Indian and Northern Affairs Canada
Affaires indiennes et du Nord Canada

REPORT

Forecast for O&M Gross Funding Requirements

1987/88

Canada

EXECUTIVE SUMMARY

Technical Services has, over the past several years, been using the Capital Asset Inventory System (CAIS) and operation and maintenance (O&M) unit cost calculations in the preparation of the Departmental O&M Gross Funding Requirement (GFR)* forecasts. Coincident with this activity, adjustments have been made this year to the City Centre and Remoteness Indices (multipliers which adjust the base unit cost information) to more accurately reflect actual relationships in the field, as well as changes to the O&M Unit Costs caused by inflation and other economic factors.

Major changes were incorporated in CAIS computerized operations last year to enhance its usefulness as a tool in determining the GFR. Work continued during the past year on enhancing CAIS computerized operations to improve the precision and accuracy of the CAIS database. One component of this process was the development of comprehensive asset definitions for the assets included in the GFR calculations. Those improved definitions were then used by the regions to validate their individual asset data bases. The validation process took place over a six month period, from January to June, 1987 and the results of that exercise have been used in the GFR calculation process.

Based on the results of that process, the forecast of departmental gross funding requirements to operate and maintain facilities for the 1988/89 fiscal year in 1987/88 dollars is approximately $132.8 million.

The 1987 GFR represents a 6% increase over the 1986/87 figure of $125.6 million.

This report summarizes the data on which the GFR figure is based. The GFR inventory and O&M unit costs are displayed in several different formats in order to provide departmental officers with a definitive and common source of information to help manage departmental resources.

*Note: GFR is the total funds required to operate and maintain all inventoried assets. The funding sources that contribute to meet the GFR are not identified, but from the Department's point of view the Net Funding Requirement (NFR), that is the funding actually supplied to the regions, is the GFR less funds supplied through other funding sources.

1.0 INTRODUCTION

For the past several years, regional Technical Services units (formally Engineering and Architecure units) and Technical Services Branch (TSB) at Headquarters have identified, categorized and recorded all real capital assets located on reserves across Canada which are funded, either fully or partially, by the department. Using the asset data obtained in conjunction with comprehensive, representative Operation and Maintenance (O&M) costs, TSB has been able to develop a Gross Funding Requirement (GFR) for the operation and maintenance of departmentally funded assets. That GFR calculation is used, in addition to other uses, to provide support for Treasury Board funding submissions and to assist in establishing internal funding allocations.

Each year technical organizations in the regions provide TSB with a new updated inventory. Concurrently, TSB specialists update O&M cost information using available departmental information and data obtained from third parties.

2.0 GFR CALCULATIONS

2.1 General

The Gross Funding Requirement (GFR) is calculated from two separate but closely related information bases: inventory information and cost information. Changes in either base or more particularly in both bases can significantly affect the GFR for a particular facility, category, or region.

The GFR calculation process takes the inventory information from a particular asset and multiplies it by the appropriate cost information to produce a GFR. That individual GFR information is totalled to provide regional totals and totals by asset category.

2.2 Inventory Information

The department has an asset inventory system that contains a listing of real property on reserve in the Indian Services Program. This inventory system, the Capital Asset Inventory System (CAIS), is maintained by regional Technical Services offices. The regions provide Headquarters with an updated inventory on an annual basis. All the regional information is rolled up at Headquarters to produce the national inventory.

Improvements to CAIS started last year and have continued this year with work being done to improve the input and output modules of the system. Work was also

focused on improving the accuracy and precision of the asset database.

The improvements were founded on the establishment of a "Base Year Database" that would be added to, deleted from or otherwise modified in future years. Such a process would ensure that there would be a verifiable audit trail and would result in a more efficient and streamlined CAIS updating process.

The "Base Year Database" was determined through an asset validation exercise that was undertaken by the Regions and Headquarters in the first half of 1987/88. The first step in the exercise was the development by TSB specialists of definitive asset definitions (see Annexes A, B and C for details). The definitions provide a description of what each asset consists of; its unit of measure; examples of typical assets in the type; and examples of what should not be included. With those definitions and a printout of the previous year's asset listing supplied by Headquarters, the Regions were requested to examine the listing, on a record by record basis, to substantiate each asset, its category, class and subclass, the quantity measurement and other pertinent, asset related information.

Once the review process was completed, the amended sheets were returned to Headquarters where they were reviewed by TSB specialists. Where any entries appeared questionable, the appropriate functional area contacted the region in question and each anomaly was resolved.

The modifications were then entered into the CAIS database and a new listing was produced. That listing was in turn sent to the Regions for their review to ensure that no data entry errors occurred or that no mistakes were made on the first iteration. The listing was then signed-off by the Regional Manager, Technical Services and the Director, Band Support and Capital Management attesting to its validity. That signed-off listing is the "Base Year Database" on which all future CAIS transactions will be based (see Table 1 for the National Summary).

The validation exercise has brought home the importance of an accurate and precise inventory. For example, the Yukon region in reviewing their printouts did not feel that the inventory presented an accurate enough reflection of their asset base. Rather than trying to reconcile the existing inventory with the inventory listing, the region chose to conduct another inventory

of all regional assets to ensure a precise asset listing.

2.3 Cost Information

2.3.1 O&M Unit Costs

Standard O&M cost definitions have been developed for each of the different types of assets. Based on these definitions, the department has developed basic unit costs for the operation and maintenance of buildings, water distribution systems and the other types of assets funded by the department. A "Base O&M Unit Cost" is defined as the price to maintain a given unit of a particular asset in Toronto. For example, the base unit cost to maintain a square metre of school in Toronto has been determined to be $38.28.

Through the use of consultants, third party information, contacts in other government departments and other methods, the base O&M costs are revised and updated annually by TSB specialists.

The final results of the specialists efforts are shown in Table 2 which summarizes the O&M unit costs for this year and the change from the previous year. The following five reports provide a detailed description of the procedures and methodology used to develop the 1987/88 O&M Base Unit Costs and are available on request.

87-15 O&M Costs for Electrical Facilities, Power Generation, Transmission, Distribution and Street Lighting

87-18 O&M Costs for Municipal Systems 1987/88

87-19 O&M Base Unit Costs for Roads

87-20 O&M Base Unit Costs for Vehicles

87-24 O&M Costs for Buildings

2.3.2 Unit Cost Multipliers

There are two multipliers which must be factored into the GFR calculations to transfer the Toronto base unit cost information to an actual site unit cost. The two factors are the City Centre Index (CCI) and the Zone or Remoteness Index (RI). Both the CCIs and RIs were reviewed and revised where appropriate during the past year.

The CCI translates the Toronto Base Cost to the cost at various centres located across the country. As most reserves are located in rural or remote settings, another modifier had to be developed to further translate the city centre modified cost to a cost appropriate to a given locale. The Remoteness Indices allow costs to be developed for reserves that are in urban, rural, remote or special access (i.e. no year-round road access) locations.

The City Centre Indices and Remoteness Indices are calculated on a "basket of goods" approach that includes such factors as labour, equipment and parts, energy and climate. Using this methodology, each facility's major O&M cost components are weighted based upon analyses of historical O&M costs. The index for each major component is then calculated based on the price of several common O&M cost items that are also weighted to represent actual spending profiles for the particular asset. This procedure is repeated for each of the facility types for which O&M costs are provided and for each of 33 city centres. Further adjustments are built into the calculation process to take into account, for example, the severity of climate on building operational costs, or the effects of climate and local operating characteristics for roads.

As mentioned previously, City Centre Indices are under constant review and updating. As well, this year a major review of the Remoteness Indices was undertaken by consultant. As part of this project, the major component and cost item weightings, and the validity of various cost items used in the methodology were evaluated. The review resulted in changes being made to the methodology to simplify the process which do not allow direct comparisons of 1986/87 and 1987/88 indices to be made. For example, the 1986/87 indices made use of a materials table with a

single set of weights for all facilities. In 1987/88 the materials table has been enhanced with the addition of a materials weighting table which allows each specialist the flexibility to use materials and weightings appropriate to the facility being costed. The weightings of the various trades which are used to generate the salaries component of the indices were reviewed and revised. Revisions were also made to the vehicles, electrical, and municipal services weightings for the labour components.

Annex "D" outlines the definitions used to determine a remoteness classification for the purpose of O&M funding. These definitions are the same as those used in the publication, "Classification of Indian Bands by Geographic Zone" produced by the Housing and Band Support Branch, Indian Services Program.

3.0 ANALYSIS BY REGION

3.1 General

The asset counts in all regions behaved in what is to be considered a normal, predictable fashion given the effects of the validation process and the development of precise asset definitions. All regions except Saskatchewan have shown slight increases in GFR primarily due to price increases as their asset volumes have remained relatively constant over the past year. Ontario, however, has shown significant growth reflecting the increased accuracy of the inventory and the region's large capital program. Saskatchewan has had the only decrease in overall GFR this year.

3.2 Atlantic

Overall the Atlantic region has shown very little movement in asset volume changes. The buildings component has virtually remained stationary with the largest movement taking place in recreational buildings with an increase of almost 1000 square meters or 7%. The lack of movement can be primarily attributed to the mature nature of assets in the region with little requirement for additional educational or similar facilities. As is the case with all regions, there has been a great emphasis on improving the water supply to reserves. This has resulted in growth in both the water supply and waste water areas with a combined increase of almost 9000 m of pipe in the ground. For those reasons the GFR for the region has increased by just

over $400,000 over the past year to a total GFR of $4.7 million.

3.3 Quebec

As was the case with the Atlantic region, the increase in the buildings area was minimal during the past year for similar reasons. New water and sewer lines constructed during the past year amounts to over 6100 metres, again showing the increased emphasis placed on providing reserves with improved water and sewer facilities. All other categories in Quebec exhibited adjustments in inventory due to the new definitions and the validation resulting in a 1987/88 GFR value of just under $11.8 million.

3.4 Ontario

The Ontario region has shown growth in all asset categories resulting in a 1987/88 GFR of $27 million or almost a $4.6 million increase. This is attributable to having the largest capital budget of any region and the diligent work over the past year by the region in improving the asset inventory to ensure that all information was included. The Ontario region has always placed a great deal of emphasis on providing adequate water and sewer services to reserves. This is reflected in the almost 7500 m of mains being constructed during the past year. The remainder of the almost 25000 m increase is due to the addition of information to the database that was not included last year. In 1986, regional staff were not allowed on twelve sites to conduct the necessary investigations to determine the actual asset count and therefore simply provided an estimate as to what was located on reserve. This past year they were allowed to conduct the necessary investigations resulting in increases to the database.

3.5 Manitoba

The Manitoba region has also made a concerted effort over the past year to improve the quality of the information in their asset inventory. This has resulted in a major realignment of some of the asset quantities recorded. The capital program in the region has been focused on the provision of building facilities mainly schools. With the validation of the inventory, the area of all buildings recorded in CAIS has decreased by over 2000 square meters from last year's value. The bulk of that decrease, is caused by decreases in the area of teacherages reported due to decommissioning. There were also decreases in the operational and recreational

classes due to realignment caused by the promulgation of more precise definitions. Water mains exhibited growth, increasing by almost 10% from last years figures while gravity mains decreased by 17% due to the decommissioning of several lines. The net result of this activity has been a increase in the GFR of almost $73,000 to the new value of $24.8 million.

3.6 Saskatchewan

The GFR for Saskatchewan has decreased by $900,000 from the amount calculated last year to the 1987/88 amount of $24.7 million. The main reason for that decrease has been a decline of over $1.7 million in the value of Municipal Type Agreements reported (see Section 4.7 for further details). All classes in the Buildings category exhibited what is considered to be normal growth with schools leading the list with an increase of over 6000 square metres. The only significant decrease was registered in the student residence category which exhibited a 2400 square metre decrease. The loss was due to the decommissioning of facilities that are currently redundant. Water mains increased by almost 6% for unheated mains and by over 3% for heated mains. Sewer gravity mains however decreased by less than 0.5% due to the validation exercise.

3.7 Alberta

The Alberta region has exhibited growth in almost every class with the exception of sewer gravity mains, which decreased by just over 5% due to the asset validation process, and student residences which recorded a reduction of almost 6400 square metres. As was the case in Ontario, there were new sites included in the inventory this year which added to the increase in the asset base. Overall the GFR for the region increased by $1.1 million to $20 million because of the general overall growth in the regions asset base due to new construction and the addition of new sites.

3.8 British Columbia

The most noticeable shift in the BC asset base has been the decrease in the area of schools reported. The region has reported a 16.5% decrease in school area- an almost 8,600 square meter decline. This is due to the decommissioning of schools in the districts and a general realignment of asset quantities due to the validation exercise. The remainder of the Buildings category has shown a 5000 square meters plus increase in overall area. The net result is a minor increase in

the Buildings GFR. Water supply mains and gravity sewer mains have increased 9200 m over last year or 1.7% and 5.6% respectively. Other changes in the water and waste water areas are a direct result of the application of the new asset definitions to the regional database. The final result of the calculations is a net increase of $1.5 million in the GFR to the 1987/88 value of $17.7 million.

3.9 Yukon

The Yukon region was not satisfied with the inventory as it currently existed at the time of the validation. Rather than trying to compare the existing base with what was on the ground the region opted for doing a complete re-inventory of their asset base. As a result, any changes noted from the previous year cannot be directly attributed to any one cause but rather to the fact that a new asset base was developed. Using the new asset base, the resulting GFR is $1.9 million, virtually the same as the 1986/87 value.

4.0 ANALYSIS BY CATEGORY

4.1 General

The GFR for 1987/88 has increased by an amount of $7.2 million over the 1986/87 value of $125.6 million to a total of $132.8 million. This increase is due to an increase in price and an overall moderate increase in volume.

Overall the Buildings category exhibited a marginal percentage increase of just over 2% in asset volume over last year. This is to be expected given the very large asset base we are dealing with and the internal adjustments resulting from the validation exercise. Due to changes in indices and realignment within the category the GFR increased by $4 million. The Utilities category exhibited moderate growth in virtually all classes with corresponding growth in GFR. The growth experienced comes about as a result of the increased emphasis regions are placing on the provision of adequate water supply and sanitation systems on reserve. All other categories experienced similar growth. The increase in asset volume is due to several factors, pre-eminent among them being the validation process undertaken by the regions. The process ensured that any questionable records were examined in detail and modified or deleted where necessary. The whole review process was aided by the promulgation of very precise asset definitions which enabled regions to

determine under what asset classification a particular asset should be classified.

4.2 Buildings

The Buildings inventory has increased by almost 17172 square metres over last year's total. There has been a readjustment in some of the classes as a result of the validation exercise and the revised asset definitions. These changes along with the normal construction and decommissioning activities that take place in a region have resulted in the small percentage increase of slightly more than 2% in the overall asset total. Significant change was recorded in the student residence class with a decrease of over 11,000 square metres. This decrease is due to the decommissioning of student residences in the western provinces and the realignment of assets due to definition changes. The actual GFR value increased by $4 million to an amount just over $70 million.

4.3 Utilities

The Utilities category experienced moderate growth during the past year. The length of pipe in the ground, both water supply and waste water collection, increased by almost 7%. Given the increased emphasis placed by the department on the provision of improved water and sanitation facilities on reserve, this type of growth is to be expected. The Ontario region demonstrated the largest growth rate with an increase of almost 20%. Although a portion of that amount can be attributed to the Ontario region's emphasis on the provision of water and sanitation services, a significant percentage of the increase is attributable to the addition to the database of assets from two reserves that were not included in the previous inventory. A similar explanation is also in force for the 41,000 metre plus increase of water main inventory in Alberta as that region has also identified increases due to new construction as well as the addition of new sites to the inventory. Other classes in the category had minor growth due to construction but the main movement was due to the realignment of assets as a result of the new definitions and the validation exercise. The net result is an increase in the GFR of $1.9 million to a total value of $18.3 million for the Utility category.

4.4 Transportation

The total quantity of roads in CAIS this year increased by over 275 kilometers or by 3% with all regions except

the Yukon increasing. The decrease in the Yukon resulted from the complete re-inventory they conducted during the validation exercise. The increase in inventory, and associated increases in unit costs, result in an increase in GFR to approximately $21.6 million. The situation for bridges is similar with the inventory increasing by 3.6% or 9 bridges. The inventory for the Yukon and Atlantic regions decreased by one while the Ontario inventory increased by over 20% (10 bridges) due to new inventory and the inclusion of large culverts in the definition. Overall the GFR for the Transportation category increased to $21.6 million from the 1986 value of $20.3 million.

4.5 Vehicles

Nationally, the vehicle count in the inventory increased by 67 units during the past year. The majority of that increase came in the Ontario and the BC regions. In the Ontario region the increase was an overall increase in the total number of vehicles in all classes of vehicles. BC region, on the other hand, experienced most of its growth with the addition of 37 unmodified refuse collection trucks. Overall the GFR for vehicles increased to a total of $1.4 million over last year to a total of just over $11 million.

4.6 Electrical Power

The GFR for generation has decreased 10% from the 1986 GFR report. The almost $600,000 decrease can be attributed to decreases in the Quebec ($506,000) and BC ($219,000) values. In the case of Quebec, the shift has resulted from a decrease in fuel prices and the removal of the Wemendji assets from the inventory. The reduction in BC is a result of a decrease in fuel prices. Increases occurred in the Ontario and Yukon GFRs.

4.7 Municipal Type Agreements

The regions have recognized the importance of identifying all of their agreements. Again this year a significant amount of work has been expended by the regions to ensure that they have provided as complete a picture as possible. As a result the actual number of agreements reported has increased by 5% over last year's figures. The detailed work has, however, resulted in a decrease of 25% in the Municipal Type Agreement GFR. The total value of agreements that have been identified this year amount to $5,2 million, a decrease of $1.7 million from the 1986 value. Ontario

and Saskatchewan both exhibited substantial decreases of $511,000 and $1,716,000 respectively. Manitoba also experienced a decline of $49,000 in GFR. The other regions had increases of between $8,000 and $259,000. The changes, particularly in the case of the decreases, come about as a result of increased accuracy of the actual agreement listings.

In Saskatchewan's case, the region identified a total of three agreements last year. The dollar values reported were based on a consolidation of the best estimates the region could develop regarding the funding required to provide for the supply of municipal services to reserves regardless of whether a formal agreement was in place at the time. This year Saskatchewan has reported a total of 37 formal agreements, amounting to a total of $607,000, which results in the recorded decrease.

4.8 Waste Water Facility Testing

This item has been included in the GFR calculation for the first time this year to identify the funding required to perform the necessary annual organized testing program of waste water treatment facilities. Although day-to-day testing is included in normal unit costs, the specific type of testing required to ensure that a facility is operating safely and efficiently has not been included. Inclusion of a line item this year in the GFR report is intended to highlight the importance of conducting this type of monitoring test and to identify the total funds required to operate the program. The total GFR for this activity has been established as $172,000 for 1987/88 based on an average cost of $740 to conduct four tests per site per year. This is an increase of $22,000 over the previously estimated cost of $150,000 because of an increase in inventory of twenty-eight sites.

5.0 CONCLUSIONS

Based on our computations, the Gross Funding Requirement is $132.8 million in 1987/88 dollars. The net amount of the department's obligations would be reduced from that figure by funds obtained from other sources.

Over the past years the methodology used to calculate the base unit costs and the City Centre and Remoteness Indices have been improved. During the past year we have embarked on an ambitious program to improve the overall CAIS process. First and foremost among the initiatives undertaken was a validation of the regional asset base by all regions. That process involved a record by record review of all asset entries listed in CAIS by regional staff utilizing precise asset definitions developed by Branch specialists. With that validation and the other enhancements that have been incorporated over the past years this year's GFR is a precise and accurate reflection of the gross funding required to maintain the assets identified by regions.

It is concluded therefore that the $7.2 million increase in GFR over last year's total is representative and that the GFR to maintain departmentally funded assets is $132.8 million.

Table 1 Capital Asset Inventory System - 1987/88 Regional Asset Totals 87-10-27

27-Oct-87 10:38:19 AM	ATLANTIC	QUEBEC	ONTARIO	MANITOBA	SASKATCHEWAN	ALBERTA	B.C.	YUKON	NATIONAL	CHANGE Over 1986
Buildings(sq. m)										
Schools	25117	69181	88133	107682	97837	80241	46388	0	514579	10659
Teacherages	870	3757	22763	33243	27318	16797	11856	0	116604	3946
Student Residences	0	4783	0	7395	25668	9975	905	2697	51423	-11285
Daycare Centres	0	297	9325	766	0	3863	861	265	15377	191
Recreational	14363	15112	54366	35014	72959	70765	68394	4053	335026	11498
Utility	911	3482	6410	4365	3472	3187	3699	871	26396	3093
Operative	2409	8976	39017	33105	23111	32372	13510	5900	158400	1395
Administrative	10477	14120	35327	24530	16482	28001	29092	5136	163165	8631
Fire Stations	2391	759	9633	2691	4091	5552	6624	316	32057	1896
Water Supply										
Systems										
- watermains-unheated(m)	99818	125736	271090	68599	169037	153251	573817	0	1461348	113255
-heated(m)	0	404	10778	14647	10854	690	30	805	38208	15386
- storage reservoirs(ea)	19	13	50	16	46	58	151	0	353	15
- standpipes(ea)	0	0	14	69	158	30	1	0	272	21
Pumphouses(ea)										
- community well	38	46	107	36	256	53	232	30	798	219
- low level lift	4	6	40	37	48	49	27	2	213	54
- high lift	23	12	114	41	93	35	14	1	333	91
Treatment Facilities(ea)										
- system	0	3	12	18	10	14	2	0	59	6
- unit	6	3	13	23	39	21	44	0	149	28
Wastewater										
Collection(m)										
- gravity mains	63924	154123	87803	41312	55879	68985	178919	0	650945	26785
Lift Stations(ea)	19	23	52	27	29	35	71	0	256	44
Treatment and Disposal(ea)										
- RBC/trickling filter	4	6	8	6	10	3	2	0	39	8
- extended aeration	3	3	4	10	0	0	0	0	20	-1
- sewage lagoon	6	0	18	21	56	34	33	0	168	16
- aerated lagoon	0	3	1	0	0	0	1	0	5	5
- septic/holding tank	49	5	80	63	59	25	151	38	470	248
- jet pump disposal	0	0	3	0	72	0	0	0	75	75

Table 1 Capital Asset Inventory System - 1987/88 Regional Asset Totals 87-10-27

27-Oct-87 10:38:19 AM	ATLANTIC	QUEBEC	ONTARIO	MANITOBA	SASKATCHEWAN	ALBERTA	B.C.	YUKON	NATIONAL	CHANGE Over 1986
Solid Waste(ea)										
Landfill	3	13	37	41	5	41	25	1	166	-50
Refuse Site	1	0	61	11	103	0	57	0	233	72
Incinerator	0	1	0	0	2	1	1	0	5	1
Electrical Power										
Transmission(km)	0.0	0.0	54.6	0.0	0.0	0.0	2.4	0.0	57	N/A
Distribution(km)	0.0	73.5	44.1	0.0	0.0	0.0	19.0	0.7	137	-20
Street Lights(fixture)	0	122	195	0	397	0	233	94	1041	946
Generators(ea)	0	18	37	0	0	0	40	2	97	51
Transportation(km)										
Roads	117.0	266.5	1732.9	1278.4	2313.5	2142.0	993.1	61.0	8904.4	277.4
Vehicles(ea)										
Mini-pumper	5	0	17	5	28	0	44	0	99	-7
Triple-pumper	13	7	46	9	5	28	16	0	124	17
Refuse Collection Truck	0	1	6	2	0	23	0	0	32	-17
Refuse Coll'n Tr (Unmod)	1	7	20	17	21	8	41	12	127	67
Liquid Waste Collection	0	0	5	2	4	19	1	2	33	1
Liquid Waste Coll'n (Unmo	3	0	0	2	0	0	3	0	8	5
Water Delivery	0	0	3	56	21	33	2	2	117	4
Water Delivery (Unmod)	0	0	4	3	3	1	0	1	12	5

Table 2

O&M UNIT COSTS (TORONTO = BASE)

	UNIT	COST 1987/88	CHANGE Over 1986
Buildings			
Schools	sq. m	$38.28	$0.00
Teacherages	sq. m	$9.66	$0.00
Student Residences	sq. m	$34.38	$0.00
Daycare Centres	sq. m	$38.28	$0.00
Recreational	sq. m	$19.64	$0.00
Utility	sq. m	$12.83	$0.00
Operative	sq. m	$11.51	$0.00
Administrative	sq. m	$31.16	$0.00
Fire Stations	sq. m	$17.66	$0.00
Water Supply			
Systems			
- watermains-unheated	m	$1.65	$0.00
-heated	m	$0.73	$0.03
- storage reservoirs	ea	$500.00	$25.00
- standpipes	ea	$250.00	$10.00
Pumphouses			
- community well	ea	$2 700.00	$0.00
- low level lift	ea	$2 850.00	$150.00
- high lift	ea	$7 900.00	$400.00
Treatment Facilities			
- systen	ea	$26 600.00	$0.00
- unit	ea	$3 000.00	$0.00
Wastewater			
Collection			
- gravity mains	m	$0.98	$0.00
Lift Stations	ea	$4 900.00	$0.00
Treatment and Disposal			
- RBC/trickling filter	ea	$16 200.00	$300.00
- extended aeration	ea	$23 300.00	$0.00
- sewage lagoon	ea	$3 800.00	$0.00
- aerated lagoon	ea	$6 100.00	$400.00
- septic/holding tank	ea	$250.00	$10.00
- jet pump disposal	ea	$600.00	$25.00

Table 2 (cont'd)

O&M UNIT COSTS (TORONTO = BASE)

	UNIT	COST 1987/88	CHANGE Over 1986
Solid Waste			
Landfill	ea	$6 200.00	$0.00
Refuse Site	ea	$1 600.00	$70.00
Incinerator	ea	$2 300.00	$100.00
Electrical Power			
Transmission	km	$882.00	N/A
Distribution	km	$1 814.00	$60.00
Street Lights	fixture	$84.95	$2.79
Generators	l.s.	Note 1	Note 1
Transportation			
Earth Roads	km	$2 100.00	N/A
Gravel Roads	km	$3 050.00	N/A
Paved and BST* Roads	km	$2 600.00	N/A
Bridges	sq. m.	$20.00	N/A
Vehicles			
Mini-pumper	ea	$5 152.00	$76.00
Triple-pumper	ea	$5 810.00	$85.00
Refuse Collection Truck	ea	$31 244.00	$461.00
Refuse Coll'n Tr (Unmod)	ea	$17 332.00	$256.00
Liquid Waste Collection	ea	$30 549.00	$451.00
Liquid Waste Coll'n (Unmod)	ea	$17 332.00	$256.00
Water Delivery	ea	$30 326.00	$448.00
Water Delivery (Unmod)	ea	$17 332.00	$256.00

*BST = Bituminous Surface Treatment

Note 1: No listing is shown due to the method by which this item is counted and O&M costs are estimated. See TSD-19-1 for full details to calculate costs.

Table 3A

CITY CENTRE INDICES

BUILDING TYPES

CITY CENTRE	SCHOOL	TEACHERAGE	STUDENT RESIDENCE	DAYCARE CENTRE	RECREATIONAL	UTILITY	OPERATIVE	ADMINISTRATIVE	FIRE STATION
Halifax	0.96	1.03	1.01	0.96	1.03	0.94	1.05	1.02	1.02
Sydney	1.06	1.37	1.07	1.06	1.15	1.19	1.28	1.24	1.32
Moncton	1.09	1.18	1.11	1.09	1.15	1.15	1.25	1.21	1.26
Fredericton	1.09	1.45	1.10	1.09	1.18	1.33	1.38	1.34	1.51
Quebec City	1.30	1.60	1.16	1.30	1.24	1.84	1.38	1.45	1.75
Montreal	1.15	1.16	1.06	1.15	1.10	1.35	1.14	1.19	1.26
Rouyn	1.41	1.92	1.23	1.41	1.31	2.04	1.54	1.63	2.09
Sept-Iles	1.49	2.10	1.30	1.49	1.41	2.40	1.64	1.73	2.29
Toronto	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ottawa	1.04	1.17	1.01	1.04	1.00	1.17	1.08	1.09	1.16
London	0.95	0.87	0.98	0.95	0.91	0.90	0.87	0.87	0.86
Sault-Ste-Marie	1.07	1.36	1.06	1.07	1.09	1.29	1.22	1.20	1.31
Thunder Bay	1.34	1.58	1.20	1.34	1.21	1.64	1.33	1.43	1.61
Sudbury	1.23	1.42	1.12	1.23	1.15	1.40	1.24	1.31	1.43
Timmins	1.39	1.63	1.24	1.39	1.27	1.69	1.39	1.49	1.67
Winnipeg	1.28	1.77	1.13	1.28	1.19	1.97	1.39	1.46	1.89
Thompson	1.56	2.95	1.32	1.56	1.44	3.32	1.80	1.91	3.15
The Pas	1.44	2.33	1.25	1.44	1.33	2.59	1.62	1.71	2.49
Brandon	1.31	1.79	1.15	1.31	1.20	1.98	1.39	1.48	1.89
Regina	1.42	1.81	1.25	1.42	1.34	2.02	1.50	1.58	1.93
Saskatoon	1.39	1.78	1.20	1.39	0.33	1.94	1.46	1.55	1.87
Prince Albert	1.59	2.19	1.33	1.59	0.49	2.46	1.65	1.79	2.32
Calgary	1.15	1.29	1.09	1.15	1.13	1.29	1.23	1.25	1.35
Edmonton	1.27	1.69	1.33	1.27	1.24	1.71	1.40	1.47	1.77
High Level	1.46	2.52	1.25	1.46	1.43	2.54	1.72	1.80	2.59
Fort McMurray	1.46	2.48	1.24	1.46	1.42	2.50	1.71	1.79	2.59
Vancouver	0.97	0.71	1.00	0.97	0.88	0.77	0.75	0.77	0.74
Victoria	0.91	0.68	0.98	0.91	0.84	0.71	0.72	0.71	0.71
Kamloops	1.30	1.00	1.20	1.30	1.13	1.32	1.10	1.20	1.19
Prince George	1.40	1.16	1.25	1.40	1.23	1.68	1.30	1.41	1.54
Prince Rupert	1.17	1.00	1.15	1.17	1.07	1.12	1.02	1.07	1.04
Whitehorse	1.57	3.15	1.36	1.57	1.63	2.89	2.01	2.05	3.08
St. John's	1.09	1.45	1.11	1.09	1.16	1.24	1.30	1.25	1.35

Table 3B

CITY CENTRE INDICES

WATER SUPPLY

CITY CENTRE	WATER MAINS	HEATED MAINS	STORAGE	STAND PIPES	COMMUNITY WELLS	PUMPHOUSES LOW LEVEL	PUMPHOUSES HIGH LEVEL	TREATMENT SYSTEM	TREATMENT UNIT
Halifax	0.95	1.26	0.93	0.98	1.05	1.05	1.05	0.98	0.98
Sydney	0.95	1.26	0.94	0.98	1.04	1.04	1.04	0.98	0.98
Moncton	0.94	1.26	0.92	0.97	1.04	1.04	1.04	0.97	0.97
Fredericton	0.93	1.18	0.92	0.96	1.00	1.00	1.00	0.95	0.95
Quebec City	1.01	0.83	0.98	0.99	0.96	0.96	0.96	0.97	0.97
Montreal	1.01	0.83	0.99	0.99	0.95	0.95	0.95	0.96	0.96
Rouyn	1.03	0.83	0.99	1.00	0.97	0.97	0.97	0.99	0.99
Sept-Iles	1.10	0.83	1.09	1.07	1.01	1.01	1.01	1.04	1.04
Toronto	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ottawa	0.92	0.76	0.90	0.91	0.88	0.88	0.88	0.91	0.91
London	1.00	0.75	1.00	0.98	0.93	0.93	0.93	0.98	0.98
Sault-Ste-Marie	1.03	0.88	1.01	1.01	0.98	0.98	0.98	1.00	1.00
Thunder Bay	1.08	0.75	1.08	1.05	0.98	0.98	0.98	1.04	1.04
Sudbury	1.02	0.88	1.00	1.01	0.99	0.99	0.99	1.00	1.00
Timmins	1.04	0.88	1.03	1.03	1.00	1.00	1.00	1.02	1.02
Winnipeg	0.96	0.62	0.96	0.93	0.86	0.86	0.86	0.91	0.91
Thompson	1.01	0.62	1.00	0.97	0.88	0.88	0.88	0.94	0.94
The Pas	1.00	0.62	0.99	0.96	0.88	0.88	0.88	0.94	0.94
Brandon	0.98	0.62	0.97	0.94	0.87	0.87	0.87	0.92	0.92
Regina	1.04	0.94	1.07	1.02	0.99	0.99	0.99	1.02	1.02
Saskatoon	1.04	1.05	1.06	1.04	1.03	1.03	1.03	1.03	1.03
Prince Albert	1.08	1.05	1.10	1.07	1.06	1.06	1.06	1.06	1.06
Calgary	1.05	1.01	1.07	1.04	1.02	1.02	1.02	1.03	1.03
Edmonton	0.98	1.03	1.00	0.98	0.98	0.98	0.98	0.97	0.97
High Level	1.00	1.03	1.03	1.01	1.00	1.00	1.00	0.99	0.99
Fort McMurray	1.00	1.03	1.02	1.00	1.00	1.00	1.00	0.99	0.99
Vancouver	1.12	0.80	1.12	1.08	1.02	1.02	1.02	1.07	1.07
Victoria	1.05	0.80	1.05	1.02	0.97	0.97	0.97	1.01	1.01
Kamloops	1.17	0.67	1.16	1.12	1.01	1.01	1.01	1.09	1.09
Prince George	1.09	0.67	1.09	1.04	0.96	0.96	0.96	1.03	1.03
Prince Rupert	1.11	0.80	1.12	1.08	1.01	1.01	1.01	1.06	1.06
Whitehorse	1.04	1.36	1.07	1.08	1.14	1.14	1.14	1.12	1.12
St. John's	0.99	1.17	0.98	1.01	1.04	1.04	1.04	0.99	0.99

Table 3C

CITY CENTRE INDICES

WASTEWATER AND SOLID WASTE

CITY CENTRE	GRAVITY MAINS	LIFT STATIONS	RBC/TF*	EXTENDED AERATION	LAGOONS CONV.	LAGOONS AERATED	HOLDING TANK	JET PUMP DISPOSAL	LANDFILL SITE	REFUSE SITE	INCINERATOR
Halifax	0.95	1.05	1.01	1.01	0.95	1.01	0.98	0.98	0.96	0.96	0.98
Sydney	0.95	1.04	1.00	1.00	0.94	1.00	0.97	0.97	0.94	0.94	0.97
Moncton	0.94	1.04	1.00	1.00	0.94	1.00	0.97	0.97	0.95	0.95	0.97
Fredericton	0.93	1.01	0.97	0.97	0.93	0.97	0.95	0.95	0.93	0.93	0.95
Quebec City	1.00	0.96	0.97	0.97	1.01	0.97	0.99	0.99	1.03	1.03	0.99
Montreal	1.01	0.96	0.96	0.96	1.00	0.96	0.99	0.99	1.01	1.01	0.99
Rouyn	1.01	0.97	0.99	0.99	1.03	0.99	1.01	1.01	1.06	1.06	1.01
Sept-Iles	1.10	1.01	1.03	1.03	1.09	1.03	1.07	1.07	1.10	1.10	1.07
Toronto	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ottawa	0.92	0.88	0.89	0.89	0.92	0.89	0.90	0.90	0.93	0.93	0.90
London	1.00	0.93	0.96	0.96	1.01	0.96	0.98	0.98	1.01	1.01	0.98
Sault-Ste-Marie	1.03	0.98	0.99	0.99	1.02	0.99	1.01	1.01	1.02	1.02	1.01
Thunder Bay	1.07	0.98	1.02	1.02	1.09	1.02	1.05	1.05	1.09	1.09	1.05
Sudbury	1.01	0.98	1.00	1.00	1.03	1.00	1.01	1.01	1.04	1.04	1.01
Timmins	1.04	1.00	1.01	1.01	1.04	1.01	1.02	1.02	1.05	1.05	1.02
Winnipeg	0.95	0.86	0.90	0.90	0.98	0.90	0.94	0.94	0.99	0.99	0.94
Thompson	1.00	0.89	0.92	0.92	1.01	0.92	0.97	0.97	1.01	1.01	0.97
The Pas	0.99	0.88	0.92	0.92	1.01	0.92	0.96	0.96	1.01	1.01	0.96
Brandon	0.96	0.87	0.91	0.91	0.99	0.91	0.95	0.95	1.00	1.00	0.95
Regina	1.02	1.00	1.03	1.03	1.07	1.03	1.04	1.04	1.06	1.06	1.04
Saskatoon	1.03	1.04	1.04	1.04	1.06	1.04	1.05	1.05	1.06	1.06	1.05
Prince Albert	1.06	1.07	1.08	1.08	1.11	1.08	1.09	1.09	1.11	1.11	1.09
Calgary	1.03	1.03	1.04	1.04	1.07	1.04	1.05	1.05	1.06	1.06	1.05
Edmonton	0.97	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.98	0.98	0.99
High Level	1.01	1.01	1.00	1.00	1.01	1.00	1.01	1.01	0.99	0.99	1.01
Fort McMurray	1.00	1.00	1.00	1.00	1.01	1.00	1.01	1.01	0.99	0.99	1.01
Vancouver	1.09	1.02	1.07	1.07	1.16	1.07	1.10	1.10	1.16	1.16	1.10
Victoria	1.03	0.97	1.00	1.00	1.07	1.00	1.03	1.03	1.07	1.07	1.03
Kamloops	1.15	1.02	1.07	1.07	1.20	1.07	1.13	1.13	1.21	1.21	1.13
Prince George	1.07	0.96	1.01	1.01	1.11	1.01	1.05	1.05	1.11	1.11	1.05
Prince Rupert	1.11	1.01	1.04	1.04	1.12	1.04	1.08	1.08	1.11	1.11	1.08
Whitehorse	1.06	1.13	1.12	1.12	1.04	1.12	1.07	1.07	1.02	1.02	1.07
St. John's	1.01	1.05	1.00	1.00	0.96	1.00	1.00	1.00	0.97	0.97	1.00

* Rotating biological contactors/trickling filters

Table 3D

CITY CENTRE INDICES

ELECTRICAL POWER SUPPLY AND DISTRIBUTION

CITY CENTRE	TRANSMISSION	DISTRIBUTION	STREET LIGHTS
Halifax	0.95	0.95	0.96
Sydney	0.98	0.98	0.99
Moncton	0.95	0.95	0.95
Fredericton	0.91	0.91	0.92
Quebec City	1.03	1.03	1.03
Montreal	1.02	1.02	1.03
Rouyn	1.07	1.07	1.08
Sept-Iles	1.11	1.11	1.11
Toronto	1.00	1.00	1.00
Ottawa	0.96	0.96	0.97
London	1.00	1.00	0.99
Sault-Ste-Marie	1.02	1.02	1.02
Thunder Bay	1.10	1.10	1.09
Sudbury	1.06	1.06	1.06
Timmins	1.06	1.06	1.06
Winnipeg	0.98	0.98	0.98
Thompson	1.00	1.00	1.00
The Pas	1.00	1.00	1.00
Brandon	0.98	0.98	0.98
Regina	1.07	1.07	1.04
Saskatoon	1.05	1.05	1.05
Prince Albert	1.11	1.11	1.10
Calgary	1.03	1.03	1.01
Edmonton	0.98	0.98	0.96
High Level	0.99	0.99	0.98
Fort McMurray	0.99	0.99	0.98
Vancouver	1.13	1.13	1.11
Victoria	1.08	1.08	1.07
Kamloops	1.17	1.17	1.16
Prince George	1.14	1.14	1.13
Prince Rupert	1.15	1.15	1.14
Whitehorse	1.02	1.02	1.02
St. John's	0.96	0.96	0.98

Table 3E

CITY CENTRE INDICES

VEHICLES

CITY CENTRE	MINI PUMPER	TRIPLE PUMPER	REFUSE COLLECTION TRUCK	REFUSE COLLECTION TRUCK *	LIQUID WASTE COLLECTION	LIQUID WASTE COLLECTION *	WATER DELIVERY	WATER DELIVERY *
Halifax	0.98	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Sydney	1.03	1.03	1.04	1.04	1.04	1.04	1.04	1.04
Moncton	0.98	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Fredericton	0.90	0.91	0.92	0.92	0.92	0.92	0.92	0.92
Quebec City	1.02	1.03	1.04	1.04	1.04	1.04	1.04	1.04
Montreal	1.05	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Rouyn	1.09	1.09	1.10	1.10	1.10	1.10	1.10	1.10
Sept-Iles	1.21	1.20	1.19	1.19	1.19	1.19	1.19	1.19
Toronto	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ottawa	0.93	0.94	0.94	0.94	0.94	0.94	0.94	0.94
London	1.00	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Sault-Ste-Marie	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Thunder Bay	1.06	1.06	1.05	1.05	1.05	1.05	1.05	1.05
Sudbury	1.04	1.04	1.05	1.05	1.05	1.05	1.05	1.05
Timmins	1.02	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Winnipeg	0.99	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Thompson	0.98	0.99	1.00	1.00	1.00	1.00	1.00	1.00
The Pas	0.98	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Brandon	0.97	0.98	0.99	0.99	0.99	0.99	0.99	0.99
Regina	1.00	0.99	0.97	0.97	0.97	0.97	0.97	0.97
Saskatoon	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Prince Albert	1.09	1.08	1.07	1.07	1.07	1.07	1.07	1.07
Calgary	1.10	1.08	1.07	1.07	1.07	1.07	1.07	1.07
Edmonton	1.02	1.01	1.00	1.00	1.00	1.00	1.00	1.00
High Level	1.03	1.02	1.01	1.01	1.01	1.01	1.01	1.01
Fort McMurray	1.03	1.02	1.01	1.01	1.01	1.01	1.01	1.01
Vancouver	1.14	1.13	1.12	1.12	1.12	1.12	1.12	1.12
Victoria	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02
Kamloops	1.11	1.11	1.10	1.10	1.10	1.10	1.10	1.10
Prince George	1.13	1.13	1.12	1.12	1.12	1.12	1.12	1.12
Prince Rupert	1.14	1.13	1.13	1.13	1.13	1.13	1.13	1.13
Whitehorse	1.09	1.08	1.07	1.07	1.07	1.07	1.07	1.07
St. John's	1.00	1.01	1.02	1.02	1.02	1.02	1.02	1.02

* UNMODIFIED VEHICLE

Table 3F

CITY CENTRE INDICES

ROADS AND BRIDGES

CITY CENTRE	EARTH ROADS	GRAVEL ROADS	PAVED & BST ROADS	BRIDGES
Halifax	1.03	1.16	1.33	0.96
Sydney	1.10	1.22	1.43	1.02
Moncton	1.01	1.14	1.31	0.96
Fredericton	1.03	1.13	1.34	0.96
Quebec City	0.98	0.99	1.05	1.02
Montreal	0.91	0.94	0.99	1.03
Rouyn	1.01	1.02	1.03	1.05
Sept-Iles	1.28	1.24	1.28	1.25
Toronto	1.00	1.00	1.00	1.00
Ottawa	0.90	0.89	0.89	0.88
London	0.73	0.82	0.76	1.00
Sault-Ste-Marie	1.05	1.04	1.04	1.00
Thunder Bay	1.07	1.08	1.09	1.12
Sudbury	1.11	1.10	1.10	1.04
Timmins	1.14	1.11	1.12	1.08
Winnipeg	0.71	0.72	0.65	0.96
Thompson	0.76	0.78	0.72	1.01
The Pas	0.59	0.66	0.55	1.00
Brandon	0.56	0.65	0.52	0.96
Regina	0.61	0.69	0.59	1.10
Saskatoon	0.61	0.68	0.58	1.04
Prince Albert	0.65	0.74	0.64	1.18
Calgary	0.60	0.66	0.58	1.06
Edmonton	0.58	0.66	0.57	1.03
High Level	0.64	0.72	0.61	1.11
Fort McMurray	0.64	0.72	0.61	1.11
Vancouver	0.70	0.86	0.71	1.15
Victoria	0.69	0.84	0.69	1.12
Kamloops	0.82	0.92	0.81	1.22
Prince George	0.89	0.97	0.87	1.17
Prince Rupert	0.88	0.97	0.87	1.24
Whitehorse	0.75	0.84	0.70	1.18
St. John's	1.16	1.24	1.51	1.04

Table 4

FACILITY TYPE	REMOTENESS INDICES			
	ZONE 1	ZONE 2	ZONE 3	ZONE 4
BUILDINGS				
Schools	1.00	1.34	1.66	1.89
Teacherages	1.00	1.62	2.46	3.90
Student Residences	1.00	1.63	1.92	2.24
Daycare Centres	1.00	1.34	1.66	1.89
Recreational	1.00	1.17	1.68	1.90
Utility	1.00	1.31	1.35	1.65
Operative	1.00	1.48	2.10	2.95
Administrative	1.00	1.28	1.67	1.90
Fire Stations	1.00	1.35	1.75	2.00
MUNICIPAL SERVICES				
Water Supply				
Systems				
- watermains-unheated	1.00	1.11	1.25	1.86
- watermains-heated	1.00	1.00	1.16	1.91
- storage reservoirs	1.00	1.09	1.22	1.65
- standpipes	1.00	1.10	1.25	1.89
Pumphouses				
- community well supply	1.00	1.09	1.24	1.96
- low level	1.00	1.09	1.24	1.96
- high lift	1.00	1.09	1.24	1.96
Treatment Facilities				
- system	1.00	1.11	1.25	1.92
- unit	1.00	1.11	1.25	1.92

Table 4

FACILITY TYPE	REMOTENESS INDICES			
	ZONE 1	ZONE 2	ZONE 3	ZONE 4
Wastewater				
Collection				
- gravity mains	1.00	1.12	1.26	1.94
Lift Stations	1.00	1.08	1.23	1.93
Treatment and Disposal				
- rotating biological contactor/ trickling filter	1.00	1.09	1.23	1.84
- extended aeration	1.00	1.09	1.23	1.84
- conventional lagoon	1.00	1.09	1.23	1.48
- aerated lagoon	1.00	1.09	1.23	1.84
- septic/holding tank	1.00	1.09	1.24	1.79
- jet pump disposal	1.00	1.09	1.24	1.79
Solid Waste				
Landfill	1.00	1.10	1.25	1.79
Refuse Site	1.00	1.10	1.25	1.79
Incinerator	1.00	1.09	1.24	1.80
Electrical Power				
Transmission	1.00	1.21	1.46	2.92
Distribution	1.00	1.21	1.46	2.92
Street Lights	1.00	1.22	1.46	2.92

Table 4

FACILITY TYPE	REMOTENESS INDICES			
	ZONE 1	ZONE 2	ZONE 3	ZONE 4
TRANSPORTATION				
Roads and Bridges				
Earth Roads	1.00	1.03	1.06	1.45
Gravel Roads	1.00	1.03	1.08	1.46
Paved and BST* Roads	1.00	1.02	1.05	1.40
Bridges	1.00	0.99	1.00	1.18
Vehicles				
Mini-pumper	1.00	1.07	1.24	1.68
Triple-pumper	1.00	1.08	1.25	1.72
Refuse Collection Truck	1.00	1.09	1.26	1.75
Refuse Coll. Truck (Unmodified)	1.00	1.09	1.26	1.75
Liquid Waste Collection	1.00	1.09	1.26	1.75
Liquid Waste Coll. (Unmodified)	1.00	1.09	1.26	1.75
Water Delivery	1.00	1.09	1.26	1.75
Water Delivery (Unmodified)	1.00	1.09	1.26	1.75

* BST = Bituminous Surface Treatment

TABLE 5 1987/88 O&M GROSS FUNDING REQUIREMENT BY REGION (x 1000$)

	ATLANTIC	QUEBEC	ONTARIO	MANITOBA	SASKATCHEWAN	ALBERTA	B.C.	YUKON	NATIONAL	CHANGE Over 1986
Buildings										
Schools	1337.3	4434.3	6398.7	8557.5	7302.8	4590.3	3116.4	0.0	35737.4	1700.4
Teacherages	17.4	194.5	1554.4	1837.4	1005.4	730.0	343.3	0.0	5682.4	918.8
Student Residences	0.0	190.7	0.0	292.3	1809.5	381.0	74.7	151.8	2900.0	-717.4
Daycare Centres	0.0	11.8	491.7	55.0	0.0	196.9	45.5	24.3	825.2	16.4
Recreational	357.8	384.7	1415.4	1007.1	2359.0	1687.0	1885.6	175.5	9272.2	529.2
Utility	16.1	101.6	239.8	189.9	128.8	89.5	80.0	41.7	887.4	200.4
Operative	44.9	183.9	1344.0	1044.9	586.1	692.5	281.3	198.2	4375.8	459.4
Administrative	450.9	715.3	2082.0	1702.3	1093.3	1377.2	1264.1	425.8	9110.8	917.6
Fire Stations	66.5	28.6	321.8	126.0	212.0	257.1	218.4	29.3	1259.7	162.5
Water Supply										
Systems										
- watermains-unheated	165.0	246.4	503.9	150.1	324.7	295.4	1236.5	0.0	2922.0	88.4
- watermains-heated	0.0	1.5	29.1	38.4	29.2	1.7	0.0	3.0	102.9	29.6
- storage reservoirs	9.3	7.0	30.5	10.6	26.4	33.1	97.9	0.0	214.9	25.7
- standpipes	0.0	0.0	5.9	29.0	47.7	10.7	0.3	0.0	93.6	7.4
Pumphouses										
- community well	111.3	120.1	355.2	93.3	766.2	203.3	695.6	111.3	2456.4	553.5
- low level lift	12.4	19.8	152.3	125.2	155.9	151.8	85.5	7.6	710.5	163.7
- high lift	198.1	109.4	1125.1	393.0	842.2	310.9	123.1	11.2	3113.0	680.5
Treatment Facilities										
- system	0.0	100.9	427.6	585.6	320.9	383.6	60.8	0.0	1879.4	321.4
- unit	18.1	12.6	48.4	79.8	131.6	72.1	182.9	0.0	545.5	116.2
Wastewater										
Collection										
- gravity mains	62.7	175.9	107.6	50.3	65.0	70.4	237.1	0.0	769.1	-35.0
Lift Stations	101.6	139.3	298.7	148.8	166.4	194.6	441.7	0.0	1491.0	119.9
Treatment and Disposal										
- RBC/trickling filter	65.4	142.3	166.0	131.9	179.3	63.5	35.2	0.0	783.6	107.4
- extended aeration	75.4	67.8	110.6	330.0	0.0	0.0	0.0	0.0	583.8	-41.2
- sewage lagoon	22.8	0.0	87.0	94.5	254.0	139.9	153.8	0.0	752.0	76.7
- aerated lagoon	0.0	19.1	10.3	0.0	0.0	0.0	6.1	0.0	35.5	35.5
- septic/holding tank	12.7	1.8	30.4	18.6	16.7	8.1	46.8	11.9	146.9	77.3
- jet pump disposal	0.0	0.0	1.8	0.0	49.8	0.0	0.0	0.0	51.6	51.6

TABLE 5 1987/88 O&M GROSS FUNDING REQUIREMENT BY REGION (x 1000$)

	ATLANTIC	QUEBEC	ONTARIO	MANITOBA	SASKATCHEWAN	ALBERTA	B.C.	YUKON	NATIONAL	CHANGE Over 1986
Solid Waste										
Landfill	18.7	96.2	255.0	342.3	42.9	296.3	205.3	7.0	1263.7	-491.1
Refuse Site	1.7	0.0	142.8	22.6	197.4	0.0	127.5	0.0	492.0	169.4
Incinerator	0.0	4.1	0.0	0.0	5.1	4.2	4.3	0.0	17.7	6.7
Electrical Power										
Transmission	0.0	0.0	122.0	0.0	0.0	0.0	6.8	0.0	128.8	N/A
Distribution	0.0	382.6	227.6	0.0	0.0	0.0	102.0	1.9	714.1	63.1
Street Lights	0.0	28.9	25.2	0.0	54.8	0.0	38.8	10.9	158.6	135.5
Generators	0.0	2130.9	1717.2	0.0	0.0	0.0	1033.3	50.0	4931.4	-492.8
Transportation(km)										
Roads & Bridges	423.9	831.7	5222.8	3176.8	4357.9	4501.6	2981.5	173.0	21669.1	1406.1
Vehicles										
Mini-pumper	27.2	0.0	105.7	29.8	165.2	0.0	298.1	0.0	626.0	-47.3
Triple-pumper	78.4	44.9	294.4	58.2	32.7	185.7	123.9	0.0	818.3	136.6
Refuse Collection Truck	0.0	32.5	244.1	65.3	0.0	807.0	0.0	0.0	1148.9	-573.0
Refuse Coll'n Tr (Unmod)	19.3	175.3	469.5	374.7	418.9	146.5	1034.6	264.1	2902.7	1509.8
Liquid Waste Collection	0.0	0.0	235.4	66.3	134.3	614.8	43.1	68.3	1162.2	140.6
Liquid Waste Coll'n (Unmod)	58.2	0.0	0.0	47.7	0.0	0.0	89.1	0.0	195.0	127.6
Water Delivery	0.0	0.0	100.8	2202.1	706.3	1104.5	71.0	67.8	4252.5	155.8
Water Delivery (Unmod)	0.0	0.0	77.7	79.6	54.2	30.6	0.0	23.4	265.5	87.1
Municipal Type Agreements	936.3	649.3	366.5	1261.1	607.2	402.4	833.0	100.3	5156.0	-1674.7
Wastewater Treatmt Test Pgm	9.6	8.9	22.9	27.4	48.1	27.4	27.4	0.0	171.7	N/A
REGIONAL TOTALS	4719.2	11794.6	26968.0	24845.1	24697.8	20061.5	17732.3	1958.2	132776.8	7225.3
REGIONAL TOTALS 1986/87	4314.8	11137.9	22323.7	24772.1	25604.1	18941.8	16250.2	1906.2	125250.9	
CHANGE OVER 1986	404.4	656.7	4644.3	73.0	-906.3	1119.7	1482.1	52.0	7525.9	

ANNEX A

OPERATION AND MAINTENANCE COST DEFINITIONS

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
BUILDINGS			
Schools	Cleaning or custodial.	Salaries	- (1)
		Supplies (2):	- cleaning; and - washroom, paper products.
		Equip. & tools (2)	- purchase, rental & repair.
		Contracted services	
	Ancillary costs.	Water supply	- small building type or as part of municipal supply.
		Sewage disposal	- same as water supply.
		Solid waste disposal	- site incineration or site only collection.
		Electricity.	
		Heating fuels (2).	
		Snow removal	- by salaried personnel or contractor.
		Fire Protection:	- contracted alarm system, inspection and repair only; - extinguisher, recharge and repair; - contracted, off-reserve fire dept. services; - telephone lines, related to alarm; and - on-reserve services.
	Minor repair or maintenance.	Salaries (1). Preventive Maintenance Inspections. Supplies (2). Material (2). Equipment & Tools (2) - purchase, rental and repair. Contracted repair and maintenance services.	

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

OPERATION AND MAINTENANCE COST DEFINITIONS

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
BUILDINGS			
Schools (Cont'd)	Grounds Maintenance	Salaries Materials Equipment Repairs Preventive Maintenance Inspections Contracted Repair and Maintenance Services	General Landscape Maintenance at an average cost of $2,500 per hectar of developed and maintained school site area for a maximum of $10,000 per school complex. The maximum of $10,000 is based on a regularly maintained school site area of approximately 4.5 hectares (11 acres) with normal site conditions. The assumed range of outdoor grounds facilities covered by the $10,000 are those associated with a K to Grade 12 school and would include: • Softball field • Soccer field • General Lawns • Running Track • Outdoor Hockey Rink • Circulation Routes • Play Apparatus areas • Fencing • Drainage Ditches • Planting Areas • Other Specifically excluded are: • Snow Plowing (see Ancilliary Cost Element) • Waste Disposal • Irrigation System • Pools & Fountains

OPERATION AND MAINTENANCE COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
BUILDINGS			
Schools (Cont'd)	Emergency repairs/ major maintenance ($5,000 maximum).	Emergency Repairs Routine:	- maximum $5,000 per site. - window repairs; - painting; and - resurface gym floor.

Activity costs specifically excluded from unit costs:

- alterations, renovations, additions;
- appliance purchase, repair, replacement;
- audio-visual equipment rental, repair or purchase;
- capital projects;
- emergency repairs and major maintenance exceeding $5,000;
- energy retrofit, major projects;
- fire damage, repair or replacement costs;
- furniture purchase, repair or replacement;
- insurance premiums;
- security guards;
- portable building moving costs;
- sports equipment, purchase, rental, repair or replacement;
- taxes, local improvement;
- taxes, property; and
- telephone or communication costs.

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
BUILDINGS			
Teacherages	Ancillary costs.	Electricity.	
		Fire protection:	- contracted alarm system, inspection and repair; - contracted off-reserve fire dept. services; - extinguisher recharge or repair; - on-reserve services; and - telephone lines related to alarm.
		Heating fuel (2).	
		Solid waste disposal	- site incineration or site only collection.
		Sewage disposal	- small building type or as part of a minicipal service.
		Water supply	- small building type or as a part of a municipal service.

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
BUILDINGS			
Teacherages (Cont'd)	Minor repair or maintenance.	Salaries (1).	
		Preventive maintenance inspections.	
		Supplies (2).	
		Materials (2).	
		Equipment and Tools - purchase, rental and repair.	
		Contracted repair and maintenance services.	
		Furniture and appliance repair or maintenance.	Purchase excluded.
		Grounds maintenance and repairs.	Max. $1,000 per site.
	Emergency repairs/ major maintenance.	Emergency repairs.	Max. $1,000 per site.
		Routine - window repair,	
		- painting, and	
		- structural repair.	

Activity costs specifically excluded from unit costs:

- alterations, renovations and additions;
- appliance purchase;
- capital projects;
- emergency repairs and major maintenance exceeding $1,000 per site;
- insurance premiums;
- major energy retrofit costs;
- portable building moving costs;
- taxes, local improvement;
- taxes, property; and
- telephone or communication costs.

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
BUILDINGS			
Student Residences	Activity costs - same as for Schools.		
	Activity costs specifically excluded from unit costs: - alterations, renovations and additions; - appliance purchase, repair or replacement; - audio-visual equipment, repair or purchase; - food services equipment purchase, repair or replacement; - food for residents; - furniture purchase, repair or replacement; - insurance premiums; - major energy retrofit projects; - security guards; - sports equipment purchases, rental, repair; - taxes, local improvement; and - taxes, property.		
Other Institutional	Activity costs - same as for Schools.		
	Activity costs specifically excluded from unit costs - same as for Student Residences.		
Recreational	Activity costs - same as for Schools.		
	Activity costs specifically excluded from unit costs, - same as for Student Residence.		
Daycare Centres	Activity costs - same as for Schools.		

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
BUILDINGS			
Utility	Minor repairs or maintenance to buildings only.		Energy costs for building to be included with cost of utility.
Operative (formerly Industrial Plants)	Activity costs - same as for Teacherages, except that minor repairs and maintenance of furniture and appliances are excluded. Activity costs specifically excluded from unit costs, - same as for Teacherages.		
Administrative	Activity costs - same as for Schools. Activity costs specifically excluded from unit costs, - same as for Schools.		
Fire Station	Ancillary costs - same as for Schools. Minor repairs or maintenance.		

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
TRANSPORTATION			General Parameters
Earth Roads	1 -Grading 2 -Gravel Patching 3 -Gravelling 4 -Litter Pickup 5 -Vegetation Control 6 -Sign Repair/Maint. 7 -Guiderail Rep./Maint. 8 -Culvert Repair/Repl. 9 -Culvert Insp./Clean 10 -Ditch Cleaning 11 -Snow Plowing 12 -Snow Removal 13 -Sanding	O&M costs include: Salaries (1) including labourers, truck drivers, equipment operators, and maintenance supervisors. Supplies and materials (2) needed to carry out maintenance activities. Roads maintenance vehicles and equipment operating costs including O&M, fuel parts, licences and insurance. Contracted services.	The Base Unit Cost represents the cost of carrying out maintenance activities at frequencies required to provide adequate levels of service on assets located in Toronto. Maintenance materials are available locally. Maintenance equipment is available locally.
Gravel Roads	1 -Grading 2 -Gravel Patching 3 -Dust Control 4 -Gravelling 5 -Litter Pickup 6 -Vegetation Control 7 -Mowing 8 -Sign Repair/Maint. 9 -Guiderail Rep./Maint. 10 -Culvert Repair/Repl. 11 -Culvert Insp./Clean 12 -Ditch Cleaning 13 -Snow Plowing 14 -Snow Removal 15 -Sanding	O&M costs include: Salaries (1) including labourers, truck drivers equipment operators, and maintenance supervisors. Supplies and materials (2) needed to carry out maintenance activities. Road maintenance vehicles and equipment operating including O&M, fuel, parts, licences and insurance. Contracted services.	The Base Unit Cost represents the cost of carrying out maintenance activities at frequencies required to provide adequate levels of service on assets located in Toronto. Maintenance materials are available locally. Maintenance equipment is available locally.

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. The costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
TRANSPORTATION			General Parameters
Paved & BST Roads	1 -Asphalt Patching 2 -Crack Sealing 3 -Spray Patching 4 -Shoulder Grading 5 -Catchbasin Cleaning 6 -Litter Pickup 7 -Vegetation Control 8 -Mowing 9 -Sign Repair/Maint. 10 -Guiderail Rep./Maint. 11 -Culvert Repair/Repl. 12 -Culvert Insp./Clean 13 -Ditch Cleaning 14 -Snow Plowing 15 -Snow Removal 16 -Sanding & Salting	O&M costs include: Salaries (1) including labourers, truck drivers, equipment operators, and maintenance supervisors. Supplies and materials (2) needed to carry out maintenance activities. Road maintenance vehicles and equipment operating costs including O&M, fuel, parts, licences and insurances. Contracted services.	The Base Unit Cost represents the cost of carrying out maintenance activities at frequencies required to provide adequate levels of service on assets located in Toronto. Maintenance materials are available locally.
Bridges	1 -Inspection 2 -Cleaning 3 -General Maint./Repair	O&M costs include: Salaries (1) including labourers, truck drivers, equipment operators, and maintenance supervisors. Supplies and materials (2) needed to carry out maintenance activities. Road maintenance vehicles and equipment operating costs including O&M, fuel, parts, licences and insurance. Contracted services.	The Base Unit Cost represents the cost of carrying out maintenance activities at frequencies required to provide adequate levels of service on assets located in Toronto. Maintenance materials are available locally. Maintenance equipment is available locally.

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. The costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
TRANSPORTATION			
Vehicles: - Dedicated single purpose. - Mini pumper and associated equipment. - Triple combination pumper and associated equipment. - Refuse collection trucks. - Liquid waste collection truck. - Water delivery truck. - Specific unmodified trucks: solid waste, liquid waste, water delivery.	Operating and maintaining the vehicles.	Salaries (excluding pumpers, all sizes) supplies, material including fuel and contracted services/ hour operation.	Road maintenance vehicles excluded. Salary allowance based on 1000 hours of operation per year. Excludes vehicle registration and insurance.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
UTILITY			
Electrical Power Supply and Distribution Systems; consisting of power transmission, distribution and street lighting but excluding power generation (See Appendix B for Power Generation)	Minor repair, preventive maintenance, routine inspections.	Salaries (1). Supplies, material(2). Equipment, tools (2). Contracted repair and maintenance services. Minor repairs as a result of vandalism, lamps and lenses, and fuse replacement, guy wire repairs, etc. Tree trimming, right-of-way brush cutting.	Approximate 60 m pole spacing. Winters do not exceed 6 months. Standard artificial street lighting located south of latitude 57 degrees north.
	Emergency repairs, major maintenance.	Emergency: repair/ replacement costs, due to sleet, high winds, lightening, etc.	
		Routine: frequency of occurrence normally greater than 1 year -- overload relay adjustments, transformer oil testing, phase/ circuit balancing, etc. lamp and ballast replacement on burn-out	

Activity costs excluded: - major refurbishing programs where distribution lines have exceeded their economical life; and
- repairs subject to insurance claims.

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
UTILITY			
Water distribution system from source of supply to consumer, including network of mains, and hydrants. (excludes service connections).	Normal operations. Routine maintenance and minor repairs including: - general yearly inspection; - hydrant flushing, inspection and servicing; - valves, mains and hydrant minor repairs; and reservoir cleaning and inspection.	Salaries (1). Supplies, material (2) including operating chemicals, pump motive power. Equipment, tools (2), including their purchase, rental and repair. Contracted repair and maintenance services.	Reserve pop. less than 1,000. Average hydrant spacing 140 m. Valve spacing 225 m. Host buildings excluded.
Heated water distribution system excluding heated service connections.	Normal operations and inspection of heat trace.	Energy generated by grid system.	Winter operation for 4 months (8 h/day).

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
UTILITY			
Water Standpipes All equipment used for community watering points (standpipes). These would normally be provided on a piped water distribution system to enable users to collect their own water. Typical Inclusion: Heat traced supply pipe, spring release mechanical valve and related equipment. Typical Exclusion: Host building or shed.	Normal Operations Routine maintenance and minor repairs	Salaries (1). Supplies, materials (2), including operating chemicals, pump motive power. Equipment, tools (2), including purchase, rental and repair of same Contracted repair and maintenace service.	Reserve population less than 1,000.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
UTILITY			
Water Storage All above or below ground facilities 20,000L or larger to store water for community use. Typical inclusion: All drains, vents, overflows and related equipment. Typical Exclusion: Pressure tanks - these are considered to be included in BIF or BIH.	Normal Operations. Routine maintenance and minor repairs including reservoir cleaning and inspections.	Salaries (1). Supplies, materials (2), including operating chemicals, pump motive power. Equipment, tools (2), including purchase, rental and repair of same. Contracted repair and maintenance service.	Reserve population less than 1,000.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
UTILITY			
Water Supply pumphouses include the following: - Community well supply, including groundwater wells constructed or used to benefit the community at large. - Low level liftstation: structure and equipment to pump water from surface supply to storage including intake line, raw water, well, pumps, piping, hypo-chlorinator, etc. - High lift liftstation: structure and equipment designed to pressurize the main distribution system including pumps, piping valves, hydro-pneumatic tanks and chlorination equipment.	Normal operations. Inspection and servicing wells and pumphouses. Routine maintenance and chlorination equipment. General cleaning and painting. Annual inspections. Minor repairs as required.	Salaries (1). Supplies, materials (2), including pump motive power. Equipment, tools (2) including their purchase, rental and repair. Contracted repair and maintenance services.	Reserve population less than 1,000. Host buildings excluded. Chlorination equipment included.

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
UTILITY			
Water treatment facilities include the following: - Treatment system: structures & equipment used for treating water supplies including piping components and valves designed for: - coagulation, - flocculation, - sedimentation, - and filtration. - Treatment unit: equipment unit such as a pressure filter unit, softening unit, greensand filter unit, or equivalent; designed for treating water supplies, and including piping, tank and valves.	Normal operations. Minor repair or maintenance. Inspecting, painting, servicing, cleaning, flushing of pipes, valves and tanks. Testing.	Salaries (1). Supplies, materials (2) including operating chemicals, pump motive power. Equipment, tools (2) including their purchase, rental and repair. Contracted repair and maintenance services.	Reserve population less than 1,000. Chlorination equipment excluded. Host buildings excluded. High lift pumps included in treatment "system".

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
UTILITY			
Wastewater Collection system: transports wastewater from individual buildings to community treatment plant or adjacent municipal connection. This includes the network of mains and access holes.	Normal operations - and minor repair or maintenance including yearly inspections, access hole flushing, unplugging sewers, repairs to access holes, mains, etc.	Salaries (1). Supplies, material (2) including pump motive power. Equipment, tools (2) including their purchase, rental and repair.	Reserve population less than 1,000. Average access hole spacing 120 m. This excludes lift stations and service connections.
Storm sewers and catch basins required for drainage associated with roads.			

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
UTILITY			
Wastewater Liftstation: consists of the structure and equipment used to lift wastewater from a low point in a collection system to a higher elevation. Includes dry well, wet well, pumps, piping, valves, forcemains and other associated equipment.	Normal operations. Station equipment. Preventive maintenance. General maintenance and cleaning. Sludge removal. Yearly inspection. Minor repairs as required.	Salaries (1). Supplies, materials (2) including pump motive power. Equipment, tools (2) including their purchase, rental and repair. Contracted repair and maintenance services.	Reserve pop. less than 1,000. Host building excluded.

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
UTILITY			
Sewage treatment plant: structures and equipment used for treating wastewater. Consists of all tanks, equipment and processes used in sewage treatment. Systems include: - Mechanical plants such as extended aeration, rotating biological contactor & trickling filter. - Conventional and aerated lagoons. - Community septic tanks including holding tanks and septic tanks with pumped or jet disposal.	Normal operations. Testing. Preventive maintenance. Gen. maintenance. Cleaning & painting. Sludge removal. Yearly inspection. Minor repairs as required.	Salaries (1). Supplies, materials (2) including process chemicals, and pump motive power. Equipment, tools (2) including their purchase, rental and repair. Contracted repair and maintenance services.	Reserve population less than 1,000. Host building excluded.

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

O&M COST DEFINITIONS (Cont'd)

CAPITAL ASSET	ACTIVITY	COST ELEMENT	PARAMETERS
UTILITY			
Land fill site: an area assigned to receive solid waste. Note: this is not an open dump.	Normal operations, including spreading, compaction and covering waste with soil. These activities include annual clearing, trenching, etc.	Salaries (1). Supplies, material (2).	Reserve population less than 1,000.
Refuse site: an area used for the disposal of solid waste (garbage dump/pit).	Occasional spreading and covering of waste.		
Incinerator: structure used for the incineration of community solid waste. Note: Do not use a 45 gallon drum.			Excludes incinerators servicing individual facilities, such as schools.

For vehicles used in operations of above see TRANSPORTATION, General Vehicles.

Note: 1. Salaries include full, part-time and/or casual employees (fringe benefits included).
2. These costs are those delivered to the reserve.

ANNEX B

CATEGORY:	Building
CLASS:	Administrative

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
A1A	Office	A building or space in a building used as office space in which departmental program or band administrative and managerial activities take place. Unit of Measurement: Square metre, gross floor area (external dimension). Typical Inclusions: Band offices, and administration buildings, band council buildings. Typical Exclusions: Construction supervisor offices; rented office space; foreman type of offices in other classes of building, e.g. A2B garages, district offices.

CATEGORY:	Building
CLASS:	Operative

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
A2A	Trade Shop/ Workshop (Municipal)	A building or space in a building where operation and maintenance activities are carried out, these would include equipment and vehicle repair; supplies, equipment and vehicle storage. Unit of Measurement: Square metre, gross floor area (external dimension). Typical Inclusion: Buildings used as workshops, storage or warehouses, including storage of educational supplies, equipment and vehicles; community freezer and ice storage houses; boat houses when used for band O&M activities. Typical Exclusions: Nursery or green houses, barns or stables, forest fire towers; operative type buildings used for commercial or industrial purposes.
A2B	Garage (Municipal)	
A2C	Warehouse (Band) or School)	

CATEGORY:	Building
CLASS:	Institutional

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
A3A	School	A building or space in a building where a curriculum at the kindergarten, primary, elementary or secondary level is taught which could include space for classrooms, industrial arts, home economics, computer science, commercial, library, gymnasium and directly associated support space, e.g. principal's office, staff room, washrooms, storage, etc. Unit of Measurement: Square metre, gross floor area (external dimension). Typical Inclusions: Kindergarten, elementary and secondary schools including portable or temporary accommodation for school.

CATEGORY:	Building	
CLASS:	Institutional	
SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
A3A	School (Cont'd)	Typical Exclusions: Adult training centers; space used for post secondary education; museums; buildings used for storage of educational supplies and equipment which come under the operative class A2.
A3B	Daycare Centre	A building or space in a building where educational and recreational activities below the kindergarten level are carried out or other activities as described by provincial authorities. Space in the building may be provided for activity rooms, washrooms, office and storage. Unit of Measurement: Square metre, gross floor area (external dimension). Typical Inclusions: Daycare Centre including both permanent, portable or temporary accommodation.

CATEGORY: Building

CLASS: Institutional (Cont'd)

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
A3B	Daycare Centre (Cont'd)	Typical Exclusions: Schools; space used for the care or rehabilitation of handicapped persons come under the Institutional classification A3K, i.e., the Training Centre (trades, handicap) sub-class.
A3H	Fire Station	A building or part of a building which accommodates fire suppression, prevention and inspection activities. Activities taking place in the building would include storage and minor maintenance of fire fighting equipment and trucks, training, administration, control and dispatch of equipment. The building may include space for storage, workshop, office staff and training rooms/ facilities.

CATEGORY:	Building
CLASS:	Institutional

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
A3H	Fire Station (Cont'd)	Unit of Measurement: Square metre, gross floor area (external dimension). Typical Inclusions: A single building or portion of a multi-purpose building which must contain fire suppression apparatus. Typical Exclusions: Material storage buildings; office space for fire inspector in band administration buildings.

CATEGORY:	Building
CLASS:	Residential

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
A4I	Student Residence	A building or part of a building where students reside who are attending school as described in the asset definition, School A3A. The facility serves as accommodation for the students in order for them to attend school. The accommodation could include sleeping quarters (rooms), dining facilities including cafeterias, wash-rooms, office space, recreational and storage rooms. Unit of Measurement: Square metre, gross floor area (external dimension). Typical Exclusions: Group homes; bunk-houses; hostels; transient centres.

CATEGORY:	Building
CLASS:	Residential

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
A4L	Teacherages	A housing unit furnished by the band or department located on a reserve which is used to provide living accommodation for teachers employed at departmental or band operated schools. The accommodation would include those facilities normally associated with a residential unit. Unit of Measurement: Square metre, gross floor area (external dimension). Typical Inclusions: Single family house, semi-detached houses, multi-family houses, portables, mobile homes or trailers. Typical Exclusions: Band housing, group homes, hotels, motels, student centres.

CATEGORY: Building

CLASS: Utility

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
A5A	Water supply/ treatment	A building which contains equipment and materials to support the municipal services, (Category B-Utility) function. The building may contain pumps, piping, tanks, water and wastewater treatment equipment, power generation equipment as well as office, washroom, laboratory and storage space. Unit of Measurement: Square metre, gross floor area (external dimension). Typical Inclusions: Water supply, distribution and treatment buildings, wastewater collection treatment and disposal buildings; electrical power generating plants.
A5B	Wastewater treatment disposal	
A5C	Electrical power generation	
A5D	Solid waste disposal	
A5E	Central heating plant	

CATEGORY: Building

CLASS: Recreational

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
A6A	Community recreation center/hall/ cultural center	A building or space in a building where band or community recreation and cultural activities take place. These activities could include sports, exercise activities, community meetings, adult education cultural programs.
A6B	Arena	
A6C	Gymnasium	
A6D	Indoor swimming pool	
A6E	Club house/ youth centre/ senior citizen/ drop-in	

Unit of Measurement:

Square metre, gross floor area (external dimension).

Typical Inclusions: Types of buildings as listed above; curling rinks.

Typical Exclusions: Churches, museums, marina, outdoor rinks and outdoor swimming pools; camp grounds; booths; shelters; sports fields; rodeo grounds.

CATEGORY:	Utility
CLASS:	Water Supply, Treatment and Distribution

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B1A	Heated Water Mains	All heat traced piping used to convey water from source of supply to service line connection at the main. Unit of measurement: metre. Typical Inclusions: All associated valves and hydrants. Typical Exclusion: Service lines from the service line connection at the main to the user.
B1B	Water Mains	All piping (except heat traced - see B1A) used to convey water from source of supply to service line connection at the main. Unit of measurement: metre Typical Inclusions: All associated valves and hydrants. Typical Exclusion: Service lines from the service line connection at the main to the user.

CATEGORY: Utility

CLASS: Water Supply, Treatment and Distribution

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B1C	Water Treatment System	All equipment used for conventional water treatment. Unit of measurement: each. Typical Inclusions: Coagulation, flocculation, sedimentation, filtration equipment, and a high level liftstation. Typical Exclusion: Host building.
B1D	Water Treatment Unit	All equipment used for treating community water supply. Unit of measurement: each. Typical Inclusion: Softening unit, iron removal unit (green-sand filter), pressure filter or equivalent treatment. Each of the above items is one treatment unit. Typical Exclusion: Host building.

CATEGORY:	Utility
CLASS:	Water Supply, Treatment and Distribution

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B1E	Water Storage	All above or below ground facilities 20,000 L or larger to store water for community use. Unit of measurement: each. Typical Inclusions: All drains, vents, overflows and related equipment. Typical Exclusion: Pressure tanks - these are considered to be included in B1F or B1H.
B1F	Community Wells	All groundwater wells used to supply water to the community at large. Unit of measurement: each. Typical Inclusions: Well pump, pressure tanks and chlorination equipment. Typical Exclusion: Host building.

CATEGORY: Utility

CLASS: Water Supply, Treatment and Distribution

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B1G	Water Sandpipes	All equipment used for community watering points (standpipes). These would normally be provided on a piped water distribution system to enable users to collect their own water. Unit of measurement: each. Typical Inclusions: Heat traced supply pipe, spring release mechanical valve and related equipment. Typical Exclusion: Host building or shed.
B1H	High Level Liftstation	All pumping facilities used to pressurize the water main distribution system. In this case the source of raw water is usually either a community well or a low level pumphouse. Unit of measurement: each. Typical Inclusions: Presssure tanks, pumps and chlorination equipment.

CATEGORY: Utility

CLASS: Water Supply, Treatment and Distribution

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B1I	Low Level Liftstation	All equipment to pump water from a surface water supply to treatment facilities or storage. Unit of measurement: each. Typical Inclusions: Intake line, clear well, pumps and chlorination equipment. Typical Exclusion: Host building.

CATEGORY:	Utility
CLASS:	Wastewater Collection, Treatment and Disposal System.

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B2A	Sanitary Main	All piping used to transport wastewater from service line connection at the main to a community treatment plant or adjacent municipal connection. Unit of measurement: metre. Typical Inclusion: Network of gravity mains, manholes, and appurtenances associated with wastewater collection. Typical Exclusion: Service lines from the user to the service line connection at the main; liftstations and forcemains.
B2B	Storm Main	All piping used to collect surface drainaige from storm runoff. Unit of measurement: metre Typical Inclusion: Network of gravity mains, manholes and catchbasins.

CATEGORY:	Utility
CLASS:	Wastewater Collection, Treatment and Disposal System.

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B2B	Storm Main (Cont'd)	Typical Exclusion: Ditches and culverts.
B2C	RBC/Trickling Filter	Mechanical treatment plant designed to treat community wastewater. Unit of measurement: each. Typical Inclusions: All equipment, tanks, filter media and processes associated with biological treatment. Typical Exclusion: Host building.
B2D	Extended Aeration Plant	Mechanical treatment plant designed to treat community wastewater. Unit of measurement: each. Typical Inclusion: All equipment, tanks, aeration system and processes associated with biological treatment. Typical Exclusion: Host building.

CATEGORY: Utility

CLASS: Wastewater Collection, Treatment and Disposal System.

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B2E	Lagoon	Earthen basin(s) designed to treat community wastewater. Unit of measurement: each. Typical Inclusions: All lagoon cells, inlet and outlet devices, piping and processes associated with biological treatment. Typical Exclusion: Liftstation and forcemain.
B2F	Community Septic Tank and Field	Community septic tank/holding tank designed for wastewater disposal. Unit of measurement: each.
B2G	Jet-Pump Disposal	Community septic tank designed for waterwater disposal by means of a sewage ejector system. Unit of measurement: each.

CATEGORY: Utility

CLASS: Wastewater Collection, Treatment and Disposal System.

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B2H	Liftstation	All equipment used to lift wastewater from a low point in a collection system to a higher elevation. Unit of measurement: each. Typical Inclusion: Dry well, wet well, pumps, piping and valves. Typical Exclusion: Host building.
B2I	Aerated Lagoon	Lagoon designed to treat community wastewater by means of mechanical aeration. Unit of measurement: each. Typical Inclusions: All lagoon cells, piping, aeration equipment and processes associated with biological treatment. Typical Exclusion: Buildings housing mechanical treatment equipment.

CATEGORY:	Utility
CLASS:	Wastewater Collection, Treatment and Disposal System.

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B2J	Forcemain	All piping used to transport wastewater from a sewage liftstatin to a gravity collection system or community treatment plant. Unit of measurement: metre. Typical Inclusions: All pressure mains and appurtenances.

CATEGORY:	Utility
CLASS:	Electrical Power Supply and Distribution System

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B3A	Mini-Hydro	INAC/Band owned water driven electric power generating source on reserves usually in combination with standby diesel-driven generators, rated in kW. Unit of measurement: each. Typical Inclusions: Dam, water intake system and control. Typical Exclusions: Generator, building, wind generation.

CATEGORY: Utility

CLASS: Electrical Power Supply and Distribution System

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B3B	Diesel-Generators	INAC/Band owned diesel-engine driven electric power generating source on reserves, consisting of one or two units with no synchronizability and a minimum of three units with synchronizability, rated in kW. Unit of measurement: each. Typical Inclusions: Control panels. Typical Exclusions: Diesel-generator building.

CATEGORY: Utility

CLASS: Electrical Power Supply and Distribution System

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B3C	Street Lights	INAC/Band owned street lights, usually installed on existing power distribution poles, and typically consisting of 150 watt "High Intensity Discharge" lamps and luminaires. Unit of measurement: each. Typical Inclusions: Lighting fixtures, mounting hardware, power connection, control and grounding. Typical Exclusions: Street lights provided under contract by Power Supply Authority.

CATEGORY:	Utility
CLASS:	Electrical Power Supply and Distribution System

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B3D	Transmission	INAC/Band owned transmission line, supplying electrical power to a reserve from some remote/ outside source. Transmission is almost exclusively via an overhead pole line. Unit of measurement: kilometre. Typical Inclusions: Pole line and substation. Typical Exclusions: Distribution lines.
B3E	Distribution	INAC/Band owned distribution line, distributing power on the reserve from the transmission substation or local generating plant to the various users. Distribution is usually via a overhead pole line with the possible exception of an underground cable run to a school, based on specific site requirements. Unit of measurement: kilometre.

CATEGORY: Utility

CLASS: Electrical Power Supply and Distribution System

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B3E	Distribution (Cont'd)	Typical Inclusions: Pole line, transformers, fuses, lightning arresters, guying, tap-offs to loads. Typical Exclusions: Transmission line and substation.

CATEGORY: Utility

CLASS: Solid Waste Disposal System

SUB-CLASS (CAIS CODING)	ASSET NAME	ASSET DEFINITION
B4A	Refuse Site	An area used for the disposal of solid waste (garbage dump/pit). Unit of measurement: each. Typical Exclusion: Vehicles associated with operation.
B4B	Landfill Site	An area assigned to receive solid waste including spreading, compaction and covering waste with soil. Unit of measurement: each. Typical Exclusion: Garbage dump/pit. Vehicles associated with operation.
B4C	Incinerator	All equipment used in the incineration of community solid waste. Unit of measurement: each. Typical Exclusion: Incinerators servicing individual facilities such as schools. Excludes 45 gallon drum.

CATEGORY:	CLASS	SUB-CLASS
D. Transportation Classes and sub-classes re-named to differentiate between band public assets and the assets covered in classes 7 and 8. Asset definitions are provided.	1. Reserve Roads	A. Earth Roads B. Gravel Roads C. Surface Treated Roads D. Paved Roads
	2. Reserve Bridges	A. Vehicular Bridges B. Pedestrian Bridges C. Large Culverts
Asset definitions were not developed for these assets since they only represent a more detailed level of inventory of "reserve roads" which have already been defined.	3. Culverts	A. Longitudinal B. Transverse Z. Other
	4. Ditches	A. Roadside Z. Other
O&M funding for these assets is included in the overall funding for "reserve roads".	5. Traffic Control Devices	A. Signs B. Traffic Lights Z. Other

CATEGORY:	CLASS	SUB-CLASS
No asset definitions since none were ever reported and they are not included in GFR.	6. Ferries	A. Vehicular B. Pedestrian Z. Other
New classes and sub-classes created as requested by Capital Management Branch.	7. Other Roads	A. Third Party Roads B. Private Access Roads C. Private Entrances
Asset definitions are provided.	8. Other Bridges	A. Third Party Bridges B. Private Access Bridges C. Private Entrance Bridges D. Off-Reserve Bridges

CATEGORY: TRANSPORTATION

CLASS: RESERVE ROADS

DEFINITION: Public roads include service access roads located on-reserve for the benefit of the entire community and for the purpose of providing vehicular access to provincial road systems, residential areas and to public facilities such as schools, band offices, sewage treatment plants, landfill sites, etc. Reserve Roads exclude: third-party roads, off-reserve roads, private entrances and access roads to private economic ventures.

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
DIA	Earth Roads	Seasonal roads constructed of native materials without the addition of surface improvement materials such as gravel. Unit of measurement: Kilometre.
DIB	Gravel Roads	Roads with a riding surface constructed of crushed, screened or native gravel. Unit of measurement: Kilometre.
DIC	Surface Treated Roads	Roads with low class asphaltic surfaces such as chipseals, bituminous surface treatments, oil treatments, etc. Unit of measurement: Kilometre.

CATEGORY:	TRANSPORTATION
CLASS:	RESERVE ROADS (Cont'd)
DEFINITION:	Public roads include service access roads located on-reserve for the benefit of the entire community and for the purpose of providing vehicular access to provincial road systems, residential areas and to public facilities such as schools, band offices, sewage treatment plants, landfill sites, etc. Reserve Roads exclude: third-party roads, off-reserve roads, private entrances and access roads to private economic ventures.

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
DID	Paved Roads	Roads with a riding surface paved with a hot mixed asphaltic concrete. Unit of measurement: Kilometre.

CATEGORY: TRANSPORTATION

CLASS: RESERVE BRIDGES

DEFINITION: Public structures located on-reserve for the benefit of the entire community and for the purpose of carrying vehicular and pedestrian traffic across depressions and obstacles such as gullies, roadways, waterways, railways, etc. Reserve Bridges, including large culverts whose span exceeds 3 metres, are normally located on Reserve Roads.

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
D2A	Vehicular Bridges	Bridges designed to carry vehicular traffic. Unit of measurement: each.
D2B	Pedestrian Bridges	Bridges designed to carry pedestrian traffic only. Unit of measurement: each.
D2C	Large Culverts	Structures with a span (width of opening) exceeding 3 metres which are placed under a road embankment for the passage of surface water, livestock or pedestrians. Unit of measurement: each.

CATEGORY: TRANSPORTATION

CLASS: OTHER ROADS

DEFINITION: Private roads, entrances and third-party roads which are located on- or off-reserve, and where the Band is the major user.

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
D7A	Third-Party Roads	Portions of road networks belonging to third party agencies such as provinces, counties, municipalities, etc., located within the boundaries of the reserve. Unit of measurement: Kilometre.
D7B	Private Access roads	All farm access roads and any other access roads to private economic ventures located on-reserve such as sawmills, campgrounds, logging, operations, stores, etc. Unit of measurement: Kilometre.

CATEGORY: TRANSPORTATION

CLASS: OTHER ROADS (Cont'd)

DEFINITION: Private roads, entrances and third-party roads which are located on- or off-reserve, and where the Band is the major user.

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
D7C	Private Entrances	All entrances, laneways, and driveways to private dwellings for the exclusive use of the property occupants. Unit of measurement: Kilometre.
D7D	Off-reserve roads	Roads located outside the boundaries of the reserve which are used almost exclusively by the band and are often the only link between the reserve and the provincial road system. Unit of measurement: Kilometre.

CATEGORY: TRANSPORTATION

CLASS: OTHER BRIDGES

DEFINITION: All vehicular and pedestrian bridges and large culverts, as defined in Class 2 - Reserve Bridges, which are located on roads defined in Class 7 - Other Roads, and where the Band is the major user.

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
D8A	Third-Party Bridges	Bridges and large culverts located on roads belonging to third party agencies as defined under D7A. Unit of measurement: each.
D8B	Private Access Bridges	Bridges and large culverts located on Private Access Roads defined under D7B. Unit of measurement; each.
D8C	Private Entrance Bridges	Bridges and large culverts located on Private Entrances defined under D7C. Unit of measurement: each.
D8D	Off-reserve Bridges	Bridges and large culverts located on off-reserve roads defined under D7D. Unit of measurement: each.

CATEGORY: VEHICLES

CLASS: FIRE FIGHTING

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
E1A	Mini Pumper	- Truck with either 4 x 2 or 4 x 4 wheel drive. - Gross Vehicle Weight Rating (GVWR) 4889 to 5896 kg (11000 to 13000 lbs). - Fire fighting pump rated at 1363 litres per minute (300 GPM) - Water tank capacity 1591 litres (350 gallons) or smaller. Unit of measurement: each.
E1B	Triple Combination Pumper	- Truck with either 4 x 2 or 4 x 4 wheel drive. - Gross Vehicle Weight Rating(GVWR) 6550 to 15876 kg. (14000 to 35000 lbs.)

CATEGORY: VEHICLES

CLASS: FIRE FIGHTING

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
E1B	Triple Combination Pumper (Cont'd)	With a fire fighting capability to: a. pump water from its own reservoir. b. draft water from a source. c. increase water pressure from a source such as a hydrant, or to a source such as a building sprinkler system. The fire fighting pump may have a rating from 1932 to 3750 litres per minute (425 to 825 g.p.m.). Water tank capacity from 2279 litres to 9092 litres (500 to 2000 gallons). Unit of measurement: each.

CATEGORY: VEHICLES

CLASS: FIRE FIGHTING

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
E1Z	Fire Fighting Vehicles (other)	Motor vehicle chassis of any size or a towed trailer of any size not specifically designed as a fire truck but which is equipped with a tank and/or pump. Unit of measurement: each.

CATEGORY:	VEHICLES
CLASS:	SOLID WASTE

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
E2A	Compactor	A motor vehicle chassis ranging from 5896 to 15876 kg (13000 to 35000 lbs) Gross Vehicle Weight Rating (GVWR), fitted with a closed container with hydraulic capability to compress solid waste. Loading may be accessible from the rear or either side. Unit of measurement: each.
E2B	Unmodified	A motor vehicle chassis of any size, fitted with a closed or open container which is dedicated part time to the purpose of collecting solid waste. Unit of measurement: each.
E2Z	Other	A motor vehicle chassis of any type or a towed trailer used for the purpose of collection of solid waste on an infrequent or as necessary basis. Unit of measurement: each.

CATEGORY: VEHICLES

CLASS: LIQUID WASTE

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
E3A	Commercial Pumper	A motor vehicle chassis ranging from 7711 to 15876 kg (17000 to 35000 lbs) Gross Vehicle Weight Rating (GVWR) commercially designed with special tanks with a capacity range of 2273 to 6819 litres, (500 to 1800 gallons) or more to be used for the purpose of pumping liquid waste water. Pump capacity and type may vary. Unit of measurement: each.
E3B	Liquid Waste Unmodified Chassis	A motor vehicle of any chassis size on to which a portable tank and pump has been temporarily mounted for the purposes of pumping and collecting waste water as required. Unit of measurement: each.

CATEGORY: VEHICLES

CLASS: LIQUID WASTE (Cont'd)

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
E3Z	Liquid Waste Collection (Other)	A motor vehicle chassis of any type or a towed trailer with a tank and/or without a pump used for the purpose of collecting waste water, on an infrequent or as required basis. Unit of measurement: each.

CATEGORY: VEHICLES

CLASS: WATER DELIVERY

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
E4A	Water Delivery Commercial Tanker	A motor vehicle ranging from 7712 to 15876 kg (17000 to 35000 lbs) Gross Vehicle Weight (GVWR), fitted with a permanently mounted tank with a capcity ranging from 2954 to 6819 litres (650 to 1500 gallons) either with a pump or gravity dispensing system. Note: Some of these vehicles may have a fire fighting capability by the use of an extra pump for pressurizing water (i.e. combination water delivery, fire fighting vehicle). Unit of measurement: each.

CATEGORY: VEHICLES

CLASS: WATER DELIVERY

SUB CLASS (CAIS CODING)	ASSET TYPE	ASSET DEFINITION
E4B	Water Delivery Unmodified Chassis	A motor vehicle of any chassis size onto which a portable tank is temporarily mounted for the purpose of delivering potable water; using either a pump or gravity for delivery. Unit of measurement: each.
E4Z	Water Delivery (Other)	A portable water tank used for delivery of potable water to a dwelling: a. installed on the rear of a vehicle, or b. a tank trailer, or c. a tank mounted on a single wheeled axle. Unit of measurement: each.

ANNEX C

BUILDING FACILITY DEFINITIONS

SCHOOLS

PORTABLE CLASSROOMS	110 M2 WOOD FRAME CONSTRUCTION 2 WASHROOMS FURNACE ROOM INSULATED FLOOR 0-10 YEARS OLD
SMALL SCHOOL	230 M2 WOOD FRAME CONSTRUCTION TEACHERAGE ATTACHED FULL BASEMENT OR CRAWL SPACE 10-30 YEARS OLD
LARGE SCHOOL	2300 M2 MASONRY, BRICK VENEER CONSTRUCTION SLAB ON GRADE 10-20 CLASSROOM GYMNASIUM HOME ECONOMICS ROOM SCIENCE ROOM WOOD WORKING SHOP 0-15 YEARS OLD ASSUME CURRENT INSULATION STANDARD
FULL SIZE SCHOOL	3300 M2 MASONRY, BRICK VENEER CONSTRUCTION SLAB ON GRADE GYMNASIUM HOME ECONOMICS ROOM CHEMISTRY LABORATORY PHYSICS LABORATORY WOOD WORKING SHOP LUNCH ROOM 0-10 YEARS OLD ASSUME CURRENT INSULATION ROOM

TEACHERAGES

SINGLE UNIT	110 M2 STANDARD BUNGALOW 2 BEDROOMS BASEMENT OR CRAWL SPACE 10-20 YEARS OLD
SEMI-DETACHED	230 M2 CONVENTIONAL WOOD FRAME CONSTRUCTION 2 X 3 BEDROOM UNITS 0-15 YEARS OLD
MULTI-UNIT	400 M2 CONVENTIONAL WOOD FRAME CONSTRUCTION CENTRAL LAUNDRY AND FURNACE 2 X 3 BEDROOM UNITS PLUS 2 X 2 BEDROOM UNITS 0-10 YEARS OLD

STUDENT RESIDENCE	MASONRY CONSTRUCTION CLAY TILE WALLS WITH BRICK VENEER POURED SLAB FLOORS ACCOMODATIONS FOR 150-200 STUDENTS FULL KITCHEN MEN'S & WOMEN'S SHOWERS FULL BASEMENT 25-75 YEARS OLD
OTHER INSTITUIONAL	230 M2 TRAINING CENTRE(TRADES/HANDICAPPED) WOOD FRAME CONSTRUCTION SIMILAR TO LARGE HOUSE 2 WASHROOMS FURNACE ROOM 0-10 YEARS OLD
RECREATIONAL	1100 M2 ARENA METAL SHEATHED BUILDING BRINE SYSTEM 2 CHANGE ROOMS 2 SHOWER ROOMS 2 OFFICES WAITING AREA STORAGE AREA 1 VEHICLE DOOR SLAB ON GRADE 0-20 YEARS OLD
UTILITY	10 M2 PUMPHOUSE METAL BUILDING SLAB ON GRADE SMALL HEATER 0-20 YEARS OLD EXCLUDES ENERGY COSTS
OPERATIVE (formerly INDUSTRIAL)	470 M2 1 STOREY WOOD WORKING FACTORY, CANOE FACTORY OR SIMILAR WOOD WORKING MACHINERY SMALL BUSINESS 2 WASHROOMS 2 OFFICES LUNCH AREA STORAGE AREA OPEN WORK AREA LOADING AREA FOR VEHICLES SLAB ON GRADE 0-10 YEARS OLD

ADMINISTRATIVE	370 M2 BAND OFFICE 1 STOREY FULL BASEMENT OR CRAWL SPACE MANY SMALL OFFICES 2 WASHROOMS MEETING ROOM 0-20 YEARS OLD
FIRE STATIONS	100 M2 WOOD FRAME CONSTRUCTION VEHICLE STORAGE BAY 1 WASHROOM 1 OFFICE MEETING AREA EQUIPMENT STORAGE AREA SLEEPING QUARTERS FOR ONE PERSON FURNACE ROOM 0-10 YEARS OLD
DAYCARE CENTRES	230 M2 WOOD FRAME CONSTRUCTION SIMILAR TO LARGE HOUSE SMALL KITCHEN 2 WASHROOMS STRICT FIRE REGULATIONS 0-10 YEARS OLD

MUNICIPAL SYSTEMS FACILITY DEFINITIONS

The items listed in this section exemplify a representative water supply system for an Indian community with a population of less than 1,000 people.

WATER SUPPLY

DISTRIBUTION

WATER MAINS

Normally buried at a 2m depth. Costs include a network of valves, hydrants, and mains(excludes service connections).

HEATED WATER MAINS

Extra for heat traced watermains excluding service connections.

WATER STORAGE

All above or in-ground facilities 50,000 litres or larger used to store water. Excludes dams.

WATER STANDPIPES(WATERING POINTS)

Includes heat-traced supply line, spring release mechanical valve, water tap and related equipment(host building excluded).

PUMPHOUSE

COMMUNITY WELLS

Groundwater wells used to supply the community at large. Minimun 150mm diameter including well pump.

LOW LEVEL LIFTSTATION

Includes wet well, pumping equipment, hypochlorinator, meter, and intake line(housing excluded) for less than 200,000 litres/day.

HIGH LEVEL LIFT STATION

Includes pressure tanks, domestic and fir pumping equipment, hypochlorinator, meters(housing excluded) for less than 200,000 litres/day.

TREATMENT FACILITIES

WATER TREATMENT SYSTEM(CONVENTIONAL)

Includes coagulation, flocculation, sedimentation, filtration, and disinfection capabilities; high level liftstation included (excludes host building) for less than 200,000 litres/day.

WATER TREATMENT UNIT

Includes piping, tanks, valves, equipment, and chemicals used for water treatment(host building excluded).

1. Pressure Filter Unit
2. Softening Unit(including brine tank)
3. Greensand Filter Unit
4. Hypochlorination Unit

WASTEWATER

COLLECTION

SANITARY MAINS

Normally buried at a 2-3m depth including manholes and mains (excluding service connections).

STORM MAINS

Normally buried at a 2m depth including piping, catchbasins, & manholes.

FORCEMAINS

Normally buried at a 2m depth, includes valves & piping (100mm and larger.

PUMPING

LIFTSTATION

Includes dry well, wet well, pumps, piping, and associated equipment(host building excluded) for less than 200,000 litres/day.

TREATMENT PLANTS

RBC/TRICKLING FILTER

Includes all equipment, tanks, filter media, pump-out requirements, chlorination and processes associated with biological treatment (host building excluded) for less than 200,000 litres/day.

EXTENDED AERATION PLANT

Includes all equipment, tanks, aeration system, chlorination, pump out requirements, and processes associated with biological treatment(host building excluded) for less than 200,000 litres/day.

LAGOON

Includes all lagoon cells, inlet and outlet devices, piping, and processes associated with biological treatment(one year retention).

AERATED LAGOON

All lagoon cells, piping, aeration equipment, chlorination and processes associated with biological treatment(associated building excluded) for less than 200,000 litres/day.

COMMUNITY SEPTIC TANK/HOLDING TANK

Community septic tank/holding tank designed for wastewater disposal including disposal field if present.

JET PUMP DISPOSAL

Community septic tank system designed for wastewater disposal by a sewage ejector system.

SOLID WASTE

LANDFILL SITE
Normal operation including spreading, compaction, and covering waste. O&M of vehicles excluded.

REFUSE SITE
Area used for disposal of solid waste(garbage dump/pit). O&M of vehicles excluded.

INCINERATOR
Open pit incinerator used for disposal of solid waste (approximately 1,200 kg/week).

ELECTRICAL

STREET LIGHTS
High Pressure Sodium 150 watt lamps, fixtures, and connections, mounted on existing power distribution poles. Includes maintenance and energy.

TRANSMISSION
Pressure treated wood poles, switches, 44kV three phase conductors. Substation includes structures, transformers (44kV-5kV), switch gear, and fencing.

DISTRIBUTION
Treated wood poles, primary conductors, 25 KVA transformers, 120/240 V secondary distribution, and triplex connections at houses.

TRANSPORTATION FACILITY/ACTIVITY DEFINITIONS

1 ROAD TYPE

The road network is normally located in a rural type of environment and has the following general characteristics;

- the road surface is either paved or gravel (both types may be present in one network, however gravel is the most prevalent;
- the average road width is less than 8.5 metres;
- the network joins clusters of dwellings or provides access to public sites;
- it may connect to the provincial road system;
- land access is given priority over traffic movement;
- the AADT is less than 250;
- the average running speed is less than 80km/hr; and
- it is used predominantly by passenger cars and service vehicles including an occasional heavy truck.

2 MAINTENANCE ACTIVITIES

Indices will be developed for each road maintenance activity based on the unit cost of carrying out each maintenance activity once over one inventory unit.

The following is a list of maintenance activities to be considered and their associated inventory units.

MAINTENANCE ACTIVITIES	INVENTORY UNITS
1 GRADING	ROAD - KM
2 GRAVELLING	M3 OF GRAVEL
3 GRAVEL PATCHING	M3 OF GRAVEL
4 DUST CONTROL - FLAKE CaCL2	TONNE CaCL2
5 SHOULDER GRADING	ROAD - KM
6 ASPHALT PATCHING	TONNE MIX
7 CRACK SEALING	LITRE SEALANT
8 SPRAY PATCHING	LITRE LIQUID SEALANT
9 SNOW PLOWING	ROAD - KM
10 SNOW REMOVAL	ROAD - KM
11 SANDING & SALTING	ROAD - KM
12 CULVERT REPAIR/REPLACEMENT	CULVERT
13 CULVERT INSPECTION/CLEANING	CULVERT
14 LITTER PICKUP	ROAD - KM
15 VEGETATION CONTROL	SWATH - KM
16 MOWING	SWATH - KM
17 DITCH CLEANING	DITCH - KM
18 CATCH BASIN CLEANING	STRUCTURE

19	SIGN MAINTENANCE/REPAIR	SIGN
20	GUIDERAIL MAINTENANCE/REPAIR	METRE OF GUIDERAIL
21	BRIDGE INSPECTION	BRIDGE
22	BRIDGE CLEANING	M2 DECK
23	GENERAL BRIDGE MAINTENANCE/REPAIR	BRIDGE

For the roads category, the report will show detailed calculations. Details regarding task times, human resources, equipment, and material requirements foreach activity will be provided by INAC.

ANNEX D

REMOTENESS INDICES DEFINITIONS

The following are definitions to be used in establishing the appropriate Remoteness Index in determining O&M costs. The Zone classification for each reserve or settlement is contained in, CLASSIFICATION AND HOUSING ECONOMIC CLASSIFICATION OF INDIAN BANDS BY ZONE.

ZONE 1	A zone where the band is located within 50 km of the nearest city centre by year-round road acces. Material prices are competitive. Delivery time and charges are either non-existant or nominal. skilled labour is plentiful and productive.
ZONE 2	A zone where the band is located between 50 km and 350 km from the nearest city centre by year-round road access. Material prices are not as competitive (only one supplier). Transportation time and costs are significant. Only semi-skilled or unskilled labour is available. Skilled labour must be housed or compensated for travel.
ZONE 3	A zone where the band is located over 350 km from the nearest city centre by year-round road access. Material prices are excessive. Skilled and semi-skilled labour must be imported and housed on-site.
ZONE 4	A zone where the band has no year-round road access to the nearest city cente and as a result has a higher cost of transportation.

It should be noted that a given site does not have to meet every criterion in order to be included in a given category.

ANNEX E

MUNICIPAL TYPE AGREEMENT DEFINITION FOR O&M FUNDING PURPOSES

GENERAL

The Gross Funding Requirement (GFR) calculation each year provides an estimate of the amount required to operate and maintain Indian and Northern Affairs real property on Indian Reserves and to provide certain basic services to natives. The inclusion of Municipal Type Agreements (MTA) recognizes that contracted or purchased services are other options that band councils may employ to provide necessary services to their constituents. This paper defines those types of MTA's that are acceptable for inclusion in the GFR calculations.

MUNICIPAL TYPE AGREEMENT DEFINITION

A Municipal Type Agreement is defined as an agreement between the Department or Band and another federal department, provincial government, municipal government, city or town government, private contractor (native or other), individual (native or other), or organization (federal, provincial, local native).

The intent of the agreement is to purchase certain specified services instead of providing them directly.

For the purposes of the Gross Funding Requirement calculations and subsequent allocation of O&M funding, Municipal Type Agreements may include provision of services for:

Water Supply
Water Supply and Distribution
Wastewater Disposal
Wastewater Collection and Disposal
Garbage Collection
Garbage Collection and Disposal
Garbage Disposal
Roads Maintenance
Bridge Maintenance
Railway Crossing Maintenance
Fire Fighting Services

For the purposes of the Gross Funding Requirement calculation and subsequent allocation of O&M funding, Municipal Type Agreements DO NOT include:

Animal Control Services
Policing Agreements
Contracts for the Provision and Delivery of Fuel for Heating
Contracts for the Provision and Delivery of Fuel for Electricity Generation
Contracts for the Provision of Cleaning Services
Contracts for the Provision of Fire Alarm System Inspection and Repair Services
Bridge Operation
Winter Road Operation and Maintenance
Cat-Train Operation and Maintenance
Ferry Operation and Maintenance

In order to be eligible for inclusion in the GFR calculation the following information must be provided by region:

1 Band Number
2 Band Name
3 Reserve Number
4 Reserve Name
5 Description of Service Provided
6 Cost of Service Provided
7 Name of Supplier of Service
8 CAIS asset number(s) for which the service is being provided.*

Where the MTA is a group of services, the service cost of each type of service must be provided.

*NOTE:
For example, if a band has an MTA with the province for the operation and maintenance of roads on reserve, then the asset number for all roads included in the MTA should be listed.

ANNEX F

FUNDED ASSETS

CATEGORY	FUNDED NAME	CAIS CODING	CAIS SUBCLASS NAME
SOLID WASTE	LANDFILL	B4A	REFUSE SITE
	REFUSE SITE	B4B	LANDFILL SITE
	INCINERATOR	B4C	INCINERATOR
ELECTRICAL GENERATION	TRANSMISSION	B3D	TRANSMISSION
	DISTRIBUTION	B3E	DISTRIBUTION
	STREET LIGHTS	B3C	STREET LIGHTS
TRANSPORTATION	EARTH ROADS	D1A	EARTH ROAD
	GRAVEL ROADS	D1B	GRAVEL ROAD
	PAVED AND BST ROADS	D1C	SURFACE TREATED ROAD
		D1D	PAVED ROAD
	BRIDGES	D2A	VEHICULAR BRIDGE
		D2B	PEDESTRIAN BRIDGE
		D2C	LARGE CULVERTS
VEHICLES	MINI PUMPER	E1A	MINI-PUMPER
	TRIPLE COMBINATION PUMPER	E1B	TRIPLE COMBINATION PUMPER
	REFUSE COLLECTION TRUCK	E2A	COMPACTOR
	REFUSE COLL'N TRUCK UNMOD	E2B	UNMODIFIED
	LIQUID WASTE PUMPER	E3A	COMMERCIAL PUMPER
	LIQUID WASTE UNMOD	E3B	LIQUID WASTE UNMODIFIED CHASSIS
	WATER DELIVERY COMMERCIAL	E4A	WATER DELIVERY COMMERCIAL TANKER
	WATER DEL'Y UNMOD	E4B	WATER DELIVERY UNMODIFIED CHASSIS

FUNDED ASSETS

CATEGORY	FUNDED NAME	CAIS CODING	CAIS SUBCLASS NAME
BUILDINGS	SCHOOLS	A3A	SCHOOL
	TEACHERAGES	A4L	TEACHERAGE
	STUDENT RESIDENCES	A4I	STUDENT RESIDENCE
	DAYCARE CENTRES	A3B	DAYCARE CENTRE
	RECREATIONAL	A6A	CTTY REC CTR/HALL/CULT CTR
		A6B	ARENA
		A6C	GYMNASIUM
		A6D	INDOOR SWIMMING POOL
		A6E	CLUB HS/YTH CTR/SR CIT DROP-IN
	UTILITY	A5A	WATER SUPPLY/TREATMENT
		A5B	WASTE TREATMENT DISPOSAL
		A5C	ELECTRICAL POWER STATION
		A5D	SOLID WASTE DISPOSAL
		A5E	CENTRAL HEATING PLANT
	OPERATIVE	A2A	TRADE SHOP/WORKSHOP
		A2B	GARAGE(MUNICPAL)
		A2C	WAREHOUSE(BAND OR SCHOOL)
	ADMINISTRATIVE	A1A	OFFICE
	FIRE STATIONS	A3H	FIRE STATION
WATER SUPPLY	WATERMAINS	B1B	WATER MAINS
	HEATED	B1A	HEATED WATER MAINS
	STORAGE RESERVOIRS	B1E	WATER STORAGE
	STANDPIPES	B1G	WATER STANDPIPES
	COMMUNITY WELL SUPPLY	B1F	COMMUNITY WELLS
	LOW LEVEL LIFTSTATION	B1I	LOW LEVEL LIFTSTATION
	HIGH LEVEL LIFTSTATION	B1H	HIGH LEVEL LIFTSTATION
	CONVENTIONAL TREATMENT SYSTEM	B1C	WATER TREATMENT SYSTEM
	UNIT TREATMENT SYSTEM	B1D	WATER TREATMENT UNIT
WASTEWATER TREATMENT	GRAVITY MAINS	B2A	SANITARY MAINS
		B2B	STORM MAINS
	LIFTSTATION	B2H	LIFTSTATION
	RBC/TRICKLING FILTER	B2C	RBC/TRICKLING FILTER
	EXTENDED AERATION	B2D	EXTENDED AERATION PLANT
	SEWAGE LAGOON	B2E	LAGOON
	AERATED LAGOON	B2I	AERATED LAGOON
	SEPTIC TANK/HOLDING TANK	B2F	SEPTIC TANK AND FIELD
	JET PUMP DISPOSAL	B2G	JET-PUMP DISPOSAL