Report of the Evaluation Committee on the Canada/Newfoundland St. John's Urban Region Subsidiary Agreement

Interim Evaluation Report #1

March 31, 1979

Management Committee
St. John's Urban Region Subsidiary Agreement

Gentlemen:

The Evaluation Committee takes pleasure in submitting the first interim evaluation report on the subject Agreement.

This report covers the period from the signing of the Agreement on July 23, 1975 to January 31, 1979. We look forward to your comments on this report and would appreciate a response from you within a two-week period.

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Canada - Newfoundland St. John's Urban Region Subsidiary Agreement

Interim Evaluation Report

Purpose:

The purpose of this report is to inform the Management Committee for the St. John's Urban Region Subsidiary Agreement as follows.

- to review the status of the evaluation program under this subsidiary agreement including costs incurred to date.
- to discuss the achievements to date in terms of what conclusions can now be reached and what areas require further examination.
- to propose future activities, including both activities defined under the Program but not yet executed, and new activities to meet requirements not foreseen under the original program, and
- to propose a date for the next report.

Chapter I

Introduction

Background:

The Canada-Newfoundland Subsidiary Agreement on the St. John's Urban Region was signed on July 23, 1975. The impetus for the Agreement came from a variety of sources.

Since the late 1960's population in the St. John's Region has grown considerably. The Region which constitutes an area of 463 square miles and includes all that portion of the Avalon Peninsula north of a line connecting Holyrood and Witless Bay had a population of 142,000 in 1971. This was an increase of approximately 33% over the 1961 population of 107,000. It has been estimated that the population of the region will increase by 37% to 192,000 by 1991. Of this number 70% or 133,000 will live in the immediate urban area of St. John's. Increased employment opportunities can be cited as the primary reason for this increase. The city has and continues to be the centre of government, the major education centre and the major commercial/service centre. Not only does the region contain one-fifth of the province's population it also commands a large portion of its labour force. Growth in the labour force has been substantial, increasing from 26,000 in 1961 to 53,000 in 1971. The labour force projection for the region to 1991 is 95,000, an increase of 42,000 over the 1971 figure.

Until the late 60's, early 70's, little action was taken to respond to the increased demand for public services. The need for a planned development framework to accommodate the increase in population and to remove constraints upon the expansion of

industrial and commercial activities imposed by inadequate facilities was crucial.

In 1969 the city of St. John's contracted the firm of Sunderland and Simard to develop a plan for infrastructure investment up to 1991. The five volume report known as "Plan 91" was submitted in the spring of 1970. In the spring of 1971, at the same time that Plan 91 was being discussed in public hearings the Federal Department of Regional Economic Expansion and the Provincial Department of Community and Social Development jointly initiated the St. John's Urban Region Study. This study was initiated in the fulfillment of the Canada-Newfoundland Agreement on Special Areas and Highways which had been signed some time before. The general objective of the study was to "develop jointly plans designed to facilitate the potential for economic expansion and social adjustment in the region". The three volume report covering municipal service requirements, the role of local government and the proposed regional plan was submitted in 1973 by Proctor and Redfern Limited and Paterson Planning and Research Limited.

Simultaneous with the commissioning of the St. John's Urban Region Study was the contracting of FENCO under the Canada-Newfoundland Second Special Areas Agreement to prepare a detailed engineering proposal for providing adequate water to the region, establishing priorities and providing cost estimates. That report was also submtited in 1973. In all their proposed regional water system consisted of 13 packages to be constructed over a 20 year period.

The end result of these studies was the identification of actions to be initiated immediately if growth of the entire region was not to be impeded. The key components of the development strategy included:

1) development of industrial infrastructure through the establishment of an industrial park.
2) expansion of the water supply system in the urban region, to accommodate industrial, commercial and residential expansion.
3) provision of an efficient transportation route to connect the downtown business sector of St. John's with the peripheral industrial zones and the suburban "commuter shed" areas.

The capital expenditure requirements of this development strategy precipitated DREE's involvement with the Province in the building of Donovan's Industrial Park in 1974 and the signing of the St. John's Urban Region Subsidiary Agreement in 1975.

The construction of Donovan's Industrial Park, just west of the city provided 62 lots on 187 acres of land. Currently, 120 of the 130 serviced acres are occupied by 53 business firms. Additional land has been committed to meet future expansion requirements within its boudnaries.

The St. John's Urban Region Subsidiary Agreement provided for A) a Regional Water Supply System, and B) completion of the Harbour Arterial.

A. Regional Water Supply

Objective: The augmentation of the water supply for the St. John's Urban Region directed to the commercial and industrial sectors as well as residential, without which expansionary activities of the suburbs and central business district would be precluded.

The expansion of the St. John's Urban Region Water Supply was designed to respond to the region's serious present-day needs and its long-term potential. In the early 1970's the need for an adequate water system became particularly obvious. At that time St. John's was supplying the neighbouring town of Mount Pearl and some peripheral areas with water. As the City grew its Windsor Lake/Petty Harbour/Long Pond system reached capacity. During the summer months severe restrictions were placed on normal water usuage and businesses were forced to reduce consumption. In addition the City and the Metropolitan Area Board placed a moritorium on new developments. Thus further residential and commercial expansion was severly curtailed.

The problem was compounded by an imminent health threat in areas outside the City. Surveys of well systems in the Conception Bay South area in 1967 and 1970 indicated that the coliform count in more than 50% of the wells sampled was below the health standards. The provision of potable water was crucial to avoid a serious health problem.

Since 1975 construction has been underway to integrate a second large pond with the existing water supply system. The new source, Bay Bulls Big Pond, is located ten miles south of the City. Under the present Agreement the first three packages of the Fenco study have been implemented. A more specific description of the investment is given below:

St. John's Urban Region Water Supply

(a) Package I - Intake, treatment and pumping works at Bay Bulls Big Pond.

(b) Package II - Transmission Main, Bay Bulls Big Pond to reservoir at New Town including pumping station at Ruby Line bifurcation.

(c) Package III - Transmission Main, Ruby Line bifurcation to Jensen's Camp Lane.

The augmented system is considered to have sufficient capacity to meet the needs of the entire region beyond the turn of the century.

Because of the urgent need to bring the expanded system into operation, an interim treatment plant was built at the new source to enable water to start flowing in August, 1977. A large, technically sophisticated water purification plant is to be completed at the new source by 1980.

B. St. John's Harbour Arterial

Objective: Completion of the downtown link of the Harbour Arterial thereby linking the Industrial Park at Donovans to the harbour and facilitating access to and from downtown offices by residents of the Western suburban areas of the urban region.

The idea of the Harbour Arterial had its beginnings in the early 1960's. The basic premise for this idea was the recognized fact that the St. John's Harbour Arterial was to be the vital communication link to handle not only the increasing volume of traffic between the Trans Canada Highway and downtown St. John's; but also the proposed traffic which would be generated by the develop-

ment of Donovans Industrial Park and the suburban Mount Pearl area. When DREE entered the scene in 1969 the idea became fact. The chronological steps in the Harbour Arterial's development followed quickly:

- Early in 1970 planning for the section of road between the T.C.H. and Bay Bulls Road advanced to the final stages. It was decided to build the T.C.H. - Bay Bulls section first. This was done to assist the Development of the New Town - Mount Pearl and Donovan's Industrial Park.
- In May 1970 - Foundation of Canada Engineering Corporation Limited. (FENCO) was retained to plan a route and design the road from Bay Bulls to Downtown St. John's area.
- In May 1970 Sunderland and Simard submitted its five volume on St. John's infrastructure investment plan to 1991.
- In July 1970 - FENCO decided on what they felt would be the best route. This was commonly referred to as the "Hillside Route".
- In December 1970 - Functional Designs were carried out and preliminary costs estimates prepared for the "Hillside Route".
- In January 1971... Final Design for Hillside Route began.
- In February 1971 - Contract documents were issued for tender calls.
- In June 1971 the St. JOhn's Transportation study entitled "A Transportation Plan for the City of St. John's, Newfoundland," by DeLeuw Cather indicated that the central business district of St. John's generated the largest amount of traffic in the area. It also indicated a major traffic pattern flow exists between the central business district and the Bay Bulls-Mount Pearl area. This information now had to be incorporated into the final design. It

was recommended that the Harbour Arterial connect with Harbour Drive.

On August 9, 1971 Canada and the Province signed a second Special Areas Agreement. That Agreement specified that the Harbour Arterial would be broken down in to two Phases. The T.C.H. to Bay Bulls Road would be completed first and the Bay Bulls to Downtown area of St. John's section completed later. Section 16B of Schedule B of this Agreement also provided for property acquisition funding. This section allowed for 100% loan from DREE to the Province up to 4 million dollars to cover the entire length of the road; the loan to be amortized over a 20 year period.

The new highway link known as the Harbour Arterial, between the city and its growing suburban area to the southwest will cost approximately 50 million dollars when its nine-mile length is completed in 1980. The highway will provide an efficient access from the surburban areas to the downtown business sector and from the industrial zone on the Trans Canada Highway to the St. John's Harbour.

Phase I, a six mile rural section from the Trans Canada to Kilbride was completed in 1974, at a cost of 10.3 million and was 100% funded by DREE. Under the present Agreement construction is continuing towards completion of the three-mile urban section to downtown St. John's.

Specifically, the Agreement calls for the construction of a four-lane, divided highway from Kilbride connection to New Gower Street including grading, base courses, drainage, paving and associated structures.

The Arterial includes nine major overpasses or interchanges, including a large viaduct to carry the road from the Southside Hills over the CN Railyards into the downtown business sector.

Chapter 2

Evaluation Methodology

The Subsidiary Agreement, Section 21, states that Canada and the Province should jointly effect a continuing assessment of the projects with regard to the stated objectives. In accordance with this clause an evaluation committee was formed in May 1977. The Committee consists of four individuals, a federal representative from DREE, two provincial representatives, one from Transportation and Communications and one from the Cabinet Secretariat and a research analyst hired by the committee to assist in the compilation of data and report preparation.

The terms of reference approved by the Management Committee in May 1977 outlined a work schedule consisting of six distinct activities:

1) Establishment of Base-line data with collection of data through Program Inventory Forms
2) Formulation of Performance Indicators
3) Field Research
4) Analysis of data
5) Performance Measurement
6) Report writing

The details of these activities and their objectives were specified in the Progress Report submitted to the Management Committee on September 22, 1977. A copy of 1) the Program Inventory Form 2) breakdown of the performance indicators, and 3) summary of evaluation activities is appended to this report.

Up to the present, emphasis has been placed on completing the first three activities. The Program Inventory Forms outlining program objective, level of expenditure incurred, tangible outputs from expenditure and evidence of short and long-term benefits are partially complete. Performance indicators for the two major programs have been developed. The indicators attempt to quantify where possible the socio-economic benefits which have materialized or may materialize in the future as a result of program expenditure.

To facilitate the analysis of short-term impacts a construction survey was designed. This survey provided information on employment created during construction, effect on local labour situation, percent of contract going to wages and salaries, material purchase, equipment costs, engineering and consulting fees and the portion of these expenditures accruing to local residents. This survey form has been sent to all prime contractors and approximately 40% have been returned.

Long-term impacts have been broken down into two broad categories - economic and social. Social impacts cover changes not measurable in dollars and include such items as changes in water quality, commuting time, fire protection and population concentration. Economic impacts cover changes measurable in economic units ie. changes in vehicle operating costs, municipal revenues, employment generation.

As neither the Regional Water System nor the Harbour Arterial are yet complete a thorough impact analysis cannot be conducted. However, this interim report does contain a preliminary analysis which is presented in Chapter 4. It is envisaged that this

will provide an indication of likely impacts as well as a guide for final evaluation. The final impact analysis will obviously be more precise and will be carried out after the programs are complete and in operation. In addition more background information will have been documented.

Of particular concern in regards to the Harbour Arterial is the lack of information on traffic flows. Consultants are presently being sought to undertake a study to rectify this situation. The Department of Transportation and Communications has called tenders for this study. The study will determine the impact of the Harbour Arterial on local traffic movements and generate a benefit/cost model to assess potential benefits.

The evaluation committee will be carrying out a series of interviews with businesses located in Donovan's Industrial Park. A survey has been designed to document the present activity in the Park and to ascertain the expectations its occupants have towards the Harbour Arterial. More specifically these interviews will document the present level of sales, number of employees, routes presently used, vehicle operating costs, planned expansions and related information.

The movement of people within the City and the Region is another issue to which the evaluation committee has addressed itself. Improvement in public services has precipitated development in fringe areas. Migration from the City core has been increasing substantially in recent years. Expansion of the water

system and improved transportation are probable factors in changing migration patterns. Contacts will be made with the St. John's Planning Office, NLHC and St. John's Housing Corporation to obtain information on migration.

There may be other activities required which have not been identified up to this point. These will be dealt with as they arise.

Chapter 3

Financial Status

A summary of costs incurred under the subject Agreement is given in Tables 1 to 4. These tables give a brief overview of Agreement expenditures.

A breakdown of construction costs for the Regional Water System is given in Table 1. As can be seen from column 4 there remain only three projects to complete - ozonation equipment supply and installation, the full treatment plant, and construction of a utility building adjacent to the full treatment plant. There is also an outstanding claim on Contract 3 which when resolved may change the final costs estimates on the project.

Table 2 gives the cost breakdown for the Harbour Arterial. Seven projects are complete both in terms of physical outputs and costing. Most of the projects where more than 90% of the costs have been incurred are also physically complete. Four contracts remain to begin. Contracts 4 and 5 also have outstanding claims which may affect final cost estimates.

Engineering costs are given in Table 3. It should be noted that these costs constitute 16.7% and 13.6% of construction costs of the Harbour Arterial and Regional Water System respectively. These are well above the 10% allowance made under the Agreement, especially in view of the fact that this 10% allocation is intended to cover administration, surveys, engineering and architecture costs. The difference may be accounted for by two factors: 1) no original engineering estimates were given and 2) this Agreement unlike others has retained FENCO both for

engineering services and project management.

Table 4 gives the final cost distribution. It is estimated by FENCO that the final cost to be incurred will be $69,352,105.28 which differs from the original allocation in the Agreement of $68,000,000.00. This figure did not change when the Agreement was amended in October 1978 to provide $120,000 to carry out evaluation activities. Based on the 75/25 cost sharing arrangement given in the Agreement DREE's share of this will come to $49,667,517.39 or 71.6%. The remainder would be the Province's responsibility. The 3.4% difference in the cost sharing results from over-expenditure on indirect costs.

Table I

Contract/Title	Original Project Estimate	Estimated Final Cost.	2 as a % of 1.	Cost Incurred to 31/1/79	3 as a % of 2.
41/ Supply of Pipeline materials	3,110,181	2,770,194	89	2,770,194	100
42/ Supply of Valves, Meters	259,059	179,756	69	179,756	100
43 Supply of Transformers, Switchgear & Fusegear	402,330	408,774	102	408,774	100
45/ Ozonation Equipment.	1,448,000	1,579,400	109	1,257,653	80
1/ Access Road	436,875	341,743	78	341,743	100
2/ Intake Works and Interim Treatment Plant	3,564,000	3,887,025	109	3,887,025	100
3/ Treatment Plant - Clearing and Excavating	750,000	416,550	56	416,550	100
4/ Full Treatment Plant	10,000,000	11,100,036	111	7,201,090	65
6/ Surge Arrestors	240,000	77,087	32	77,087	100
2/ 24" & 30" Diameter Pipeline.	3,441,718	2,323,026	67	2,323,026	100
3/ 42" Dia. pipeline	3,117,136	2,128,635	68	2,128,635	100
4/ Clearing	33,600	38,922	116	38,922	100
5/ Ruby Line Pump Station.	2,580,000	2,215,820	86	2,215,820	100
6/ Mundy Pond Reservoir	1,300,000	1,328,381	102	1,328,381	100
7/ Telemetering House	23,000	29,247	127	29,247	100
8/ Bulk Water Meter	57,000	127,255	48	127,255	100
7/ Utility Building	210,980	210,980	100	0	0
TOTALS	30,974,479	29,162,833	94	24,738,418	85

Table II

Contract/Title	Original Project Estimate	Estimated Final Cost	2 as a % of 1	Cost Incurred to 31/1/79	1 as a % of 2.
3/ Kilbride to Blackhead Rd.	6,802,000	7,220,753	106	7,220,753	100
3A/ Access Road Guide Rail.		50,108		50,018	100
4A/ Blackhead Road, Overpass	1,364,309	1,197,228	88	1,197,228	100
4B/ Blackhead to C.N. Viaduct	3,540,008	3,742,523	106	3,592,343	96
5/ C.N.Viaduct	9,208,469	8,236,829	89	6,963,595	85
6A/ Paving	3,100,000	2,313,981	75	1,579,029	68
6B/ C.N.Viaduct Lighting	200,000	93,192	47	-	0
7/ New Gower Street	1,600,000	1,596,859	100	1,596,859	100
8/ Water St.Harbour Drive.	450,000	565,338	126	-	0
9A KTC - Grading & Paving	2,020,000	1,336,656	66.	1,336,656	87
9B/ KTC - C.N. Over-pass	480,000	379,338	79	379,338	100
9C/ Bowring Park Overpass.	1,550,000	1,853,637	120	1,741,637	94
9D/ Underside Light-ing Bay Bulls Rd Overpass	9,000	12,308	137	12,308	100
10A/ Supply Traffic Signals.	-	110,792	-	-	0
10B/ Traffic Signal Erection	-	51,090	-	-	0
Relocation of Utilities:					
NLP	-	1,626,393	-	1,608,317	99
NTC	-	56,884	-	51,762	91
CNT	-	10,600	-	10,600	100
CNR	-	388,800	-	363,730	94
TOTALS	30,323,786	31,040,219	102	27,704,264	89

Table 3

Engineering Cost Breakdown

	Cost incurred to Jan. 31/79	Estimated to complete	Estimated Total Cost
arbour Arterial:			
Preliminary Engineering	244,339.80	0	244,339.80
Design	1,429,817.17	4,278.77	1,434,095.94
Construction Supervision	3,185,626.05	322,242.22	3,507,868.27
Sub-total	4,859,783.02	326,520.99	5,186,304.01
Sub-total as % of estimated project's cost	--	--	16.7%
ater System:			
Predesign	156,048.89	0	156,048.89
Design	1,716,227.68	0	1,716,227.68
Inspection	1,748,528.92	341,944.40	2,090,473.32
Sub-total	3,620,805.49	341,944.40	3,962,749.89
Sub-total as % of estimated project's cost	--	--	13.6%
otal Engineering Cost	8,480,588.51	668,465.39	9,149,053.90

Table 4

Estimated Final Cost Distribution

Cost	Water System	Harbour Arterial	Total
Engineering	3,962,749.89	5,186,304.01	9,149,053.90
Projects	29,162,832.80	31,040,218.58	60,203,051.38
Total	33,125,558.69	36,226,522.59	69,352,105.28
Projects + 10%	32,079,116.08	34,144,240.44	66,223,356.52
DREE Share	24,059,337.06	25,608,180.33	49,667,517.39
DREE Share as % of total	72.6%	70.7%	71.6%

Chapter 4

Impact Analysis

In order to examine the effects of a major public investment it is desirable to have a systematic approach which examines all relevant issues. This is the purpose of impact analysis. Long-term impacts have been categorized as economic or social. In order to give an indication of the magnitude of a long-term impact further categorization is necessary. In the preliminary analysis which follows likely impacts of the Harbour Arterial and then the Regional Water Supply System are stated and examined. Once construction has ceased and both facilities are fully operational each economic and social statistic will be re-examined. The impacts are classified in relation to the role of the Harbour Arterial and the Regional Water System in determining the magnitude of changes in these statistics. The role of each of these two projects are defined in one of four ways - direct, supportive, marginal or nil. The project would play a direct role in producing the impact if the corresponding social or economic change could be attributed to it; supportive if it accommodates or facilitates changes but is not the sole casual factor and marginal if it is difficult to isolate these projects from other factors in producing the impacts. At this time insufficient data does not permit distinguishing between supportive and marginal impacts.

One should note that the objective of this analysis is primarily indicative. Thus factors likely to be affected are stated, the direction of change postulated and suggestions for precise measurement given. A greater degree of precision will accompany the Final Evaluation.

Harbour Arterial: Bay Bulls Road to Downtown

1. Short-Term Impacts

- Spin-offs to Local Business

Many local businesses have benefitted as a result of material and equipment purchase or rental. The Survey of Contractors will provide data on these spin-offs.

- Employment

The Survey of Contractors will provide the number of man-hours of construction employment.

- Financial Cost

The estimated final cost of the Harbour Arterial from Bay Bulls Road to downtown is $36,226,522.59 or over $12 million per mile. This excludes the cost of property acquisition which was covered under the Second Special Areas Agreement.

- Social Cost

Before and during most of the construction residents of areas adjacent to the route have been vocal in their opposition to the Arterial. This opposition should be documented so as to determine the degree of its intensity and to find if criticisms were valid.

2. Long-Term Impacts

(i) Economic

Direct

- Transport Costs

One of the rationales for the Harbour Arterial is the favourable impact it is expected to have on the cost of transporting goods between downtown and Donovans. Upon completion the costs

should be compared to costs incurred on former routes. The Donovans Survey should provide background information on this.

- Road Costs

With traffic diverted to the Harbour Arterial relief may be expected on former routes. Less use would indicate a reduction in wear and tear. Thus reconstruction costs may be reduced.

- Accident Costs

Congestion in many areas is likely to be reduced. This ought to cause a reduction in accidents. Comparison of present accident data with data collected after the road is opened together with accident cost data should give the change in accident costs.

Supportive/Marginal

- Business Activity

It is difficult to cite any one factor in determining the level of business activity. Nevertheless it is not unrealistic to presume that a more efficient link between downtown and Donovans would provide the basis for increased activity in both areas.

- Port Usage

Presumably having a rapid means of transporting goods out of St. John's may attract more importers and exporters to use the St. John's port. Post-opening data on tonnage going through the port as well as contacts with major carriers should give a clear indication if this presumption is valid.

(ii) Social Impacts

Direct

- The Arterial will provide a time savings for traffic travelling

from the Donovans area to downtown areas. This saving can be measured once the Arterial is complete.

- Relief on Residential Roads

At present many transport trucks use streets in residential areas in order to commute from downtown. Any diversion to the Harbour Arterial would reduce congestion and noise in many neighbourhoods. The Donovans Survey will find the routes presently used by its occupants.

- Accident Injuries

A comparison of accident statistics occurring at given points before and after opening of the Harbour Arterial will indicate the decrease/increase in injuries. Statistics should be available from the Dept. of Transportation and Communications, consultants' reports and police agencies.

Supportive/Marginal

- Commuting Patterns

It would be expected that commuting patterns, especially of people in Newtown and the Southern Shore, would alter once the Arterial is complete. Traffic counts will be needed to establish this.

Regional Water Supply

1. Short-Term Impacts

- Spin-offs to Local Business

Many local businesses have benefitted as a result of material and equipment purchase or rental. The Survey of Contractors will provide data on these spin-offs.

- Employment

The Survey of Contractors will determine the number of man-hours

of construction employment.

- Financial Cost

The estimated final cost of the Water System is $33,125,558.69.

2. Long-Term Impacts

(i) Economic

Direct

- Permanent Employment

In order to operate and maintain the water system a number of positions have been and will be created. The exact number should be obtainable from the St. John's Metropolitan Area Board which operates the system.

- Residential Development

A great deal of activity has been taking place and is planned in this sector. At present one can cite numerous developments; Kenmount Park where 323 serviced lots are being developed, off Cowan Heights 97 serviced lots are now on sale, NLHC is developing Newtown which will result in an eventual total of 5000 serviced lots, and the St. John's Housing Corporation is presently planning to develop 1400 to 1800 services lots over the next 7 to 9 years in the Cowan Heights Extension. In addition numerous smaller developments are planned for the entire region. Without a new source of water it would have been impossible for any major residential development to take place. This would have resulted in an acute housing shortage and large increases in housing and rental prices.

- Business Development

The water system has also relieved restrictions on development of land for commercial purposes. One can cite the Village Mall as an example. If the City's water supply had not been augmented this establishment could not have been approved. Statistics on business developments are being collected which should show the magnitude of new commercial developments in areas now receiving water supply.

Marginal/Supportive

- Job Creation

As a result of facilitating development of lands in the City, adjacent to it, and in the region further business and residential expansion can occur. This will lead to temporary construction employment as well as permanent jobs in new commercial establishments.

- Municipal Revenue

As commercial and residential expansion occurs in the region the tax base for the various municipalities will be expanded.

- Infilling Potential

By providing water to previously unserviced areas restrictions on building can be reduced. This will allow infilling in numerous areas. Once the supply has been extended to all areas it will be possible to determine the amount of infilling it will have made possible.

- Insurance Costs

With adequate water supply extended to the region fire protection will be made easier. Thus insurance rates on many homes and

establishments would likely fall. Contact with the Insurance Advisory Organization should give a good indication of the savings to be realized.

(ii) Social

Direct

- Health

In areas where wells were used one can expect a significant change in water quality once connected to the water system. This should add to the general health in these areas.

Supportive/Marginal

- Fire Protection

Provision of water to unserviced areas and higher pressures in other areas will make fire protection more efficient. A comparison of injuries due to fire would give the magnitude of this impact.

- Relief of Inconveniences

In the past people have suffered inconveniences due to dry wells, polluted wells, or water rationing. Extension of the Bay Bulls Big Pond system will eliminate these annoyances.

- Population Growth

With a proper water system there would no longer need to be restrictions affecting population growth in those areas serviced by the regional water system. This will give people more freedom in deciding where they wish to live and allow greater population mobility.

Chapter 5

Summary/Conclusions

This Interim Report has served three main functions. It has given a review of the problems to be allievated by the Agreement, reviewed the activities of the evaluation committee and provided a preliminary indication of the sort of analysis to be employed in the Final Evaluation Report.

The evaluation process has been and continues to be evolutionary. It has been through the preparation of the evaluation work plan, preparation of progress reports and data collection activities that the present framework has been formed. As further activities mentioned in this report are undertaken one could expect that other relevant factors may be identified. Efforts would be made to examine these factors and have them incorporated into the final evaluation. Yet this present report can be expected to remain as the basic foundation. The primary purpose of future research will be to provide the final report with the upmost precision.

With completion of the Harbour Arterial in 1979 and the various studies undertaken this year it would be feasible to have a second interim report prepared before the end of the calendar year.

Program Inventory Format

(For purposes of this exercise a "Program" is defined as a series of interdependent, closely related activities or inputs clustered around a common objective or set of allied objectives).

1. Program Title: self-explantory

2. Government Department & Division: self-explanatory

3. Program Director: self-explanatory

4. Implementation Officer: (if different from Director)

5. Authority: List authority (legislative or regulatory) under which program is implemented

6. Budget Subhead: self-explanatory

7. Program Background: A brief and general description of the historical background of the program. Provide any relevant background information i.e. conditions existing prior to program, need for program, studies recommending implementation.

8. Program Objectives: Identify and describe the objectives of the program. If more than one objective is given, please priorize all objectives. Objectives should be quantifiable when they are economic in nature and, if possible, when they are social in nature.

9. Operational Goal(s): Identify and describe the specific targets expected to be achieved by this program and if possible the time frame for achieving same.

ST. JOHN'S URBAN REGION DEVELOPMENT

RATIONALE

Background

The Department of Regional Economic Expansion, since its inception in 1969, has been involved with and committed to support for the St. John's Urban Region. Among the first projects funded in the Province by this Department were the St. John's Urban Region Study and the first phase of the St. John's Harbour Arterial. The Urban Region Study, cost-shared with the Province, examined in some detail the need for infrastructure investments in the Region, among other things, confirming the requirement for the Harbour Arterial and pointing out the need for an augmented regional water supply. As a result of this, the Second Canada/Newfoundland Special Areas Agreement of August 1971 provided funds for the design of Phase II of the Harbour Arterial and for pre-design studies into the augmentation of the water supply.

The St. John's Region

The rationale for this subsidiary agreement is principally based on permitting the City of St. John's to fulfil its proper role in the provincial economy.

St. John's is the provincial capital and the centre of public administration in the Province. It is also the major transportation, communications, and higher education centre. Manufacturing has been growing significantly in the past number of years, although the service sector remains the major component of the economy. In this respect, St. John's is similar to the majority of cities in peripheral locations and will likely continue to be primarily dependent on the service, public administration, transportation, and communication activities.

The growth of the Province has been about in line with the overall growth rate of Canada in the last decade. Since the 1971 Census, this pace has continued with a growth slightly above that of the Canadian average. However, since 1971, the City of St. John's has not grown proportionately. In contrast to most other Metropolitan areas in Canada, the growth rate in St. John's has been less than that of the balance of the Province (See: Economic Review, "Appendix D"). The development of the Urban Region is considered vital to the economy of the Province of Newfoundland, particularly with regard to 'spread effects' of a strong Metropolitan area, which are preconditions to the attainment and maintenance of a healthy economic hinterland.

Developmental Outlook

The developments which hold the most promise for the future of St. John's are those which arise from its location. St. John's is strategically located in relation to established markets of North America and Europe and also in relation to the major offshore energy resources of the Continental Shelf. In connection with the latter, major initiatives in the fields of ocean science and technology are currently being planned by the Province. Paramount among these is the Newfoundland Oceans Research and Development Corporation, NORDCO, which will spearhead the initial phases of this marine initiative. As well, the offshore oil exploration companies have chosen St. John's as their main headquarters for activities in the waters off Newfoundland and Labrador and have had a significant impact on the economy, especially in terms of direct employment generated. Several local companies have been formed to participate with the oil exploration companies in this activity and it is quite likely that others will follow, especially in view of recent developments with regard to discoveries of gas fields.

Developmental Constraints

Development in the St. John's Urban Region is generally constrained by the need to develop a larger water supply system. The present water capacity for the area is fully utilized and continued development in the urban region is therefore predicated upon the establishment of a new water supply system. Without such expanded capacity, not only would residential development be constrained but expansionary activities of the central business district would be effectively precluded as well.

Efficient movement of people and goods from the downtown area to the outlying suburban areas of Mount Pearl and access from the Industrial Park at Donovan's to the Harbour area dictate a requirement for a major transportation link. The proposed Arterial provides such a link as well as a direct, free flow route from the Trans Canada Highway to the downtown area.

Objective

To remove the two aforementioned constraints to development in St. John's through the incorporation of two infrastructure projects into the proposed Subsidiary Agreement, the St. John's Harbour Arterial Highway and an Urban Region Water Supply System (see Map attached).

The arterial road will give direct access from the harbour and downtown area to the Donovan's Industrial Park and the railway terminal. The water system will provide a new source of water capable of filling regional demands for water for industrial and residential use for 20 years.

Summary

In the decade prior to 1971, St. John's growth, as did most Metropolitan areas in Canada, outpaced the balance of the Province. Since 1971, there has been a slowdown in growth of the Metropolitan area inconsistent with its potential. Opportunities for development exist and growth is considered vital to the economy of the area and, through spread effects, to the balance of the Province. The rationale for the proposed Subsidiary Agreement is based upon removing two impediments to growth and thereby permitting expansion of the economy of the urban region to occur.

APPENDIX B

ST. JOHN'S URBAN REGION WATER SUPPLY

DESCRIPTION AND RATIONALE

A. Background

The Province in the late sixties had developed a plan known as Plan 91, which outlined the potential development of St. John's over the period to 1991. Infrastructure requirements were identified in broad terms.

Among the first projects begun by the Department of Regional Economic Expansion in 1969 was the St. John's Urban Region Plan. This study dealt with physical plans, government organization and financing of projects for the region. The need for expansion to the existing water supply system was identified. The Second Canada/Newfoundland Special Areas Agreement of August 1971 provided funds for pre-design studies of the augmentation of the water supply. The study was completed in 1974.

Preliminary design work has been carried out on a thirteen package system which will eventually supply water to the overall St. John's region. Detailed design is now complete on three of the initial packages which will service the requirements of the commercial and service sectors of the City as well as immediate surrounding industrial and residential areas. These three packages are described in a section following and comprise the project for which funds are being requested.

B. Rationale

The rationale for the project to expand the water supply in the St. John's region essentially is twofold: (i) such expansion is essential to enable future commercial and industrial growth; (ii) water rates would be inordinately high by national standards if financed independently by the Province through conventional lending sources with full capital costs recovered through user charges.

a) Critical to future growth

The expansion of the St. John's water supply is considered a fundamental prerequisite to the growth of the City. The capacity of the existing water supply is only adequate to meet the average daily demand level of 1973. To a degree, expansion or addition of new commercial and industrial enterprises

as well as residential construction has been intentionally restricted within the City due to an inadequacy of water supply to sustain their needs. The removal of this impediment to growth is vital to enable expansion of the commercial and service sectors, as well as the manufacturing and distribution sectors of the City's economy.

Such expansion would be necessary to permit the City to resume the normal growth experienced prior to the post 1971 slowdown. In addition to this, major development opportunities include the harbour development planned by the National Harbours Board, the initiative in Ocean Science and Technology and future activity related to offshore oil exploration and development, as well as major projects in commercial and service sectors involving downtown hotel, office and retail expansion.

b) Tax Base insufficient to finance expansion

Unsubsidized expansion requires a taxation rate inordinately high by comparable national standards with resultant depressing effects on economic growth.

Currently, the water tax is $37 per year for residential properties and $.40 per 1000 gallons for businesses using under 2,000,000 gallons per month and $.20 per 1000 gallons for businesses using over 2,000,000 gallons per month. Total revenue derived from all water taxes is projected to be $1,324,000 in 1975 while total expenditures will reach $1,412,000, leaving the water supply operation in a deficit position.

Total City revenue is in the order of $16,500,000 per year at present, with some $3.5 million being spent on capital works in 1973. The provincial contributions to the City budget in direct grants for capital projects has totalled some $350,000 over the past two years.

The City's financial position is tight at present and it is almost inevitable that increases in taxation will be made in the very near future upon receipt of recommendations of the 'Henley' Royal Commission Report.

With regard to the water supply itself, of the present consumption of 15,000,000 gallons per day, some 22.5% is for industrial consumption, compared with 37.5% for residential consumption. The remainder is used for public use, watering of ships, losses, etc. There is every likelihood of industrial expansion, especially in the Donovan's Industrial Park. However,

most of the industries situated there presently are not heavy water users. Total estimated water use for the completed park (600 acres) is 1,500,000 gallons per day. It is felt that overall, the ratio of industrial to residential use will remain constant, so that industrial users will continue to use nearly 1/4 of all water supplied.

The proposed regional system will require water rates in the order of $1.22 per 1000 gallons to amortize the project (based on 10% interest rate and 5.5% escalation rate, both of which may be rather low). This would be unacceptable to most, if not all, consumers. With a 75% subsidy (by grant) the rate (in the above situation) will be $.64 per 1000 gallons. This is due to the operating and maintenance costs, which would not be subsidized.

Table I following, which assumes a cost of $.64 per 1000 gallons in the St. John's area ("Local scheme") indicates comparative rates elsewhere, and shows that St. John's would compare favourably with many areas based on application of these rates. While this table indicates only residential rates, the commercial rates would probably also be in the same ratio.

C. Technical Description

St. John's and the surrounding communities of Mount Pearl, Kilbride, Shea Heights and Wedgewood Park, with a total 1971 population of 95,000 are presently served by water from two sources: Windsor Lake in the north and Petty Harbour Long Pond in the south. The combined reliable yield from both these sources is approximately 14 million imperial gallons per day (MIGD) which just met the average daily demand of the area served in 1973, thus leaving no surplus capactity for further growth.

Under Project 3.1 of the Canada-Newfoundland Second Special Areas Agreement, a study was carried out in 1973-74 into the feasibility of augmenting the present St. John's water supply system and as well, expanding that system to serve the entire St. John's Urban Region, i.e., that area north of a line drawn between Witless Bay on the east and Holyrood, in the west. As a result of the findings of this study, it is now proposed to augment the supply by constructing the works necessary to permit water to be drawn from Bay Bulls Big Pond, which

is located some six miles south of the city. This source has a reliable yield at present of 18 MIGD, and, together with the two existing sources, will provide an adequate water supply to meet the projected needs of the region at least until 1995.

In order to permit this augmentation, it is necessary to construct an intake and treatment facility at Bay Bulls Big Pond, and a large diameter pipeline to bring the treated water into the existing St. John's - Mount Pearl distribution system at two points. This work will be carried out in three "packages" or projects, as follows:

1. Treatment Plant at Bay Bulls Big Pond, including intake and high lift pumping station

2. Conveyance main from Bay Bulls Big Pond to 2 MG service reservoir at New Town including Ruby Line booster pumping station

3. Conveyance main from Ruby Line bifurcation via Old Placentia Road to Topsail Road and along Blackmarsh and Empire Avenue to proposed service reservoir at Jensen's Camp Lane.

These three packages have been completely designed, and it is expected that construction will commence in late Spring 1975, which could permit water from Bay Bulls Big Pond to be delivered into the St. John's system in late 1977. Construction of these three packages will achieve the objective of augmenting the existing St. John's region distribution system, however, a further ten packages will require to be constructed if all of the major population centres in the region are to be served. These packages consist primarily of trunk main to the various areas, together with associated storage facilities. The estimated cost of packages 1, 2 and 3 is $33 million, of a total estimated system (13 packages) cost of $96 million.

The Province has sought financial assistance from DREE for packages 1, 2 and 3 only, on the basis that only that portion of the entire system appears to be in line with this Department's mandate as exemplified by the General Development Agreement. It appears likely at this time, that they will proceed with the remainder of the work on their own.

T A B L E I

ST. JOHN'S REGIONAL WATER SYSTEM
ESTIMATE FOR PACKAGES 1, 2 AND 3

Year	Estimated Cash Flow ($M) Package No.		
	1	2	3 (1)
1975 (2)	0.7	5.0	2.8
1976	9.3	4.4	2.4
1977	8.8	0	0
Sub-Total	18.8	9.4	5.1
Total	-------- 33.4 -------		

(1) Includes provision of 2.5 million gallon reservoir in Mundy Pond area at estimated November 1974 cost of $600,000.

(2) Pipeline material supply contract and engineering costs included.

Package 1 - At Bay Bulls Big Pond, intake, low lift pump station, pipeline to water treatment plant, water treatment plant, high lift pymp station, filter backwash pipeline and access road.

Package 2 - 42" diameter pipeline from water treatment plant to pumphouse at Ruby Line, pumphouse at Ruby Line, 30" diameter pipeline from pumphouse at kuby Line to existing reservoir at New Town.

Package 3 - 30"/24" diameter pipeline from pumphouse at Ruby Line to Mundy Pond area.

APPENDIX C

ST. JOHN'S HARBOUR ARTERIAL

DESCRIPTION AND RATIONALE

A. Historical Background

The St. John's Harbour Arterial was included as a major and essential project in an overall program contained in the Special Areas Agreements relating to the economic development of the St. John's region. The program was centered basically around a much needed Industrial Park at Donovan's and a Newtown Development adjacent to the Town of Mount Pearl. The objective was to overcome a major bottleneck to industrial and commercial development in the region by providing the necessary infrastructure to support projected expansion. An integral part of this development was a limited access highway from these new developments to the Harbour and the downtown business sector, which was considered to be vital to the success of the overall program.

The development of the Industrial Park and Newtown have proceeded as planned and are currently being expanded to meet the demand for both industrial and residential land. However, the Harbour Arterial has only been partially completed. The Department provided funding for the design of the entire project and for the associated land acquisition costs. However, the Second Special Agreement provided funding only for construction of the portion of the Arterial from the Trans Canada Highway to the Bay Bulls Road. The design of the Arterial has been completed and the Province has acquired most of the land involved.

The result of federal/provincial discussions and negotiations during the past eighteen months has been an offer to the Province by the Minister of Regional Economic Expansion to finance the completion of the Arterial on the basis of a 75 percent grant to the Province of the total costs remaining. The Province is prepared to accept this arrangement and proceed immediately with signing a Subsidiary Agreement to this effect.

B. Rationale

The overall rationale for the project is that it will greatly facilitate the fulfillment of both the development and transportation needs of the St. John's region. More specifically it will:

(a) provide the Industrial Park at Donovan's with the vital road access to the Harbour and main business district which is required to complement the existing ready access to the Trans Canada Highway and C.N.R. main line;

(b) greatly facilitate the re-development of both the downtown core and the Harbour which are currently severely handicapped by the existing inadequate transportation system;

(c) provide access to the downtown and Harbour areas for a large and growing population in the New Town, Mount Pearl, Brookfield Road, Goulds, and Southern Shore area. These are an integral part of the overall development of the St. John's region and as such require a ready access to the major sources of services and employment;

(d) provide a major by-pass as an alternative route to the Harbour and downtown area from the Trans Canada Highway which will decrease serious congestion on existing roads. This in turn will substantially decrease the need for major capital expenditures on existing routes; and

(e) facilitate the movement of materials and labour to and from the Southern Shore region.

In short, the completion of the Arterial is a vital project for the continued development of the St. John's region and should be completed as expeditiously as possible.

C. Technical Description

The St. John's Harbour Arterial will be a key link in an arterial system which will eventually provide for rapid and convenient flow of both passenger and commercial traffic within and without the St. John's region. Other links under construction or proposed, are a Conception Bay Arterial, which will be an extension of the Harbour Arterial beyond the Trans-Canada Highway along with Conception Bay, a Cross-town Arterial, which will connect with the Harbour Arterial at Kilbride, and will traverse St. John's, having its Eastern Terminus in the vicinity of the Avalon Mall.

The topography and configuration of the region effectively rule out common forms of mass transit, and it is only through such a system of arterials that traffic flows can be best accommodated.

The route chosen for the Harbour Arterial was the least expensive of many alternates. A Royal Commission was held in 1971 to elicit views from concerned citizens. Its Terms of Reference were to decide upon and to recommend to Council the best of all alternate proposed routes for the Harbour Arterial. Views from all concerned groups were heard, various presentations were made, and criteria were developed by which the optimum route for every arterial would be determined. Such criteria included: the least cost, the least disruptive route during construction and after construction, the least polluting section, and the routes which would cause the least demolition of existing buildings, both residential and commercial. Various rating scores were used and the proposed route was considered optimum by the Royal Commission.

The Harbour Arterial is intended to serve as a high speed - high volume (forecast 1990 Average Annual Daily Traffic of 13,000 vehicles) traffic link between the Trans-Canada Highway - Donovan's Industrial Park area and downtown St. John's. It is designed as a four-lane divided limited-access highway, with a 60 m.p.h. design speed for the rural section (T.C.H. to Kilbride) and a 40 m.p.h. design speed for the urban section (Kilbride - downtown). The total length of the route is approximately 9 miles, with the 6 mile section from the T.C.H. to Kilbride having already been constructed under the Canada-Newfoundland Second Special Areas Agreement.

The 3 mile section of the Arterial remaining to be completed, runs from Kilbride, along the Southside Hills through undeveloped scrublands to downtown St. John's, where it connects with the existing 6 lane New Gower Street in the vicinity of City Hall. A system of ramps and loops will provide easy access to and from Water Street, and thereby Harbour Drive. Completion of this route requires major overpass structures at Bay Bulls Road, Blackhead Road, and the C.N. Yard area. As well, an overpass is required to permit a connecting link from Road DeLuxe to the Harbour Arterial. This link will serve to connect the major portion of western St. John's with the Harbour Arterial.

Very little disturbance of existing commercial and residential properties is required to permit construction of the Arterial, especially when we consider the crowded nature of downtown St. John's. Most of the required properties have already been acquired by the Province through funding provided by DREE under the Second Special Areas Agreement, and the remainder

should be acquired well in advance of a construction start.

The current estimated cost of completing the Harbour Arterial is $34.42 million, and construction is estimated to take some 5 years. Details of the cost estimates and phasing are as attached in Table II.

T A B L E II

CONSTRUCTION COST ESTIMATE AND TENTATIVE PROGRAM - ST. JOHN'S HARBOUR ARTERIAL (KILBRIDE TO DOWNTOWN)

Unit	Location	Description	Construction Period	Estimated Cost ($M)	Remarks
1	Kilbride Connection to Bay Bulls Rd. (STA. 303 to 331)	Earthworks, Grading, Drainage, Granular "B" Course including Interchange Ramps, Overpass & Relocation of Bay Bulls Road	May 1975 to Nov. 1976	3.50	Including Utility Relocations
2	Bay Bulls Rd. to Blackhead Rd. (STA. 331 to 419)	Earthworks, Grading, Drainage, Granular "B" Course & Landscaping	June 1976 to Dec. 1977	3.75	
3	Harbour Arterial STA. 419 to 434)	Earthworks, Grading, Drainage, Granular "B" Course & Landscaping of Harbour Arterial. Blackhead Road Relocation (including Paving) together with Blackhead Road Overpass	April 1976 to Dec. 1977	3.11	Including Utility Relocations

TABLE II (Cont'd.)

CONSTRUCTION COST ESTIMATE AND TENTATIVE PROGRAM - ST. JOHN'S HARBOUR ARTERIAL (KILBRIDE TO DOWNTOWN)

Unit	Location	Description	Construction Period	Estimated Cost ($M)	Remarks
4	Harbour Arterial (STA. 434 to 452+)	Earthworks, Grading, Drainage, Granular "B" Course, Landscaping & Retaining Walls	April 1977 to Dec. 1977	2.21	
5	Jobs Crossing	Relocation of Power and Telephone Companies & other public facilities	May 1975 to Dec. 1976	1.72	Ordering Materials early in 1975 to assure Construction Start Up to 1976
6	C.N. Viaduct	Construction of Four Lane Bridge (plus Shoulders & Ramp to Water St.) over C.N. Shed, Waterford Bridge River, Job's Crossing & Water St., including minor road-works below Proposed Structure)	Jan. 1976 to Dec. 1979	10.91	Tenders should be called as early as possible to secure orderly flow of materials. However no significant progress can be made until Unit 5 is substantially completed
7	Harbour Arterial (E. Abutment of C.N. Viaduct to Waldegrave St.)	Relocation of affected Utilities, Earthworks, Grading, Granular Courses, Drainage & Paving for proposed Arterial & Connecting City Streets	May 1977 to Dec. 1979	1.75	

TABLE II (Cont'd.)

CONSTRUCTION COST ESTIMATE AND TENTATIVE PROGRAM - ST. JOHN'S HARBOUR ARTERIAL (KILBRIDE TO DOWNTOWN)

Unit	Location	Description	Construction Period	Estimated Cost ($M)	Remarks
8	Harbour Arterial (STA. 303 to 480± -Waldegrave St.)	Granular "A" Course Paving, Curb & Gutter, Guard Rail & Fencing.	June 1977 to Oct. 1979	3.43	
9	Harbour Arterial (STA. 450 to 480±)	Highway Lighting	-	0.23	This could be included with Units 6 and 7
10	Road DeLuxe	Earthworks, Grading, Drainage, Paving, Landscaping & Bridge, including Widening of Waterford Bridge Road	June 1977 to Oct. 1979	3.81	
		Total	Lapsed Time (4.5 years)	34.42	

ST. JOHN'S ECONOMIC REVIEW

In looking at the St. John's metropolitan area several trends emerge that are shaping and will likely continue to shape the city's future growth and role in the provincial economy.

The most apparent trend is that the population of the metropolitan area appears to be growing at a significantly slower rate than the province as a whole. While the population of Newfoundland grew at a rate of 4.5% from a 1970 level of 517,000 to 540,000 in 1973, the St. John's metropolitan area only showed a 2.5% gain. The 1970 metro population of 130,000 grew to 133,000 in 1972 and held that level for 1973. A reasonable estimate would put the 1976 population at about 136,000. There are a number of possible explanations for this slowdown in St. John's growth. These could include a strengthening of employment markets in other provincial centers, a general reflection of a slowdown in Newfoundland population growth as a whole, or the presence of development constraints in the metro area. Irrespective of the reason, or reasons, St. John's at this point in the 1970's can be characterized as in a period of slow growth.

Another feature of the current evolution of the metro area is a strengthening pattern in labour force distribution. The 1961 St. John's labour force has grown from 29,366 to 47,665 in 1971. The 1971 unemployment rate was at 8.3%, lower than the provincial rate of 11.4%. The employment structure reflects the city's role as the provincial capital and commercial and financial service center. Changes in the percentage distribution of the labour force in the major employment sectors reinforces this image. Between the 1961 and 1971 census, employment in the personal service sector increased 6.3 percentage points to 30.2% of the total labour force. The other major employment sectors remained: trade with 20.1% and transportation and public admin/defence each with 11% of the labour force although these three showed slight declines from 1961. It would seem safe to assume that this growth trend in the service sector will continue in St. John's. One of the features of growth of this kind is the tendency to concentrate in a common, central area. This would indicate continued pressure for development in the metro central business district or waterfront area.

Associated with any growth in an urban area is the provision of housing. Information on housing starts both mirrors current economic conditions (perhaps with some lag) and indicates

the direction of growth and future shape of the city. This in turn focuses attention on the nature of demand for public services such as sewers, water and public transit. The rate of increase in housing starts has dropped off slightly in the last year to 1,876 for 1974 after a jump from 1,307 in 1972 to 1,705 in 1973. This is a further indication of the general slowdown in St. John's growth. It is interesting to note that the largest increase in housing starts occured on the fringe of the metro area with the Mount Pearl - Topsail area and the St. Phillips - Portugal Cove area showing the largest increases. For 1973 and 1974, Mount Pearl - Topsail showed 44 and 81 starts and St. Phillips 68 and 233 starts in the same period. This condition reflects a number of factors not the least of which is the availability of comparatively cheap land and no taxes. However, this trend to urban sprawl exerts pressures on the road systems at present, and in the future, as these areas fill in, pressures for services and public transit to the downtown area.

Another facet of St. John's development is that as the personal service sector grows and competition for downtown space increases, more and more industries will be forced out of the core area. These industries are now being attracted to the metro fringe area industrial parks by the same features as attract the residential development and they in turn will exert similar demands for roads and services. Like the service sectors, the unspecified industry category showed an increase of 6.8% to 9.3% of the labour force in 1971.

Reflecting a combination of factors, some of which are outlined in this analysis, St. John's should continue to grow slowly and reinforce the patterns that are now developing. A detailed analysis of this trend and its compatability with the desired design of the city should be undertaken prior to implementation of any additional growth oriented projects.

10. Program Performance Indicators: Indicate what measurements will be applied and what data will be collected to permit evaluation of success of program in meeting objectives and goals.

11. Program Target Group: Identify and enumerate (if possible) the groups of people who will be directly controlled or affected by this program.

12. Program Delivery: Summarize how the program is to be administered and implemented. (1) Clearly indicate if program is to be implemented in steps or as a complete package. (2) Describe any economic, social or cultural factors which may interfere with a successful program implementation. (3) Describe any administrative or technical support provided the program other than by staff directly concerned with its implementation. (4) Indicate number and position of Department's personnel assigned to this program.

13. Program Data Output: Indicate what statistics are presently kept on the program's operation and the period for which these have been kept.

14. Evaluation Measures: Indicate if program is monitored on a regular basis and describe methodology used to determine economic and social impact of program. All indicators used for evaluation of impact should be quantified, if possible.

15. Program Budget: (5 Year Projection) Costs should be detailed so as to show: existing costs; government participation; annual and total cost to government over the specified time period; and other relevant factors.

The following format for providing this data is suggested:

FY 1 2 3 4 5

a) Administrative Cost

1. Salary

2. Other Current Account Expenditure

b) Program Cost-Capital

1. Labour

2. Equipment

3. Other

c) Program Cost - Operating

1. Labour

2. Equipment

3. Other

d) Cost-Shares Revenue
(specify source)

1. Current

2. Capital Account

e) Other Revenue
(specify source)

1. Current Account

2. Capital Account

f) Total Net Provincial Cost.

Appendix II

St. John's Urban Region Subsidiary Agreement

Summary of Indicators

rogram	Short-term Indicators (During Construction)	Long-term Indicators (After construction)
. St. John's rban Region ater Supply ystem	1. Direct Employment Created 2. Percent of Contracts to wages & salaries (local) 3. Material Purchase (local) as percent of contract 4. Equipment Purchase (local) 5. Engineering (local) 6. Effect on local labour situation 7. Total output generated as percent of construction dollar 8. Percentage utilization of funds	1. # of permanent jobs created 2. Changes in development a) # of requests for development b) # of new housing starts c) # of new residential expansions d) # of new business starts e) # of business expansions 3. Changes in pattern of development 4. Changes in water consumption 5. Changes in water quality 6. Changes in distribution reliability re: downtime rationing environmental problems 7. Changes in fire and health costs related to adequate water supply 8. User benefits: - effect on quality of life - effect on property values - effect on cost of living 9. Spinoffs to business re: consumer spending 10. Changes in population growth 11. Effect on Local Government re: Planning & zoning regulations & municipal revenue
. St. John's arbour rterial	1. Direct Employment Created 2. Percent of Contracts to wages & salaries (local) 3. Material Purchases (local) as percent of contract 4. Equipment Purchase (local) 5. Engineering (local) 6. Effect on local labour situation (UIC diverted) 7. Total output generated as percent of construction dollar 8. Percentage utilization of funds	1. Improved access for commercial & private users 2. Improved traffic capacity 3. Changes in maintenance costs on existing collector roads 4. Changes in travel time 5. Changes in travel distance 6. Changes in transportation costs 7. Effect on other routes (diversion 8. Effect on land uses in other area of city 9. Effect on highway safety 10. Changes in highway related busine 11. Changes in population growth 12. Municipal fiscal impact

APPENDIX III

SUMMARY OF EVALUATION ACTIV