

**LEGISLATIVE ASSEMBLY OF THE  
NORTHWEST TERRITORIES  
5<sup>TH</sup> COUNCIL, 33<sup>RD</sup> SESSION**

**SESSIONAL PAPER NO. 13-33**

**TABLED ON OCTOBER 31, 1966**

Sessional Paper 13-33  
Tabled on Oct. 31, 1966



October 11, 1966  
Confidential - Not  
for release before  
tabling during the  
33rd Session of  
Council.

**NORTHWEST TERRITORIES**

SESSIONAL PAPER NO.13  
(Second Session, 1966)

REPORT ON LOW COST UTILIDOR SYSTEMS

DISPOSITION

Tabled	To Committee	Accepted as Read	Accepted as Amended	Deferred (to Session)	Rejected	Noted not Considered
31. X .66	17. XI .66	18. XI .66				

## REPORT ON LOW COST UTILIDOR SYSTEMS

At the 32nd Session of Council, on January 28th, 1966, the chairman requested that the Administration prepare a report on a low cost utilidor (Requested by Air Marshal Campbell, Page 247).

The provision of water and sewer services to northern communities, especially in regions of permafrost presents many problems. Frequently these services have been enclosed in a box-like structure, called a utilidor, built on or above ground. The utilidor is constructed of wood or metal and is usually weather-proofed and insulated. To ensure that the service pipes in the utilidor are kept from freezing, heat is applied to the interior of the structure either by electrical heating cables; blowing in heated air; or by adding heated pipes which could also be used to heat the buildings being serviced by the utilidor.

Continuous distribution of services can be maintained relatively easily by this method, but it is costly to install.

The first major utilidor system was constructed at Inuvik in 1957. The initial cost of the main utilidor system has been placed at about \$200 per foot and the secondary servicing utilidor, called a utilidette, cost approximately \$100 per foot. This utilidor contains water and sewer mains, a high temperature water line for building, and a heating and a condensate line.

As the settlement of Inuvik grew an area which was not serviced by the utilidor system also grew. This "unserviced area" was the result of the inability of the people to pay for serviced lots and the high cost of extending the utilidette to service these lots.

To take care of the residents of this new non-utilidor area, service centres were built in 1959. These centres were elevated buildings containing water take-off points, sewage disposal areas and toilet facilities. The centres were designed to be serviced by tank vehicles.

As the non-utilidor area grew the capacities of the service centres were stretched to their limits.

In conjunction with the growth of the non-utilidor area, the residents sought a better means of being provided with their essential water and sewer services rather than using the service centres. A local contractor distributed water to those who could afford this service but only during the summer months. During this period the residents began requesting the extension of the utilidor system. The majority of these home owners were in isolated housing groups throughout the non-utilidor area. In one area an estimate of between \$250,000 and \$350,000 was made for the utilidor extension.

Any extension would have to be financed by the residents requesting the work under the terms of the water and sewer policy contained in the Federal-Territorial Financial Period 1962-67. The high cost of this extension made it impractical from a financial viewpoint for the residents to be able to pay their share of the cost.

Early in 1965, the Territorial Government instituted an improved system of trucked water supply and sewage disposal services in the unserved area of Inuvik based on the new policy for provision of these services. The new system consisted of:

- (1) Converting the service centres to ground level operation and the discontinuance of the sewage portion of the units.
- (2) Water and sewer services at full operational cost would be made available to those who had pressure systems.
- (3) Minimum quantities of water, delivered twice a week, would be delivered to all others at a small cost. This cost would only consist of the added cost of making the delivery and would not cover the share of total overhead costs.
- (4) Sewage would be picked up free of charge from all houses as covered by item 2.
- (5) Water would be made available at the service centre at no cost as in the past and additional water points would be constructed.

The implementation of the sewage pick up service has not been successful. The main difficulties are; people not getting up, doors locked, people not being at home, etcetera. Consequently, the sewage side of the service centres have been kept open and those residents who cannot put their sewage containers by the road for pick up are forced back into using the service centre.

A building or building area which uses a large amount of water will probably always be serviced by some type of a utilidor system, but the remainder of the settlement will continue to use a trucked system until the communities become compact developments rather than the stretched out area they now occupy. As the settlements become compact units the cost of servicing the buildings will become less and it will be economical to install a general utilidor system. Until that time the high cost of constructing utilidors will probably always give way to some type of a trucked system.

Frobisher Bay is a perfect example of the above. The hospital, the central heating plant and the Federal Building are serviced by two different types of utilidors. The remainder of the area which includes the main settlement of Frobisher (the settlements at Apex Hill and Ikaluit) is serviced by a trucked system which is under contract to the Department. The trucked system, although a costly operation, is more economical at this time than would be a full utilidor system.

Although both governments have endorsed the trucked system of services, they have not overlooked the possibilities of providing the best services which could be used. The design of the best system depends on local conditions in the settlement.

A step up from trucked services is the provision of a low cost utilidor system. While the trucked services were being improved, not only at Inuvik but throughout the North, a closer look was being made at the design of a low cost utilidor.

In July 1963 the Engineering Division of the Northern Administration Branch commenced planning for the construction of a low cost utilidor system for communities in the North. An item was included in the 1964-65 Federal Estimates totalling \$30,000 for such a system.

During the latter part of 1963, preliminary studies indicated that such a system would cost about \$45,300.

On January 24, 1964, a Service Contract was awarded to J.L. Richards & Associates Limited in the amount of \$2,500 for investigation and report of an experimental water supply and sewage disposal system for communities in the Northwest Territories. The final cost of this contract was \$2,307.98.

The report indicated that the estimated cost of a low cost utilidor system for an 11-house complex was \$41,740 and that the annual operating cost would be about \$2,350.

On February 25, 1965, another Service Contract, for \$3,000, was awarded to J.L. Richards & Associates Limited for "The design of an experimental system". The final cost of this contract was \$3,521.20.

Materials for this system were requisitioned on April 21, 1965, at an estimated cost of \$13,137.22. Later in the year a contract was awarded to Arctic Units Ltd. for the supply of a building to house the mechanical equipment for the system, at a cost of \$4,529.

All materials for this project were shipped to Frobisher Bay and are now being installed at Ikaluit. The total expenditure for these materials to April 1, 1966, was \$17,779.78. The final cost of the project will be available within the next few months. This year's expenditures, to July 29, were \$5,335.17.

The low cost utilidor system at Ikaluit should be operational some time in October, 1966. Records will be kept of the operational and maintenance costs but it will not be possible to assess this system until the summer of 1967 when a detailed report will be prepared.

Because the Department has to take into consideration the needs of a community as a whole and to attempt to provide the best compromise between the ideal system for each community and a system which could be extended to everyone, Ikaluit was chosen as a test area. The prime reason for this is because Federal funds are involved and the houses to be connected to this experimental system form part of the pool housing program. The results of this system could benefit the entire housing program throughout the North.

The Department of National Health and Welfare is constructing an experimental utilidor at Inuvik this year. This system consists of various types of short utilidors. The Northern Co-ordination and Research Centre of the Department will be operating this experimental project. An assessment of the various types of utilidors will probably not be available until sometime next year.

It is hoped that as a result of these two individual projects, one actual and one experimentation, that a low cost utilidor can be developed for a cost of \$10 to \$20 a foot.

On the basis of being able to build a low cost utilidor for \$20.00 a foot an existing twenty lot subdivision in Inuvik (Co-op area) was chosen to determine what the individual lot owners' costs would be to extend this type of utilidor from the existing utilidor system. The existing water and sewer policy as contained in the 1962-67 Federal - Territorial Financial Arrangements was followed for cost-sharing between the responsible government (Territorial) and the lot owners.

The main utilidor would have to be extended about 1,110 feet to reach the subdivision and an additional 1,700 feet would be required to service the 20 lots involved. A service utilidor averaging about 70 feet in length would be required to connect into the residences. The first 20 feet of the service utilidor (utilidette) is considered as part of the main utilidor for cost-sharing in Inuvik under the existing arrangements. Thus the main utilidor plus 20 feet of the service utilidor has a cost-sharing arrangement of 75% chargeable to the Territorial Government and 25% chargeable to the lot owners. The remaining 50 feet of service utilidor is completely chargeable to the lot owner.

The total cost of extending a low cost utilidor to a 20 lot subdivision (assuming there are 20 residences erected) and connecting into the houses on the basis of \$20.00 per foot would cost about \$84,200. The Territorial Government would be responsible for \$48,150 and the 20 lot owners would have to pay \$36,050. An individual lot owner's capital cost share of the extension would be about \$1,802.50.

If the Territorial Government would underwrite as a local improvement tax this \$1,802.50 over 15 years at 5 3/4%, the monthly amortization cost would be \$14.93. If the monthly cost of water and sewer service charges of \$10.00 was added, the individual lot owner would have to pay \$24.93 per month for utilidor services to his residence. If this can be done, individual lot owners would be able to obtain their sewer and water services much more easily.

The total cost of this type of system will depend on the size of the lots to be serviced. If housing is built in the form of compact groups or row housing to a much greater extent than has done in the past, the individual owner's cost will be greatly reduced. The people must, therefore, be willing to live in houses which are closer together than has been the trend to date.

To the owners' capital share of the system must be added the costs of adapting the household plumbing to suit the type of utilidor to be installed. In some cases this cost could vary between \$500 and \$1,500.