	no additional	not projected	$111,950
1989	10,750				no additional	no additional	no additional	not projected	$112,500
1990	11,075				no additional	no additional	no additional	not projected	$115,750

* Operating costs are based on $8.00 per capita + 20% to adjust for 3 separate locations: Source: Financial Plan, Tumbler Ridge, Northeast Sector, B.C. Thompson, Berwick, Pratt and Partners, et al, 1978.

TABLE L-18

CORRECTIONS - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	5,280	Corrections	Probation Office	Staffing Requirements 1 Probation Officer required when community reaches 5,000 people. 1 support staff part time for each full time Probation Officer.	existing space: approx. 400 sq.ft (in rental space)	existing staff: 1 Probation Officer 1 clerk part time	no land used (in rental facility)	existing	$22,400*
1977	5,395				no additional space required	no additional staff required	no additional land required	no additional	no additional
1978	5,630			* Operating costs do not include rent. ** Includes the costs of one additional probation officer and $5.50 per sq.ft. for additional leased space	no additional	no additional	no additional	no additional	no additional
1979	6,615				no additional	no additional	no additional	no additional	no additional
1980	7,620				no additional	no additional	no additional	no additional	no additional
1981	9,620				no additional	no additional	no additional	no additional	no additional
1982	11,435				additional space may be required for additional Probation Officer	1 additional Probation Officer may be required part time depending on characteristics of population.		no additional	$32,775**
1983	11,965				no additional	no additional	no additional	no additional	no additional
1984	11,730				no additional	no additional	no additional	no additional	no additional
1985	11,085				no additional	no additional	no additional	no additional	no additional
1986	10,540				no additional	no additional	no additional	no additional	no additional

TABLE L-18

CORRECTIONS - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1987	11,015				no additional	no additional	no additional	no additional	no additional
1988	10,695				no additional	no additional	no additional	no additional	no additional
1989	10,750				no additional	no additional	no additional	no additional	no additional
1990	11,075				no additional	no additional	no additional	no additional	no additional

TABLE L-19

COURTS - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	5,280	Court/ Judicial	Provincial Court	1 Provincial Court operating half-time required for 10,000 - 25,000 population, when operating full time requires 35,000 - 60,000 population. Staffing Requirements When Court sits part time, it is served on circuit with judge, sheriff, court reporter and Crown counsel coming from a larger court and has one full time employee. Facility Requirements Average court requires 5,200 sq.ft. (includes registry spaces, sheriffs' offices, and holding area, interview rooms, waiting areas, reporters' offices, and judges' chambers).	existing space: 2,788 sq.ft. in Ashcroft and 760 sq.ft. in Clinton. Ashcroft - 6½ sitting days per month.	existing staff: Ashcroft - 1 Prov. Court Judge, 1 day/wk 1 County Court Judge, 1 day/mo. 1 court administrator 1 deputy court administrator 1 sheriff's deputy 1 official court reporter from Kamloops 1 Crown counsel ad hoc from Kamloops Clinton - 1 Prov. Court Judge, 1 day/mo 1 County Court Judge, 2 - 3 times per year. 1 court administrator 1 official court reporter from Kamloops 1 Crown counsel ad hoc from Kamloops	no existing land utilized.	existing	$89,100**

* The standards presented were represent a revision of the standards presented in Section 3.5(h) based on information obtained from Court Services Planning, Ministry of the Attorney General, Province of British Columbia, 1977.

** Operating costs based on an average cost of $1,100 a day with 6 3/4 sitting days per month.

*** Operating costs for years 1977 through 1990 are pro-rated to service population.

TABLE L-19

COURTS - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1977	5,395				no additional space required	no additional staff required	no additional land required	no additional	$92,400
1978	5,630				no additional	no additional	no additional	no additional	$95,400
1979	6,615				no additional	no additional	no additional	no additional	$112,200
1980	7,620				no additional	no additional	no additional	no additional	$128,700
1981	9,620				no additional	no additional	no additional	no additional	$161,700
1982	11,435				no additional	no additional	no additional	no additional	$191,400
1983	11,965				no additional	no additional	no additional	no additional	$201,300
1984	11,730				no additional	no additional	no additional	no additional	$198,000
1985	11,085				no additional	no additional	no additional	no additional	$188,100
1986	10,540				no additional	no additional	no additional	no additional	$178,200
1987	11,015				no additional	no additional	no additional	no additional	$184,800
1988	10,695				no additional	no additional	no additional	no additional	$181,500
1989	10,750				no additional	no additional	no additional	no additional	$181,500
1990	11,075				no additional	no additional	no additional	no additional	$188,100

TABLE L-20

LEGAL - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	5,280	Legal	Legal offices in Ashcroft and Cache Creek	No standards available	existing space: Ashcroft office 150 sq.ft.(approx) Cache Creek office 400 sq.ft. (approx)	existing staff: Ashcroft office - 1 lawyer part time from Kamloops Cache Creek office - 1 lawyer 1 secretary	no existing land utilized (in rental space)	existing	existing
1977	5,395				no projections have been made of facility space require-ments	one additional lawyer could be required over the next 14 years	no projections have been made of land requirements	no projections	no projections
1978	5,630								
1979	6,615								
1980	7,620								
1981	9,620								
1982	11,435								
1983	11,965								
1984	11,730								
1985	11,085								
1986	10,540								
1987	11,015								
1988	10,695								
1989	10,750								
1990	11,075								

TABLE L-21

POLICE
ASHCROFT - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	5,500*	Police	Ashcroft RCMP Detachment	Staffing Requirements 1 police officer per 1,000 people in rural communities (up to 5,000 people) 1 police officer per 750 people in urban areas 1 stenographer for 4 officers Facility Requirements 1,500 sq.ft. for police detachment of up to 5 officers 2 police vehicles for 3 officers, or 3 police vehicles for 5 officers Land Requirements Facility of 1,500 sq.ft. requires 15,000 sq.ft. of land Existing police to population ratio for Ashcroft is 1 to 917 Note: additional police officers are for general duties only. Projections have not been included for additional officers to serve on highway patrol.	existing facility is 4,572 sq.ft.	existing staff: 12 officers 2 stenographers	no figures on existing land usage	existing	$420,000***

* The population projections do not include the population of the construction camp.
** A new facility for the Ashcroft RCMP Detachment has been proposed by RCMP E Division Headquarters, Victoria, B.C.
*** Operating costs equal a cost per office of $35,000. It is assumed that this includes clerical staff.

TABLE L-21
POLICE - ASHCROFT - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1977	5,720				no additional space required	1 additional officer needed in the next 2 - 3 years (total 13 officers)	no additional land required	no additional	$455,000
1978	5,835				no additional space required	no additional staff required	no additional	no additional	$490,000
1979	7,000				proposed new facility of 4,932 sq.ft.**	1 additional police officer (total of 14 officers)	no additional	$750,000*	no additional
1980	8,120				no additional	1 additional police officer (total of 15 officers) 1 additional stenographer	no additional	no additional	$525,000
1981	9,095				no additional	1 additional police officer (total of 16 officers)	no additional	no additional	$560,000
1982	10,825				no additional	2 additional police officers (total of 18 officers) 1 additional stenographer	no additional	no additional	$630,000
1983	11,580				no additional	no additional	no additional	no additional	no additional
1984	12,275				no additional	1 additional police officer (total of 19 officers)	no additional	no additional	$665,000

* Capital costs for proposed new facility.

TABLE L-21

POLICE - ASHCROFT - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1985	12,275				no additional	no additional	no additional	no additional	no additional
1986	12,275				no additional	no additional	no additional	no additional	no additional
1987	13,380				no additional	1 additional police officer (total of 20 officers)	no additional	no additional	$700,000
1988	13,380				no additional	no additional	no additional	no additional	no additional
1989	13,515				no additional	no additional	no additional	no additional	no additional
1990	14,055				no additional	1 additional police officer (total of 21 officers)	no additional	no additional	$735,000

TABLE L-22

POLICE
CLINTON - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	3,000	Police	Clinton RCMP Detachment	Staffing Requirements 1 police officer per 1,000 people in rural communities (up to 5,000 people) 1 police officer per 750 people in urban areas 1 stenographer for 4 officers Facility Requirements 1,500 sq. ft. for police detachment of up to 5 officers 2 police vehicles for 3 officers, or 3 police vehicles for 5 officers Land Requirements Facility of 1,500 sq. ft. requires 15,000 sq. ft. of land Existing police to population ratio is 1 to 768. Note: these projections do not include any additional police officers required for highway patrol.	existing facility space is 2,263 sq. ft.	existing staff: 4 officers 1 stenographer	no information available on existing land usage	existing	$140,000*
1977	3,000				no additional space required	no additional staff required	no additional land required	no additional	$140,000
1978	3,030				no additional	no additional	no additional	no additional	$140,000
1979	3,150				no additional	no additional	no additional	no additional	$140,000
1980	3,590				no additional	no additional	no additional	no additional	$140,000
1981	5,245				no additional	1 additional police officer (total of 5 officers)	no additional	no additional	$175,000
1982	5,875				no additional	1 additional police officer (total of 6 officers) 1 addit. steno.	no additional	no additional	$210,000
1983	6,165				no additional	no additional	no additional	no additional	$210,000
1984	6,290				no additional	no additional	no additional	no additional	$210,000
1985	6,165				no additional	no additional	no additional	no additional	$210,000
1986	6,165				no additional	no additional	no additional	no additional	$210,000
1987	6,350				no additional	no additional	no additional	no additional	$210,000
1988	6,350				no additional	no additional	no additional	no additional	$210,000
1989	6,350				no additional	no additional	no additional	no additional	$210,000
1990	6,350				no additional	no additional	no additional	no additional	$210,000

* Operating costs equal a cost per officer of $35,000. It is assumed that this includes clerical staff.

TABLE L-23

FIRE - WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1976	Scenario #1 and #2 2,030 Ash. 1,050 C.C. 810 Clin.	Fire	Volunteer Fire Facilities - Ashcroft, Cache Creek, Clinton	No standards available for fire protection. A volunteer department should have 25 members. A full-time fire chief would be needed when a community reaches 4,000 - 5,000 people.	existing facility space: Ashcroft - 1,060 sq. ft. (approx) Cache Creek - 1,112 sq. ft. Clinton - no figures	existing volunteer staff: Ashcroft - 1 fire chief 25 volunteer firemen Cache Creek - 1 fire chief 1 deputy fire chief 16 volunteer firemen Clinton - 1 fire chief 1 deputy fire chief 25 volunteer firemen	no figures on land utilized	existing	$24,768** ($12,648 - Ashcroft $5,750 - Cache Creek $6,370 - Clinton)
1977	Scenario #1 and #2 2,100 1,095 810				no additional space required in any town for Scenario #1 or #2	no full-time staff or additional volunteer staff required in any town for Scenario #1 or #2		no additional*	$25,512
1978	Scenario #1 2,140 1,110 820				no additional	no additional		no additional	$25,926
	Scenario #2 2,115 1,135 820				no additional	no additional		no additional	$25,926

* An additional fire truck may be required in Cache Creek and Clinton in the next five years. The capital costs for one auxiliary fire truck would be $50,000.

** Operating costs for 1976 are $24,768 or $6.37 per capita (of the service population). This per capita rate has been applied to subsequent years. The cost of the additional fire chief in 1983 has been included in the pro-rated annual operating costs.

TABLE L-23

FIRE - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATING
1979	Scenario #1 2,615 1,270 855				no additional	no additional		no additional	$30,194
	Scenario #2 2,520 1,365 855				no additional	no additional		no additional	$30,194
1980	Scenario #1 3,060 1,465 975				no additional	no additional		no additional	$35,035
	Scenario #2 2,715 1,810 975				no additional	no additional		no additional	$35,035
1981	Scenario #1 3,435 1,625 1,420				no additional	no additional		no additional	$41,278
	Scenario #2 2,875 2,185 1,420				no additional	no additional		no additional	$41,278
1982	Scenario #1 4,100 1,910 1,595				no additional	no additional		no additional	$48,444
	Scenario #2 3,160 2,850 1,595				no additional	no additional		no additional	$48,444

TABLE L-23

FIRE - NEEN PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS CAPITAL	COSTS OPERATING
1983	Scenario #1 4,385 2,035 1,670				no additional	a full-time fire chief would be required in Ashcroft sometime in next 5 years		no additional	$51,533
	Scenario #2 3,285 3,135 1,670				no additional	no additional		no additional	$51,533
1984	Scenario #1 4,645 2,145 1,710				no additional	no additional		no additional	$54,145
	Scenario #2 3,395 3,395 1,710				no additional	no additional		no additional	$54,145
1985	Scenario #1 4,610 2,180 1,670				no additional	no additional		no additional	$53,890
	Scenario #2 3,510 3,280 1,670				no additional	no additional		no additional	$53,890
1986	Scenario #1 4,630 2,185 1,675				no additional	no additional		no additional	$54,081
	Scenario #2 3,515 3,300 1,675				no additional	no additional		no additional	$54,081

TABLE L-23

FIRE - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS CAPITAL	COSTS OPERATING
1987	Scenario #1 5,010 2,395 1,730				no additional	no additional		no additional	$58,190
	Scenario #2 3,780 3,625 1,730				no additional	no additional		no additional	$58,190
1988	Scenario #1 4,980 2,380 1,725				no additional	no additional		no additional	$57,871
	Scenario #2 3,765 3,595 1,725				no additional	no additional		no additional	$57,871
1989	Scenario #1 5,015 2,395 1,730				no additional	no additional		no additional	$58,222
	Scenario #2 3,780 3,630 1,730				no additional	no additional		no additional	$58,222
1990	Scenario #1 5,200 2,525 1,735				no additional	no additional		no additional	$60,260
	Scenario #2 3,965 3,760 1,735				no additional	no additional		no additional	$60,260

TABLE L-24

COMMUNICATION (POSTAL)
WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATI
1976	Ashcroft - 6,000 people per month Cache Creek - 2,000 people per month Clinton - 1,000 people per month	Communication	Post Office in Ashcroft, Cache Creek, and Clinton	No standards available	existing space: Ashcroft - 1,714 sq. ft. Cache Creek - 3,000 sq. ft. Clinton - 1,400 sq. ft.	existing staff: Ashcroft - 1 postmaster 2 senior assists. 2 full-time assistants 2 part-time assistants 2 casuals Cache Creek - 1 postmaster/ zone manager 1 assistant postmaster 1 shift supervisor 5 full-time and 4 part-time clerks Clinton - 3 full-time staff	no information on existing land utilized	existing	$ 450,000*
1977	Scenario #1 and #2 6,180 Ash. 2,080 C.C. 1,000 Clin.				Ashcroft post office planned to be moved to new facility of 3,500 sq. ft. As workload increases in each of the communities, postal facilities would be expanded.	Any staff projections would be dependent on workload increases	No information on land utilized for new facility in Ashcroft	no projections	$ 463,000
1978	Scenario #1 6,305 2,100 1,010 Scenario #2 6,240 2,165 1,010				no additional space required	no additional staff required			$ 470,750

* The operating costs are based on a cost of $50.00 per capita.
Source: Financial Plan Tumbler Ridge Northeast Sector, B.C. Thompson, Berwick, Pratt and Partners, et. al, 1978. In that report, a per capita cost of $45.00 was used. For the Hat Creek situation, the per capita cost was adjusted to $50.00 because of 3 smaller population centres.

TABLE L-24

COMMUNICATIONS (POSTAL) - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATI
1979	Scenario #1 7,690 2,395 1,050				no additional	no additional			$ 556,750
	Scenario #2 7,430 2,595 1,050				no additional	no additional			$ 553,750
1980	Scenario #1 9,000 2,755 1,195				no additional	no additional			$ 647,500
	Scenario #2 8,020 3,455 1,195				no additional	no additional			$ 633,000
1981	Scenario #1 10,080 3,060 1,760				no additional	no additional			$ 745,000
	Scenario #2 8,505 4,180 1,760				no additional	no additional			$ 722,250
1982	Scenario #1 11,990 3,605 1,970				no additional	no additional			$ 878,250
	Scenario #2 9,355 5,430 1,970				no additional	no additional			$ 837,750

TABLE L-24

COMMUNICATIONS (POSTAL) - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS CAPITAL	COSTS OPERATI
1983	Scenario #1 12,830 3,860 2,070				no additional	no additional			$ 738,000
	Scenario #2 9,725 5,975 2,070				no additional	no additional			$ 888,500
1984	Scenario #1 13,600 4,055 2,110				no additional	no additional			$ 988,250
	Scenario #2 10,020 6,450 2,110				no additional	no additional			$ 929,000
1985	Scenario #1 13,465 4,135 2,070				no additional	no additional			$ 983,500
	Scenario #2 10,320 6,645 2,070				no additional	no additional			$ 951,750
1986	Scenario #1 14,005 4,135 2,070				no additional	no additional			$1,010,500
	Scenario #2 10,320 6,175 2,070				no additional	no additional			$ 928,250

TABLE L-24

COMMUNICATIONS (POSTAL) - WITH PROJECT (continued)

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATI
1987	Scenario #1 15,125 4,545 2,130				no additional	no additional			$1,090,000
	Scenario #2 11,145 7,385 2,130				no additional	no additional			$1,033,000
1988	Scenario #1 14,975 4,500 2,130				no additional	no additional			$1,080,250
	Scenario #2 11,145 7,460 2,130				no additional	no additional			$1,036,750
1989	Scenario #1 15,125 4,545 2,130				no additional	no additional			$1,090,000
	Scenario #2 11,145 7,535 2,130				no additional	no additional			$1,040,500
1990	Scenario #1 15,730 4,775 2,130				no additional	no additional			$1,131,750
	Scenario #2 11,705 7,835 2,130				no additional	no additional			$1,083,500

TABLE L-25

COMMUNICATION (RADIO & TELEVISION)
WITH PROJECT

YEAR	SERVICE POPULATION	SERVICE	FACILITY	STANDARD	FACILITY SPACE REQUIREMENT	STAFF REQUIREMENT	LAND REQUIREMENT	COSTS	
								CAPITAL	OPERATI
1976	5,280	Communication	CBC Radio transmitters in Ashcroft, Cache Creek, Clinton. T.V. repeaters at Ashcroft, Cache Creek, Clinton.	no standards available	no facility space required	no staff required	no information available on land requirement	no information available	no information available
1977	5,395								
1978	5,630								
1979	6,615								
1980	7,620								
1981	9,620								
1982	11,435								
1983	11,965								
1984	11,730								
1985	11,085								
1986	10,540								
1987	11,015								
1988	10,695								
1989	10,750								
1990	11,075								

APPENDIX M

REVIEW OF COMPARABLE PROJECTS

1.0 Introduction

An extensive literature review was completed in order to define existing resource developments similar to the proposed Hat Creek Project with the objective of studying their impacts on the social environment. Sources from Canada, the United States and abroad were investigated based on the possible comparability of project situations and availability of appropriate documentation.

A number of projects were identified and from these 12 developments with similarities to the proposed Hat Creek Project were selected. An assessment of the literature on each of these projects was completed. Topics covered in this assessment included:

- the type and status of development
- the number, distribution and size of the existing communities
- population and occupational characteristics
- social problems and benefits attributed to the project
- community cohesion in the communities
- economic and governmental issues related to the project
- residents' attitudes to development

The information was documented according to these categories, and provided the overview of the projects detailed in Section 3.0 of this Appendix.

Some of the literature, however, did not provide an adequate level of information to allow a comparison with the Hat Creek study or did not prove to be on comparable situations. Because of this, three developments which seemed the most similar to the Hat Creek Project were selected for the comparison study. For the final selection, the criteria used for matching projects were that:

- all projects included coal and thermal generating plant developments
- all of the communities were relatively small and rural in character, with service ties to a major urban centre

- the existing economic base of the region was partially based on agriculture and ranching
- there was a native population in the study area
- the distribution and composition of the population was similar to the population in the study area communities

This final selection for the comparison study drew on two major resource developments in the mid-western United States and one in New Zealand. It should be emphasized that all data, comments and assessments are those of the researchers and authors of each of these studies and reflect only the documentation that was available. No field trips were undertaken or interviews held with individuals responsible for documentation.

The post-construction analysis of these projects formed the basis for making social impact predictions in the preconstruction phase of the target project, Hat Creek.* Some of the constraints of using this approach and the resultant data should be brought to the readers' attention. It is accepted in the field of social impact assessment that, as the magnitude of difference changes with time, no absolute standards for matching can be given for a comparison study. It is the pattern of the social variables that is examined, as well as the interaction of social variables with economic and environmental impacts. Difficulties in this type of study arise in establishing measures relevant to the study area residents and in determining if the potential changes have meaning to them. Further, as this is a relatively new approach to social impact assessment and there is a lack of comparative statistical data, presentation of information is usually handled in the narrative and values, both quantitative and qualitative, are difficult to define. This often proves frustrating to the economist, engineer and statistician who primarily are involved in quantitative studies.

The following section (2.0) provides a description of the projects selected for the comparison study. This is followed by an overview of 12 projects of general interest.

---

* The methodology used in this study, the comparative diachronic analysis, has been defined by S.J. Johnson and R.J. Burdge of the University of Kentucky at Lexington (1974).

2.0 The Comparison Study

This section describes the social environment of the selected developments considered the most comparable to the potential Hat Creek Project situation. The projects include:

- the construction and operation of coal strip mines and thermal generation stations near Gillette, Wyoming and Colstrip and Forsyth, Montana;
- the construction and operation of coal strip mines and thermal generating stations near Rock Springs and Green River, Wyoming; and
- the construction of the Huntly coal mine and thermal generating station near Huntly, New Zealand.

These projects are described in a similar format to that used in the text on the social environment. Based on this comparison, the "most probable" social impacts which may occur on the Hat Creek Project were developed for incorporation with Hat Creek study information in Chapter 5.10, Social Environment.

2.1 PROJECT: HUNTLY COAL MINE AND THERMAL GENERATING STATION, HUNTLY, NEW ZEALAND - 1977

Reference

School of Social Sciences, University of Waikato. Social and Economic Impact of the Huntly Power Station: First Year Progress Report, Working Paper No. 2, 1977. T.W. Fookes, Project Coordinator. The following information has been taken from this study.

Status

Monitoring of the operation of a coal mine and the construction of the Huntly thermal generating station. Literature received to date included documentation on the preparation and planning stage and the iritial years of construction.

Population Base

Based on 1971 statistics (without the project)

Total Population	5,310
Age Distribution	
0- 4	10.7%
15-14	24.4
15-19	9.2
20-64	48.5
65+	7.0

70% married

Natural Environment and Accessibility

Huntly, a town of 5,310 in 1971, is located in a setting very similar to the Hat Creek study area. It is located on the edge of a major river with a number of small towns and villages in close proximity. It is approximately 25 km from Hamilton, a town of 60,000, which is the major service centre for the study area. As well, it is located several hours travel time from the major centre for the country, a city of nearly one million. These towns are similar to Kamloops, the regional service centre for the Hat Creek study area and Vancouver as the major city centre of British Columbia. In terms of the size, proximity and type of surroundings, the two project situations are very similar.

Economic Base and Opportunity for Employment

The occupational base changed dramatically from 1971 to 1976. The greatest increase was in the construction sector. These jobs increased from 104 (1971) to 849 (1976). The dramatic increase in construction jobs was

between 1974 and 1976 when 724 jobs were created.

However, in Huntly, retail occupations actually decreased over this period, 227 (1971) to 214 (1976), as did service sector occupations. Community services only grew slightly and do not reflect population increases due to the project, possibly because many residents used services in Hamilton.

a) Incoming Workforce

Supervisory - nearly three-quarters (72.6%) reside in Huntly, 20% commute from Hamilton.

Construction Workforce - evenly split -
one-third reside in Huntly
one-third reside in Hamilton
one-third reside elsewhere

Construction Workers - 632 - Nov. 1976 (exceeded 1,000 by end of 1976, expected to reach 1,500 by later in 1977)
Supervisory - 172 - Nov. 1976

. There has been considerable impact on employment statistics.
. The position of the construction industry has changed dramatically (4th to 1st) since 1973. As noted above, there have been other interesting shifts as well; for example, retail trade has moved from 2nd to 5th in the community.
. Although some Huntly businesses have claimed to have lost employees to the power project because of higher wages and allowances, the study notes that companies with good employee relationships are keeping staff. Also, because staff were imported and housed at the project and wage labour primarily has commuted, the researchers deduced that the project has meant more in terms of employment opportunities outside Huntly than within the town.

The 1977 study did not investigate the shopping behaviour and spending habits of project employees and did not establish the amount of cash which would flow into local businesses. The highest expenditure item rated in Huntly (1976) was salaries and wages (58%). The second highest was engineering contracts. The general impression of Huntly businesses, according to the study, is that the project has not meant boom conditions, and much more project money was being spent in the rest of New Zealand than in Huntly and the region combined. However, considering that the country is going through a period of recession, the researchers suggest that one cannot discount the significance of the project in at least stabilizing business.

Provision of Services

The study reported that the information on the provision and availability of services was fragmented and no clear picture could be presented at that time.

a) Health

. There was an improved ratio of general practitioners to population with the addition of another doctor.
. No information was used to assess the state of service delivery and no mention made of hospital, ambulance, or other health services.

b) Education

. The report notes that all schools showed evidence of the School Board making some provision for staff and facilities in recognition of demands arising from the power project. Where additional staff were provided in anticipation of increased enrolment, and the increase did not occur, it was planned that staff be withdrawn, causing concern in the schools affected.
. The provision of new college buildings possibly was speeded up by expectations of population increases.
. Direct negative effects were most apparent on the kindergarten and pre-school programs. The researchers recommended a close study of the situation, specifically problems of accommodation and funds.
. The commuting labour force affected the pre-school area, and education services in general. Pressures attributable to the project were being placed on facilities elsewhere the study noted. The researchers suggested that impacts may be overlooked as a consquence of locating an in-migrating workforce in a regional setting rather than a highly localized one.

c) Leisure and Recreation

. As the expected population increase did not occur, there have not been the related surge in club memberships, etc. However, recreation organizations appear to have sensed a new opportunity and there have been signs in the community that project employees are influencing the development of various opportunities for recreation and leisure activities.

d) Religion

. The study reports that only one church has shown a significant increase in attendance. It was the impression of Huntly clergy that frequent job changes in the construction population tends to break church affiliation.

e) Housing and Land

. The progress report defined housing as a clear area of direct impact and the source of various consequences.
. The housing construction program itself has changed the face of Huntly. There has been a change in property values - an increase of 200% (1969-1974). However, this increase generally applied throughout the country at that time. There was peak activity for residential properties in 1973, the year that the power plant received approval. The peak for all property sales occurred in 1975. Mean values increased significantly from 1971 to 1976, it was reported.
. Although commercial sales increased the year of approval (1973)

indicating interest in the town, this did not continue in subsequent years.

f) Utilities

. The local program for upgrading Huntly had to be extended because of increased demands due to the project. For example, there was a sudden need for upgrading telephone service which was costly.

g) Roads

. The road systems have suffered because of the project, and although some action was taken to reduce the degree of disturbance, dissatisfaction was still being expressed by the local population.

h) Other Government Services

. There was little or no effect reported on other services offered.

Social Benefits

The documentation on Huntly did not provide any description of social benefits per se.

It is assumed that the residents of Huntly, therefore, continued to enjoy the natural setting, the size of the town, and, for the most part, the availability of services. This is likely as the projected population increase did not occur. However, the project's economic impacts have at least helped to stabilize business in the community that may otherwise have suffered a decline.

Publicity on the project appears to have increased the level of local consciousness, and residents and organizations have sensed the opportunity for action with regard to the provision of services and programs in their community.

Social Problems

Various problems of a social nature were suggested, particularly regarding the economy and the decision making process of the town. No comment was made about changes in criminal activities, welfare cases, marriage breakups, alcoholism, or transiency.

There were some problems, noted earlier, with the delivery of educational services, creating a feeling of uncertainty in the community and raising questions of lag in service delivery and optimum resource allocation.

The following paragraph lists some problems with the economy that have had an affect on the social conditions of Huntly.

. The real estate market has returned to a relatively depressed state. Houses were not moving in Huntly, bringing up the questions of town

reasonableness of prices. As well, agents were pessimistic about industrial land sales, the report noted. Although businesses were started in anticipation of the power project, one attempted to sell out, blaming the project and travel allowances given to employees, making it possible for them to live and spend elsewhere.

. The researchers reported a differential effect on the business community; some merchants have seen a boost, while others have not. Residents claim that merchants have inflated prices because of the project, but research shows that the prices were similar to Hamilton prices. There seemed to be a tendency for Huntly people to shop in Hamilton.
. Observation suggested that property rates are high for the size of the town.
. The accountant for Huntly was experiencing difficulty in bringing the books up-to-date and the financial state of the Borough was a cause for concern. It seems that expenditures due to the power project needs have exacerbated the previous state of affairs. The study drew attention to the increased cost of general engineering services and town planning advice necessary because of project stimulated activity.

Community Cohesion

Research tentatively suggests that the existing community has accepted the newcomers from the power project. The commuting workforce raised the question about "community spirit".

In the broader Huntly community, there appears to be some breakdown in community cohesion. Direct effects were observed in:

. the strained relations at official governmental levels over the native people's statements of concern,
. the development of a state of reduced confidence in county council as shown by the farmers,
. the strained relations between town and regional sports, craft, and cultural groups regarding funding applications, and
. the negative reaction of some professionals to working in a facility (e.g. school) located in an area which is growing as a result of a large construction project. The researchers felt that this "repulsion effect" should be looked at in conjunction with the overall image of the town.

Indirect effects were reflected in:

. the dispute between the town's retailers over a suitable late shopping night, and
. delayed resolution of the problem of an increasingly congested main street, through a decision to further study a proposed plan.

Events have suggested a relationship between the project and aspects of administration and decision making, as well. The subject needs further indepth enquiry, the report noted. In general, the impact of a major construction project on local administration and decision making may be manifest through signs of stress visible through public statements by aggrieved parties, observable reactions of individual residents, and changes to the structure of the organizations involved.

Situations occurring in Huntly over the past three years have provided signs suggesting stress and change. These include:

i) within organization stress:
   - shown by the resignation of various staff, e.g., Building Inspector, Health Inspector, Town Clerk,
   - intensified by the generally difficult cash flow position.

ii) local authority and community stress:
   - shown by continual pressure from farmers over power project impact in general, and the decline in road conditions in particular,
   - disagreement over the decision to build a sports complex in Huntly using NZED funds.
   - pressure from the native community on power project impacts in general, and flood protection work in particular. Apparently, the diversion of creeks has caused some perceived problems.

iii) various changes in the administrative and decision making structure of the town which:
   - engaged an Auckland planning firm to handle the day-to-day town planning matters,
   - extended staff positions, and
   - increased the number of council meetings and the size of the agenda.

Summary

The report concludes that Huntly is quietly undergoing a metamorphosis. The outward signs include the direct impacts of new housing areas, heavier traffic flows, more workmen in the hotel, and vehicles exhibiting the project and private contractor logos. Underneath, the researchers observed, in aspects of community life where change is slow to occur, effects are beginning to show.

Three matters needed to be emphasized, they reported. These were:

1. the concerns of the Maori community,
2. the concerns of the rural community, and
3. the ability of the local authorities to handle new requirements.

A continuing assessment of data from the study of the Huntly project, as it is available, would be applicable to further study of the impacts on the social environment of the Hat Creek project and potential mitigation procedures.

2.2 PROJECT: NORTHERN GREAT PLAINS RESOURCES PROGRAM, COLSTRIP, FORSYTH, MONTANA AND GILLETTE, WYOMING - 1974

Reference

A Comparative Case Study of the Impact of Coal Development on the Way of Life of People in the Coal Areas of Eastern Montana and Northeastern Wyoming - Final Report, prepared by the Institute for Social Science Research, University of Montana, Missoula, Montana, 1974.

Status

Strip mining of coal for thermal generating plants in the area. Included is an assessment of past developments as well as the projections of anticipated impacts related to further expansion of development.

Natural Environment and Accessibility

Forsyth and Colstrip, approximately 35 miles apart, are located in Rosebud County, Montana. These communities are approximately 60 miles north of the Montana/Wyoming border. Gillette, Wyoming is approximately 60 miles south of the Montana/Wyoming border. Sheridan, the service centre for these communities, is almost equidistant between Forsyth/Colstrip and Gillette, less than 3-5 miles inside the Wyoming border.

Population

Colstrip - strip mining started in 1923, lasting into the 1940's. The town grew to a 1974 population of 1,800.

Forsyth - peak population 2,500 in 1923, declined steadily until 1973 when thermal plant construction commenced. The 1974 population was 2,700.

Gillette - Began with the railway and acted as a service centre for agricultural area surrounding. Stabilized at 2,500 people. Little growth until oil activity after 1966. It grew to 7,800 residents by 1974.

Economic Base and Opportunity for Employment

Colstrip has been a very small community based on coal production for the railway steam locomotives which has declined extensively until the last few years. A one industry town belonging to Western Energy, it contains only a store, post office and school. Very arid in appearance. No business centre was ever developed.

Forsyth is much different as it is located on a river and is green, and well-treed. However, the commercial core is very old and badly deteriorated. The town is an established trade centre and the county

seat. It began as a railway diversion point in 1883, reaching peak commercial activity in 1923.

Gillette is the county seat and regional service/supply centre with an arid/semi-arid surrounding of rolling hills and valleys. Prior to the economic boom, the area was almost entirely agricultural.

The thermal plants and railway expansion to accommodate the movement of coal have resulted in major increases in Forsyth and Colstrip workforces. Problems have resulted including shortage of labour at all levels and notable wage discrepancies. This was accompanied by severe inflation. Demand for land has soared, and there is little developable land available. Many are trying unsuccessfully to convince ranchers to subdivide.

Social Benefits

Only a few social benefits resulting from the project were documented. Some residents in the communities indicated that a more interesting social life had developed because the incoming residents provided new people and new friendships. Many people indicated that work opportunities have been provided for local residents. It also diversified the job base providing jobs other than ranching. This also encouraged some of the young people to stay and other former residents to return to the towns.

Colstrip was able to gain financial assistance from the developer for additional classroom space needed in the schools. Forsyth residents indicated that the jobs were bringing more money into the community and many resident families were earning more. Gillette has a good base of recreation and entertainment facilities. This is being increased with the addition of a new recreation centre and other related facilities to accommodate the increased population.

Social Problems

The massive employment and population influx over the short time period resulted in serious social problems in all these communities.

a) Colstrip

A general lack of community land has resulted in little land for outdoor or indoor recreation activities within the town. People have been forced to go to other communities for recreation activities. There are also few cultural or entertainment facilities in the town. Churches of most major denominations are not available and many people drive to other towns rather than go to the non-denominational services that are provided. The result of the shortage of all services was that many individuals and families decided to leave the town and move elsewhere.

Pride in the school as a focal point and centre of activity in the community is waning as newcomers come and go. There is a fear of lowering of academic standards. The teachers' relationships with the students

have deteriorated and school personnel are faced with the impossible task of predicting school growth. Problems have become apparent with the differences between incoming students and the resident students. The study notes that high school students of parents who move frequently tend to coast along, knowing they will not be there long. Often, transient students do not take part in extracurricular activities. If they live in town and have no farm or ranch chores or opportunity for part-time employment, there is little for them to do. For the most part, the high school offers little aside from a college prepatory course, although a future addition will allow some adult education.

There has been little increase in drug usage. However, there has been a 50% increase in assaults in the area as well as many other disturbances which did not result in arrests. While increases in domestic problems and child custody cases have increased, the increase was not as great as expected.

A critical problem faces the medical services. The caseload increased dramatically resulting in a serious overload. A long lag period was noted before a third practitioner moved to the community. A large increase in V.D. was noted and many school children did not have medical records creating further problems.

Another problem noted in the study relates to the resentment of a real or perceived additional financial burden placed on the residents. Newcomers who are not yet paying taxes to help support the school system have already made various demands on its facilities for recreation and religious instructional purposes. The local residents feel that newcomers will increase bonded indebtness, for which ranchers and other landowners will have to pay.

b) Forsyth

Forsyth has more recreation and entertainment facilities than Colstrip. This has resulted in many people from Colstrip coming to the town and overcrowding the facilities there. This has led to some resentment in the community.

Some bars and restaurants have been "taken over" by the newcomers which the locals resent. An increasing number of local people are going to Forsyth's country club where they say, "we have good control of things".

There has been a discipline problem in the schools as the newcomers do not apply themselves as they know they will be changing schools soon.

While there is no reported drug problem, there is a growing concern about the increasing tendency of youngsters to experiment with marijuana and alcohol.

There is an increase in the number of assaults. Disturbing the peace offences have risen. The population influx, accompanied by an "undesirable" element, is widely considered to be involved in, if not the source of, most disturbances. The sheriff's staff has had to expand

in the interest of maintaining order.

In Forsyth, there is not enough money to complete the required expansions of infrastructure. The commercial/business sector is not picking up on expansion possibilities as they are afraid of a boom-bust syndrome. Outsiders are coming in and putting in new businesses.

Increases in taxes have seen people on fixed incomes adversely affected.

c) Gillette

The high school drop-out rate has been increasing as students obtain jobs in the coal and construction industries. Also, it has been noted that high school girls are being attracted to the construction workers who have money. The result has been a notable increase in both the number of marriages and the number of unwed mothers in the town.

There has been an increase in drug usage, especially in the schools, although it is not known how extensive this has become.

The mental health centre has seen its usage increase to nearly double the national average. Most of the clients are the oil, coal and construction workers' wives. They are depressed and bored as there is little for them to do and there are few jobs available.

The public health clinic noted an extensive number of children emotionally and physically underdeveloped. The study indicates that the mothers of these labourers' children have few domestic skills and have problems raising the children. This is further aggravated due to the constant transiency and school related problems.

A further problem that has developed is that medical services are poor and facilities are inadequate. The doctors are overworked and the turnover of professional staff is increasing. As a consequence, many people travel to other communities for health services.

The availability and quality of housing is poor. Nearly one-half of the new homes are mobile homes as there is nothing else available. Many people are extremely dissatisfied with this housing.

There are highly inflated prices in Gillette, food goods, land and housing especially. There is an increasing concern for planning as no one has done much to date. Only now are they beginning to pave roads, etc. Former city officials and county level people have only had to plan on a local basis for little growth. They cannot cope with large scale growth. They do not have the experience and the towns cannot afford to hire new trained staff.

There are few full-time jobs for women. Many part-time jobs are available so people can be hired at base wages. This is much less costly for the employers' companies as they can hire both women and high school students rather than full-time employees.

Many businesses are not expanding as land prices have become too high.

The big chain stores are not moving into the town until they feel the coal development will sustain them.

Community Cohesion

a) Colstrip

The community has a strong base of long-time residents, especially in the ranching community. Some of the old time residents are also former employees of the coal mines that were developed to service the railways in the early 1900's.

In Colstrip, the role of newcomers is changing. They have lived there long enough that they are integrating into the community structure. They are beginning to become the catalysts for social change in the town. The most recent increases in population have resulted in a number of other problems within the community.

Split classes and the introduction of shifts in the school system have separated friends and emphasized differences between children of farmers, ranchers, locals and the newcomers. It is hypothesized that the differences that are becoming increasingly evident at school will be reflected in the community.

The incoming residents are questionning the assumptions and values of the long time residents. This is resulting in uncertainty and insecurity within the community.

Enforced social stratification has occurred in Colstrip. There is one residential area for single construction workers, a single family area for adults with families, and another trailer camp for married construction workers. Strong animosity resulted between different groupings. They felt they were labelled. Class segregation and residential selection processes have created more social strife than it has prevented. This stratification is seen throughout the town. While they meet through churches, movie theatre and stores, they do not mix because of differing interests, commitments and values. Some of the miners who have lived in the community for more than three years and expect to remain there have adopted local values. They have been accepted by the local residents, however, they are the exception rather than the rule.

A shift in power from the ranchers to the new mining population has occurred. Some resentment has resulted. The favoured relationships of the miners has been lost with the elected and appointed officials. The major appointed positions have been taken over by the incoming professionals, however, the elected positions have remained with the long time residents as many of the incoming population have not bothered to vote.

The sense of a loss of community has been accompanied by a loss of privacy. Ranchers note an invasion of private property by newcomers. They take off-road vehicles through pastures, leave gates open and

harass cattle and workers. Congestion on local roads is constantly noted.

b) Forsyth

In Forsyth, the pre-boom residents are mostly long term residents. Many are related and the social system was well established and not geared for newcomers. When coal development took hold, there was an intensification of established relationships in an effort to keep one's distance from the newcomers.

The local residents were not eager to meet newcomers or mix socially and vice-versa because of differing interests and values. This influx affected different groups of locals in different ways and to different degrees.

People feel that the growing urbanization has contributed to a feeling of alienation and a diminished sense of community. Congestion and difficulty in parking in the town, longer lines in stores, increased costs for goods and services, all have contributed to the loss of the sense of community.

New students reported that it was easy to make friends in the school. The people noted that there was little to do for the young people.

The social stratification has been seen through the church attendance and the various religious denominations. Attendance has grown substantially and a class consciousness has become visible through their definite church preferences.

In Forsyth, chronic uncertainty among all the residents and officials has led to a lack of initiative in planning for the impacts. The residents do not want to risk over-expenditures when the municipal tax base is already overextended. The responsibility for planning of housing and community facilities has been placed on development companies. As the companies do not coordinate their plans, the town looks fragmented.

c) Gillette

Many of the aspects of community cohesion in Gillette are similar to those in Forsyth. When the coal developments occurred, the business people changed allegiance and catered to the coal employees rather than the ranchers. This resulted in some bitterness to the extent that the ranchers took their business to other communities.

The newcomers have not been able to participate in community activities as the old guard is not inclined to accept them. The old guard run all activities. Many newcomers who tried to join eventually quit in disgust. This is similar in the schools. Definite changes have formed with the "outsiders" remaining as outsiders.

In all the communities, the study notes that there is a need for structural reorganization of the local governments to be able to handle

the necessary changes due to the growth that is taking place.

None of the governments were well informed about coal-related developments and uncertainty has resulted in a lack of decisions. There are serious problems with funding to meet the growth. This has created further problems within the municipal decision making process.

Reactions of Residents

The study states that the major reaction of the residents has been suspicion due to the uncertainties of the coal development. The many rumours prevalent contribute to the pervasive sense of uncertainty in the area and make life difficult to enjoy. These rumours, coupled with a continuing lack of reliable and trustworthy information, has created further anxiety on the part of the residents.

In addition, power officials say that they are not sure how much pollution there will be, and this has created problems for landowners. The study states that:

> "For example, those who will be downwind of plants worry about the harm their cattle will sustain through exposure to an unknown quantity of contaminants. The uncertainty of utmost concern is the undetermined number of people coming into the area; 'people pollution' is feared more than ground, water, or air contamination. Newspaper announcements often feed and substantiate the rumours; others are hard to check out. These uncertainties make all planning difficult, whether they concern expanding one's ranch or business, constructing additional housing, or accommodating a large influx of school children."

All this has the effect of keeping people stirred up, off-balance, and very anxious.

In Colstrip, residents are very reticent to think about the potential impacts and the resultant change to their communities and to themselves.

There is a common feeling among the residents that energy companies commence developments before getting permission to proceed. They feel the companies are often deceptive. In one case, they purported to build a recreation lake which, in fact, became a holding reservoir for water for a future gasification plant. This has led to resident skepticism of the power companies.

Businessmen of Forsyth were certain at first that they were entering a long period of substantial economic benefit, which they thought they would achieve at minimal social cost. Now they are beginning to feel that the social costs are greater than the benefits of the economic growth. They are, at the moment, trying to seek the ways that will give them more say in matters related to the coal developments that will affect them.

The people of Gillette and Colstrip, on the whole, seem to be unaware of the changes that will result from coal development. A great deal of social change and disruption took place when resources were discovered. Locals say they regret the loss of a tight community. There is a lack of intimacy and social stratification is becoming more pronounced.

2.3 PROJECT: NORTHERN GREAT PLAINS RESOURCES PROGRAM, SWEETWATER COUNTY, WYOMING, COMMUNITIES OF ROCK SPRINGS AND GREEN RIVER

Reference

Boom Town Growth Management. A Case Study of Rock Springs - Green River, Wyoming by John S. Gilmore/Mary K. Duff, University of Denver Research Institute, 1975.

Status

Evaluation of four year impact stage, 1970 to 1974. Consideration of future impacts of continued or increased growth beyond 1974.

Population Base

	Community Total	Rock Springs	Green River
1960	17,920	10,371	3,497
1970	18,391	11,657	4,196
1973-74	36,360	18,000	7,000

From 1970 to 1974, the county saw a yearly growth rate of approximately 19%, a total growth in excess of 100% during the four years. The study states that from other planning studies the growth rate that a community can comfortably absorb is 5% per year. This represented nearly four times the acceptable rate of growth. It is estimated that the county population will grow to over 48,000 residents by 1978 and as high as 88,000 by early 1980's.

Natural Environment and Accessibility

The two communities are located in southwestern Wyoming in the foothills of the Rocky Mountains. The climate is dry and arid allowing only sparse ranching and sheep grazing. Both communities developed around the railways and Green River is still a major marshalling yard for the east-west movement of goods. The highway systems have developed in the past 20 years and provide good access to all major centres.

Economic Base and Opportunity for Employment

Coal mining, railroading and ranching formed the basis of the communities from the earliest development in the late 1800's. These activities declined during the 1950's and were replaced by trona mining (industrial soda ash) and oil and gas exploration and development. From 1970 to 1974, coal increased its prominence as a means to supply

needed electrical energy. The Jim Bridger power plant and associated strip mines were developed during this period. The impacts of this development saw construction jobs increase from 400 in 1970 to 4,800 in 1974. To meet this construction growth, as well as the needs for an operating workforce, induced employment skyrocketed from 7,000 to 15,000 jobs in the same time frame.

Social Benefits

Most residents felt that there was a variety and selection of jobs available, although the jobs were "dead end". Little promotion or advancement could be found in the coal, trona, or other industrial construction jobs.

A survey of existing and new residents attempted to determine the most rewarding aspects of the area. The most common responses in order of priority were: the friendly people, enjoyment of the outdoors, including hunting and fishing, the small town atmosphere and other outdoor recreation and physical amenities. By far, the largest positive attribute was access to the physical environment. While the newcomers' response almost matched the long time residents', the newcomers indicated a greater preference for employment opportunities and income.

Social Problems

The survey attempted to identify the major social problems perceived by the residents. Again, both the long time and new residents noted similar responses with housing being considered the most serious problem. The major problem areas are noted in the following table.

Major Problem Areas by Location of Residence

Rock Springs		Green River		Rural	
Poor traffic flows	39%	Inadequate housing	62%	Inadequate housing	44%
Inadequate housing	38	Medical facilities and shortage of personnel	31	Lack of paved streets and roads	25
Lack of entertainment and recreational facilities	26	High prices and cost of living	24	High prices and cost of living	19
Congestion and overcrowded conditions	25	Congestion and overcrowded conditions	23	Lack of entertainment and recreation facilities	19
Poor or overcrowded public school facilities	21	Inadequate shopping facilities and services	21	Poor water quality and/or facilities	17
Lack of paved streets and roads	19	Lack of entertainment and recreational facilities	19	Poor traffic flows	17
High prices and cost of living	18	Poor or overcrowded public school facilities	17	Dust and dirt	13
Crime and drugs	17	Poor traffic flows	14	Poor sewage disposal	13

Source: Boom Town Growth Management, A Case Study of Rock Springs and Green River, Wyoming - 1975, page 108.

Other problem areas were identified in more detail, however, they relate closely to the above ratings. They are as follows:

a) Housing

The study indicated that the market for permanent housing had broken down completely. Housing prices were beyond what the employees could afford. While they could only afford a $25,000 home, prices for such family homes ranged from $34,000 to $43,000. Mobile homes have become the only alternative. Consequently, more than 5,000 mobile homes were in the county by 1974. By 1974, the demand for 1,500 units of permanent housing could not be met. Only 800 were supplied. In addition, it was estimated that a further 2,400 units would be required by 1978. This did not include any of the mobile home occupants, many of whom wanted permanent housing.

b) Health Care

In 1970, the doctor to population ratio was one doctor to 1,800 residents. By 1974, this had changed to one doctor to 3,700 residents. The national average was one doctor to 1,100 residents. This overtaxing of the health system resulted in over 40% of the residents going to other towns for medical service. Also, the Rock Springs Hospital emergency room was overburdened with nearly 1,300 cases per month, mostly non-emergency cases. This created problems for dealing with real emergencies.

d) Mental Health

The mental health case load increased nine-fold during the four year period while the population only doubled. The increase included long time residents, however, the incoming residents represented the greatest proportion.

e) Recreation and Entertainment

Recreational, cultural and entertainment activities and facilities have not kept pace with the growth of the population. Particularly lacking is organized year-round youth recreation. There is an extensive need for indoor recreation facilities. The school has been hesitant to open their recreational facilities at nights or on the weekend as they have no finances to provide for supervision or maintenance personnel.

There is a lack of good restaurants and other entertainment facilities. Many families hesitate to patronize the existing facilities because of overcrowding and the changed atmosphere. The bowling alleys have become the local meeting place for the youth. They are filled every night.

f) Education

The education facilities are strained beyond capacity at all levels including adult education programs. The school districts have borrowed to their maximum limit but are still behind by over $3 million in needed classroom facilities. Priority has been placed strictly on the teaching function. Education services such as counselling, physical

education, school social workers and other extra curricular activities cannot be accommodated. Pupil transportation to rural areas has suffered as there are not enough school buses.

g) Commercial Services and Community Infrastructure

The retailing and service sector has not been able to keep up. As well, the telephone and other community infrastructure systems have not been able to meet demands.

Traffic problems and congestion are becoming steadily worse as the population overtaxes the downtown street systems.

The real dollar value of municipal assessment has dropped even with the large growth of population. This is primarily due to the fact that many of the new residents have been forced to live in trailers or mobile homes which are assessed at a much lower rate than single family permanent housing. The same services are required, the infrastructure costs did not decline, therefore the municipalities did not have the needed money for necessary capital investments.

h) Other Problems

Crime rates are up in the communities. One law enforcement agency noted a 60% increase between 1972-1973, primarily burglary and larceny. This was significant compared to an estimated population growth of 15-20% during that period. New problems introduced into the community include street prostitution and drug dealing.

The cost of living has risen faster than the national average. Housing costs have seen the greatest increases. While the salaries in the primary industries have been high, salaries in the local service industries have not kept up. These residents, both new and old alike, have suffered from the impact of the development.

A surprising factor has been a significant decline in industrial productivity. From 1972 to 1973, the tonnage of trona dropped 60-75% compared to planned production levels. This was due to employee turnover which ranged from 35% to 100% per year. Wage differentials caused many people in operating jobs to move to high paying construction jobs. Two reasons were noted for leaving both trona and coal mining jobs; the first was to take other jobs (50%) and the second was inexperience or problems adapting to the job or the community (50%). This created significant recruiting and retraining problems. The study noted that the many problems were not due to wages or job dissatisfaction, which was generally high, but to quality of life problems in the community.

Many newcomers were attracted by the boom but have been unable to find jobs as they had few appropriate skills. This resulted in increased rates of alcoholism, broken homes, suicide and depression.

Tied in with this was the fact that employment for women and, to some extent, youth was very limited. This, combined with inadequate housing, health services, insufficient recreation and leisure activities made the role of the female and wife very difficult in the county. Many people indicated that this combination was a major reason for leaving.

Community Cohesion

a) Stability

Nearly one-half of the residents had lived in the communities for more than 10 years. This was followed by nearly 40% who were categorized as the newcomers, residing in the community for less than three years. Over one-half of the residents had not moved within the past five years with one-third of the residents indicating they had moved two times or more in the past five years. The majority of these were living in mobile homes in the rural areas due to lack of other housing.

Only one-quarter of those employed had worked at the same job for more than five years. This was countered by over one-third indicating less than one year at the same job. This does not account for those employees who have left the communities. Turnover would appear even higher if these people were included.

b) Participation

The level of participation in social activities appeared to be extensive. However, this consisted mainly in visiting other friends and out-of-doors or recreational activities. With the exception of church related activities, few residents indicated much involvement in the community. A large percentage desired to go out more, especially for dining and entertainment, however, the town lacked desirable facilities. The least favoured activities were going to the bar, meetings, fraternal or club functions and playing team sports.

More than one-half of the residents indicated that they were not interested in becoming involved in community affairs. The greatest lack of interest was expressed by the rural residents, people expecting to leave, and women in general.

The municipal governments had serious problems managing growth. A high turnover of municipal staff resulted as many went to work on the higher paying construction jobs. The municipalities increased salaries to retain staff but this strained their budgets. New positions, in turn, could not be filled and the planning staff was unable to meet growth demands.

Reaction of Residents

Approximately one-third of the residents felt the quality of life in the communities was improving while one-third felt it was declining. The remainder felt the quality of life neither improved or declined. The rural area residents, where most of the newcomers had located, were the most positive while nearly one-half of the long time residents felt the towns had deteriorated.

The major reasons for the overall perceived decline were rapid growth, increase in crime, influx of undesirable residents and growth requirements out-stripping the provision of services.

3.0 Projects - An Overview

This section reviews documentation on projects ranging in type from the construction and operation of large thermal generating stations to the construction and operation of large scale manufacturing projects located in Canada, the United States and New Zealand. These projects were selected in the initial review phase for the comparison study with Hat Creek. On closer examination, it was found that, in many of the studies, either essential information was lacking making a valid comparison impossible, or the matching criteria were not similar as originally anticipated. However, the information was of sufficient value to be included for the reader's interest. From these 12 projects, three were selected as the most comparable, and detailed in the previous section (2.0).

The relevant information on the social environment of these projects is organized in a format similar to that used in Chapters 3.10 and 5.9 on the Social Environment for easier comparison with the Hat Creek Project. Each project is described using this format:

- Project
- Study reference and date
- Type of development
- Status of the project
- The major communities and their respective populations
- Occupational structure
- Social benefits
- Social problems
- Community cohesion
- Reaction of residents.

3.1 PROJECT: NORTHERN GREAT PLAINS RESOURCES PROGRAM, SHERIDAN, WYOMING

Reference: Institute for Social Science Research, University of Montana. A Comparative Case Study of the Impact of Coal Development on the Way of Life of People in the Coal Areas of East Montana and North East Wyoming: Final Report, Missoula, Montana, 1974.

Development: Strip mines (coal)

Status: Some projects operational, others in the planning stage

Community/Population:
Sheridan 10,856

Occupational Structure:
. Existing - Ranching
- Services
- Transportation
. Incoming Population - Wyoming, etc. over 20,000 jobs will be created by 1980-1985 resulting in a population increase of 40,000 people.
- Forsyth expected to see approximately several thousand jobs.

Social Benefits:
. They have been able to get the best schools and the best teaching staff in the region because of incoming population and money.

Social Problems:
. Excessive reliance on T.V. No recreational or leisure programs available.
. Anticipated trona, oil and coal production levels are down in all industries due to social disruptions and decreased "quality of life".

Community Cohesion:
. Stability - Construction workers plan to stay only as long as money is good - if better wages elsewhere they will go. Very transient.
. Participation - Groups involved - Businessmen/merchants
- Ranchers
- Construction workers want more say about living and working conditions and also a voice in community affairs.
- Uncertainty due to lack of information on projects resulted in poor and inappropriate planning decisions by town council.
- Tax structure must be revised to provide enough revenues to plan developments prior to impacts.
- Need regional zoning for land use. Too large for individual communities to undertake.

Resident Reactions:
. Feel that coal for energy developments is not needed to meet the energy crises. Shouldn't have to pay such terrible social costs to meet short term energy needs.

3.2 PROJECT: NORTHERN GREAT PLAINS RESOURCES PROGRAM, COLSTRIP, MONTANA

Reference: Institute for Social Science Research, University of Montana. A Comparative Case Study of the Impact of Coal Development on the Way of Life of People in the Coal Areas of East Montana and North East Wyoming: Final Report, Missoula, Montana, 1974.

Development: Coal mines and thermal generating stations

Status: Several projects operational and others are under consideration for future development.

Community/Population:
Colstrip 1,800

Occupational Structure:
- Ranching
- Coal Mines
- Transportation

Social Benefits: No documented information.

Social Problems:
- Poor health facilities, must go to other communities for service.
- Lack of recreation programs.
- Ranchers forced to sell out and relocate as strip mining proceeds.
- Newcomers will increase bond indebtedness and old time residents will have to pay.
- Newcomers not yet paying taxes yet demanding services and facilities.
- People go elsewhere to shop and local merchants don't receive benefits.
- No jobs created for youths or miners' wives.
- Merchants do not want increased competition - less money for them.
- Ranchers forced to sell out - can't buy equivalent property for same money, also some problems of relocation.

Community Cohesion:
- Stability - some long time ranching residents.
  - some long time coal related people but not perceived as really long time residents.
- Participation - Groups involved - Ranchers
  - School Board
  - Merchants
  - Rosebud Protective Asscciation
  - Western Energy
  - Chamber of Commerce
  - Tri-County Ranchers Association.
  - Pride in schools waning with influx of workers resulting in lack of involvement in school system.
- Alienation of old time residents from community. They feel they will be voted off school board and other elected positions and replaced by incoming people.
- Community groups have broken into differing factions due to disagreements over development issues.
- Coalition of existing white and Indian students against incoming students.
- Split classes and different shifts have separated friends.

. Assumptions and values of locals being questioned.
. Merchants are trying to patch relations with ranchers who oppose project. Merchants now realize most of their income is from ranchers, not coal employees. This will continue even if more projects are developed.

Reactions of Residents:
. Initially favoured development but now seeing that high social costs may not justify development.
. Concern over how future projects will be implemented.

3.3 PROJECT: NORTHERN GREAT PLAINS RESOURCES PROGRAM, FORSYTH, MONTANA

Reference: Institute for Social Science Research, Univerity of Montana. A Comparative Case Study of the Impact of Coal Development on the Way of Life of People in the Coal Areas of East Montana and North East Wyoming: Final Report, Missoula, Montana, 1974.

Development: Strip mines (coal) and thermal generating stations

Status: Some projects operational, others in construction and others in the planning stage.

Community/Population:
Forsyth 3,254

Occupational Structure:
. Ranching
. Services
. Transportation

Social Benefits:
. Church attendance has grown dramatically.
. With new incoming population, an intensification of established social relationships.
. Montana Power paying for new classrooms.
. Money is being brought to the community, and existing residents are earning more.

Social Problems:
. 50% increase in number of assault cases, child custody cases, disturbing the peace.
. Shortage of teachers lowering of educational standards.
. Drugs in schools.
. Poor health facilities.
. Increased cases of V.D.
. Need more drug and alcohol counselling as problems increase.
. There is a general lack of acceptance of mental health problems, services not needed.
. Housing construction standards are poor. Only one trailer park in 68 meets federal standards.

. People want new commercial activities, stores, etc. However, due to uncertainties regarding coal development, the stores, especially the chains and larger distributors, will not risk establishing themselves. The resulting selection is poor and costs remain high.
. Due to uncertainties of the development, no one willing to upgrade town core therefore deterioration is occurring.
. People on fixed incomes suffering from inflation.
. Businessmen felt they were entering sustained ecomonic boom before development. Now during development they see that social costs are too great.
. Companies pay less taxes than they should so citizens have to bear the burden.

Community Cohesion:

. Stability - Many long time residents especially in the surrounding rural ranching areas.
- Transiency of newcomers, they do not get involved.
- Lack of commitment by newcomers to existing social, recreational organizations.

. Participation - Groups involved - Ranchers
- Montana Power Corporation
- Chamber of Commerce
- City Council Planning Board
- Business Community

. Long time and new residents remain separate resulting in social stratification.
. Structural reorganization of government is needed to cope with growth.
. Larger government staff necessary to deal with problems of growth - no money to hire staff prior to projects when they are needed.
. Visibility and openness of government must be maintained during process - accessibility key so new and old residents feel they can participate otherwise alienation and distrust may result.

Reaction of Residents:

. Most residents originally in favour of the project, now there are mixed feelings.

3.4 PROJECT: NORTHERN GREAT PLAINS RESOURCES PROGRAM, GILLETTE, WYOMING

Reference: Institute for Social Science Research, University of Montana. A Comparative Case Study of the Impact of Coal Development on the Way of Life of People in the Coal Areas of East Montana and North East Wyoming: Final Report, Missoula, Montana, 1974.

Development: Strip mines (coal) and thermal generating stations

Status: Some projects operational, others in construction and others in the planning stage

Community/Population:

Gillette 7,800
- 1950 - 2,191 population
- 1960 - 3,580 "
- 1970 - 7,194 "

Due primarily to oil boom.

Occupational Structure:
- Ranching
- Transportation
- Services
- Oil and Gas

Social Benefits:
- New college education program offered based out of Sheridan.
- People say school system has improved, much lower teacher turnover rate.
- New mental health facilities and services finally provided.
- Doctor recruitment program established.

Social Problems:
- Need to expand services to elderly - to keep morale up.
- Increased mental health problems - twice national average.
- Inadequate medical facilities.
- High turnover of doctors and dentists - unhappy residents.
- Lack staff - only 30% occupancy of hospital yet people go to other towns for service.
- Socially and physically underdeveloped children.
- Heavy welfare caseload has developed.
- Mobile home squatters form sprawling colonies often lacking water and sanitation.
- Gillette Syndrome:
  - equal parts of alcoholism, accidents, absenteeism, depression, divorce and delinquency.
- Inflation and costs have become so high that owners can't afford to expand - housing is becoming unattainable - too expensive.
- Strikes now becoming of concern with resulting loss of business in the community.
- There is a surplus of labour especially among wives of incoming miners who want to work but there are no jobs.
- Ranchers feel they bear too many of the costs, taxes.
- Housing, especially mobile homes do not meet federal standards - can not keep up inspections.
- No money in city to provide needed services or facilities.

Community Cohesion:
. Stability - businesses cater to coal people rather than ranchers, so ranchers have taken their business to other towns.
. Participation - Groups involved - Ranchers
- Businessmen/Merchants
- Montana Power
- New children find it very difficult to break into school cliques, same for parents in community.
- Racial prejudice evident.

Reactions of Residents:
. Concern expressed that benefits being outweighed by social problems.

3.5 PROJECT: RED DEER RIVER FLOW REGULATION PLANNING

Reference: Alberta Environment, Environmental Planning Division. Red Deer River Flow Regulation Planning Studies, Volume I: Main Report, Volume II: Sociological and Economic Assessments, 1975.

Development: Hydroelectric dam

Status: Planning stage

Communities/Population:

Red Deer	27,675
Innisfail	2,408
Rural	2,305

Occupational Structure:
. Total Employment (in region) - Basic 15,112
- Non-basic 31,968
47,080
. Major Employer - Agriculture

Social Benefits: No information documented.

Social Problems:
. Schools in some communities overloaded while others underutilized.
. Services lacking if project goes ahead.
. Breaking up of social grouping due to relocation of residents.

Community Cohesion:
. Stability - Displacement of families due to flooding.
- Community physically split by flooding due to dam.
. Participation - Groups involved - Red Deer River Valley Preservation Association recognized by Department of Environment.
- Farmers and Ranchers
- Farmers' Co-op
- Women's Institute
- Public Advisory Committee.

- Public Advisory Committee established for input.
- People rally around issue of potential impacts of project.

Reaction of Residents:
. Generally in favour as area needs the jobs.
. Benefits of dam diminished by losses of land and physical separation of communities.

3.6 PROJECT: DODDS HILL COAL MINE

Reference: DiSanto, Dr. J., Social Impact for Study on Dodds Hill Project. Prepared by Montreal Engineering for Calgary Power, Alberta, 1975.

Development: Strip mine (coal)

Status: Planning stage

Communities/Population:
Camrose (Population not available in document)
Ryley
Dodds
Round Hill
Rural

Occupational Structure:
. Ranching
. Farming

Social Benefits: No documented information.

Social Problems:
. Displacement and relocation of the population.

Community Cohesion:
. Stability - old time ranching community.
- very stable long time residents.

. Participation - Groups involved - Dodds Agricultural Association
- Shaw Community Association
- Ranchers.
- Fear and anxiety of the coal development has resulted in mobilization of community.
- Conflict resulted from groups of differing ethnic origins needing different services.

Reaction of Residents: Anxiety felt by most residents over uncertainty of development.

3.7 PROJECT: KAIPAROWITS COAL MINE AND THERMAL GENERATING STATION

Reference: Kaiser Engineers. Master Plan Study for the Kaiparowits Coal Project, Part VII: Community and Public Relations, 1975.

Development: Strip mine (coal) and thermal generating station

Status: Planning stage

Communities/Population:

Escalante	-
Glen Canyon City	-
Page, Arizona	6,100
Kahab	1,400
New Town	10,000

Occupational Structure:
- Little existing employment besides ranching in area at present.
- Project will see the development of a new town for 10,000 based on coal mining and thermal generating station.

Social Benefits: No documented information available.

Social Problems: No documented information available.

Community Cohesion:
- No community presently in existence.
- No documentation available on surrounding rural communities.

Reaction of Residents: No documentation available.

3.8 PROJECT: INDUSTRIAL DEVELOPMENT AT PORT HAWKESBURY, NOVA SCOTIA

Reference: Institute of Public Affairs, Dalhousie University, Nova Scotia. Planning and Development: A Case of Two Nova Scotia Communities, 1975.

Development: Pulp and paper mill, oil refinery, and ocean facilities

Status: Operational

Community/Population:

Port Hawkesbury	3,375
Inverness	4,155
Richmond A	4,935
Richmond C	4,965

Occupational Structure:
- . Existing - Fishing industry main support in past.
- . Incoming - Major construction boom-bust cycles:
  Phase One - Pulp and Paper Plant Construction (1963)
  Phase Two - Heavy Water Plant/Refinery (1970)
  Bust Cycle followed each of these.

Social Benefits: No documented information.

Social Problems:
- . Incoming population placed highly sophisticated demands on services - no one could respond and therefore it broke down. Expectations for urban services which cannot be met by rural communities so resentment and frustration resulted.
- . Family disintegration resulted due to problems of work/community dissatisfactions.
- . No preparation to cope with expansion.
- . Land/housing prices rose sharply - little housing available.
- . Poor school facilities and deteriorating education levels.
- . Trailer and instant communities arose ad hoc in outlying areas with no water or sewage.
- . Biggest problem was not the increased services required but the diversification of services not previously available.
- . Increased violence and cases of rape reported.
- . No jobs for women and few community activities so frustration set in.
- . Problems of alcoholism set in.
- . Heavy inflation resulted. Existing residents especially on fixed incomes to suffer badly.
- . Original residents suffered continuing unemployment both during and after construction as all jobs were filled from outside region. Lacked skills and no training/retraining programs available.

Community Cohesion:
- . Stability - old, long established community.
- . Participation - Groups involved - Four Counties Development Association
  - Religious groups
  - Construction Workers
  - Old time residents
  - People in region felt taken in by government and industry. Distrusted outsiders and government agencies. Hostility and suspicion set in.
  - Great uncertainty in region as no one knew what industry or other government levels were planning.
  - When construction crews left service industries declined and left cost of living high based on false economic hope of continuing construction. Remaining residents had to bear increased tax load of services even after others had left.
  - No planning - no by-laws to provide construction standards - impossible to provide services due to outlying and ribbon development.
  - Impossible to plan for constantly fluctuating population - especially schools and other services.
  - Municipal services totally inadequate and no money to build.

Reactions of Residents:

. Local residents felt economic advantages of projects did not compensate for heavy social costs as well as increased taxes etc. that they had to bear.

3.9 PROJECT: INDUSTRIAL DEVELOPMENT AT BRIDGEWATER, NOVA SCOTIA

Reference: Institute of Public Affairs, Dalhousie University, Nova Scotia. Planning and Development: A Case of Two Nova Scotia Communities, 1975.

Development: Michelin Tire Manufacturing

Status: Operational

Communities/Population:

Bridgewater	5,231
Lunnenburg County	30,000

Occupational Structure:

. Existing - Fishing
Services
Government

. Incoming - Construction (1,000 new workers)
- Manufacturing

Social Benefits:

. The new industry was compatible with the town's physical and cultural environment.
. Community development worker hired to work with existing and new incoming residents.
. They had a good inventory of existing facilities, etc. to absorb the population increase. This plus some planning and public involvement provided good communications between people, old and new.

Social Problems:

. Only shortage is educational facilities.
. Transportation problems were notable, congestion, etc.
. All other services only needed incremental additions.

Community Cohesion:

. Stability - Area has enjoyed a stable population base for many years.
. Participation - Groups involved include:
. Town Council
. DREE
. Board of Trade
. Bridgewater Industrial Commission
. Local Planning Advisory Committee
. Incoming Workforce
. North King Street Group

- Community totally involved in setting out guidelines for growth and expansion.
- Able to absorb 1,000 newcomers due to existing infrastructu
- Opposition and factionalism occurred between differing groups - business community vs. resident association.
- Spirit of enterprise and co-ordinated planning led to successful public involvement in decision making.
- Establishment of advisory planning committee allowed for good communications.
- Lack of public support eventually caused collapse of planning committee.
- Serious discrepancies and tensions developed between government agencies - Federal, Provincial/Municipal.
- Plans were rejected by various levels of government, etc.
- Hostility between the community and provincial government resulted.

Reaction of Residents:
. Optimism apparent by nearly all residents.

3.10 PROJECT: REVELSTOKE HYDRO ELECTRIC PROJECT

Reference: Canadian Resourcecon. Revelstoke Project: Socio-Economic and Land Use Impacts. Prepared for B.C. Hydro and Power Authority, 1976.

Development: Hydro electric dam

Status: Planning stage

Communities/Population:

Revelstoke	8,000
Salmon Arm	9,600
Sicamous	1,600
Mica Creek	1,800
Others	1,200

Occupational Structure:
. Present Occupations - Transportation 1st
- Sawmills 2nd
- Tourism 3rd

. With Project - 1,800 workers at peak of project.
- considerable change to commercial occupations to serve workforce and incoming population.
- there will be a loss of labour in existing industries as people go to work on project.

Social Benefits:
. Anticipated increase in tourism.

Social Problems:

. Severe housing shortages: people live in Malawaka, Sicamous, Salmon Arm and commute.
. Shortage of schools as well as teachers, doctors, and dentists.
. Anticipate mental health problems.
. Anticipate increase in criminal activity therefore more services.
. RCMP anticipate changing emphasis from preventative to enforcement orientation.
. Recreational facilities in poor shape. Community wants new facilities or major contribution from developing agency.
. Workforce will receive higher pay than residents, possibly resulting in some resentment between new and old time residents.
. Inflation problem - people on fixed income have substantially less earning power than other residents.
. The question arose as to who will pay for increased services when only needed for brief time during the construction phase.
. Enlarged tax base will bring additional revenues but will not cover capital expenditures which will be required.

Community Cohesion:

. Stability - fairly long time community.
- resentment and suspicion may develop between community groups, especially when some benefit financially more than others.
- older citizens and long time residents may suffer a "loss of community" due to the incoming construction workforce.

. Participation - Groups involved - Community Resources Society
- Adolescent and Youth Group
- Justice Council
- City Council
- Regional District of Columbia - Shuswap.

- fairly organized community.
- high level of participation with over 80 community organizations in Revelstoke.

Reactions of Residents:

. Concern was expressed regarding the expected "boom-bust" syndrome.

3.11 PROJECT: COAL DEVELOPMENT IN WYOMING, ROCK SPRINGS AND GREEN RIVER, WYOMING

Reference: University of Denver Research Institute. Boom Town Growth Management: A Case Study of Rock Springs-Green River, Wyoming, 1976.

Development: Strip mines (coal) and thermal generating stations

Status: Under construction and new projects in planning stage

Communities/Population:

Rock Springs		18,000
	1960 -	10,371
	1970 -	11,657
	1973 -	18,000
Green River		7,000
	1960 -	3,497
	1970 -	4,196
	1973 -	7,000

Occupational Structure:
- Existing - Railroading and coal mining basis for community.
- Incoming - Railroading and coal mining now superceded by trona mining coal and energy related electrical development.

Social Benefits: No documented information.

Social Problems:
- Crime rates have increased by 60% between 1972-1973.
- Local service sector could not provide necessary housing, health services, schooling, retailing, and local services.
- Unable to provide permanent housing - also too high a cost for workers so mobile homes and trailers proliferate.
- Medical services so poor that over 40% of population go for treatment elsewhere.
- Mental health caseload expanded ninefold.
- Rates of alcoholism, broken homes, suicide and transiency have all increased dramatically.
- School facilities are strained beyond capacity and are deteriorating badly.
- Industrial productivity declined by 20-40% in mining due to turnover and shortages. Quality of life problems caused this situation. While job satisfaction is high, community quality is low.
- Cost of living is dramatically above the national average.
- Salaries have not kept abreast of cost of living especially among those on fixed incomes.
- New public facilities are costing more than community can spend.
- Employment for women has not increased as rapidly as hoped, in fact, lagged behind. This plus poor community amenities has led to significant depression amongst wives of immigrants.

Community Cohesion:

. Stability - Newcomers were not integrated into the community.

. Participation - Groups involved - Ranchers
- Commercial/Businessmen
- Local Government
- Construction Workforce(s)
- Operating Workforce(s)

- There is a male emphasis in the community, in actual numbers, employment, and all activities. There are few if any outlets for women especially in the rural areas. This results in a high frustration level among women.
- There is a general malaise regarding future of towns. No one willing to commit themselves to town or their welfare. Feeling of alienation and powerlessness.
- Newcomers do not participate in community activities or vote.
- Local government revenues cannot keep up to expenditures.
- No awareness of vast number of decisions and impact of these on the community.
- Government employee turnover increased.
- Planning for expansions sorely neglected.
- Local rivalries between Rock Springs/Green River are aggravating planning activities. There is general skepticism toward planning which delays inception.
- Government jurisdictions, service delivery jurisdictions of past no longer provide adequate boundaries for equitable distribution of taxation, etc.

Reactions of Residents:

. There is little if any information forthcoming from the mining companies which has resulted in great confusion and indecision on the part of individuals/communities.

. Few if any mechanisms for dealing with transportation, pollution, and urban sprawl. General problems of fast and massive urbanization.

. Problems of rate of growth not magnitude of growth.

3.12 PROJECT: HUNTLY COAL MINE AND THERMAL GENERATING STATION, HUNTLY, NEW ZEALAND

Reference: School of Social Sciences, University of Waikato. Social and Economic Impact of the Huntly Power Station: First Year Progress Report, Working Paper No. 2, 1977.

Development: Open pit coal mine and thermal generating plant

Status: Under construction

Community/Population:
Huntly 5,310
The projected population increase has not occurred.

Occupational Structure:
. Existing - Manufacturing
- Transportation
- Services
. Incoming - Construction
- Mining
(approximately 1,000 incoming workers reaching peak of 1,500)

Social Benefits:
. Outlooks broadened.
. Better housing standards.
. Project provided additional employment.

Social Problems:
. More traffic and noise.
. Congestion has occurred in town core.
. More employment from outside area vs. local hiring.
. Tax rates increased.
. Land and housing costs increased significantly.
. Installation of physical utilities has been slow.

Community Cohesion:
. Stability - some long term residents. Decreased economic activity in recent years has lead to a declining population.
. Participation - Groups involved - Maori community
- Research team
- Merchants
- Community Council
- Farmers/Ranchers
- Construction workers accepted into the community.
- No "us-them" attitudes.
- Only some of workers reside in community.
- Some breakdown in community cohesion resulting in increasing tension. This has primarily been due to conflict between the Maori community and government/company officials.
- Lack of confidence in ability of elected officials' decision making.

- Increasing level of resignations in staff and civil servants due to stress of development.
- Problems with civic government cash flow position - precarious.

Reactions of Residents:

. Most residents in favour of the development because of a perception of increased business.
. The project will be considered a long term benefit to the region.
. Declining road conditions has led farmers and Maori to show great concern regarding development.

Other:

. A "one percent" clause provides that the power utility is responsible to provide "up to" one percent of the capital costs of the project for necessary community facilities.