

2/ EXTENDED AREA SERVICE

"EAS" 2

A background study and statistical  
documentation of select EAS as  
implemented by Bell Canada and  
B.C. Telephones. 1

1.  
Prepared by S.F. Murby/  
under contract for the  
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DGTE/DSI

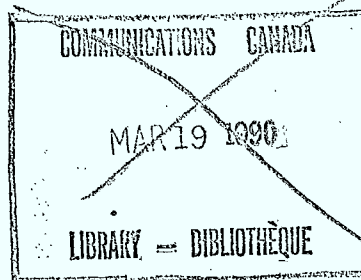
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## Supplement to Main EAS Report

### Index

- Section 1 Hypothetical case of making Toronto EAS complex one common calling area.
- Section 2 Hypothetical case of including first fringe exchanges in the Toronto core exchange.
- Section 3 Effect of applying B.C. Tel. weighting factors on the Toronto EAS complex.
- Section 4 Effect of applying Bell weighting factors to Vancouver EAS complex.





SECTION 1

Hypothetical Case  
of  
Making Toronto EAS Complex  
One Common Calling Area

Section 1

(See table - last page in this section)

Additional 2 - way routes added	- 158
Additional EAS revenue generated	- \$ 2,849,400
Existing EAS revenue (present plan)	- <u>\$23,826,600</u>
Total	\$26,676,000

The amount of increase is minimal for the following reasons:

- a) Toronto core and all first fringe exchanges would not be affected. This represents 1,438,610 telephones or 77.5% of the total in the Toronto EAS complex. Also two 2nd fringe exchanges would be unaffected.
- b) The differential in most cases is only from rate group 12 to 13. Following is a summary of rate group effect:

	No. of Exchanges
Unaffected	7 (remain group 12)
12-13	10
12-14	5
*12-15	2

\* Upper rate group in Bell's schedule is now 14. A new group of 15 would be required under this hypothesis, and the rates have been estimated in computing the revenue effect.

Some of the reasons in favour of a common calling area are as follows:

There is now a wide discrepancy in the number of exchanges included in local calling areas. A few examples follow.

	No. of exchanges <u>in local calling area.</u>
Toronto	24
Willowdale - Don Mills	16
Weston	17
New Toronto-Islington	17
Port Credit	12

Clarkson	9				
Brampton	16	(incl. 6 outside Toronto EAS)			
Kleinburg	8	(incl. 2	"	"	" )
Markham	10	(incl. 2	"	"	" )
Dunbarton	5	(incl. 1	"	"	" )
Oakville	9	(incl. 1	"	"	" )

Naturally in most cases the main attraction is Toronto core, being the hub of the area. However as mentioned in the main report, over a long period of time there has been a substantial migration of industry and business to the suburban exchanges. Therefore giving an outlying exchange Toronto core plus those along a corridor route to the core, means omitting a substantial proportion of industry and business, aside from social considerations. In other words having Toronto in a local calling area does not offer the scope that once was the case.

Another consideration is the fact that the present configuration is so complicated it is difficult for the public to know where they may or may not call. This causes confusion, and certainly some irritation from a customer viewpoint.

Cost of introducing a universal plan would of course be a prime consideration. As noted earlier, 158 new 2 - way EAS routes would be required. This not only involves circuitry but central office additions. However if the flat rate EAS concept is to continue, public pressure may some day be of such magnitude as to make it difficult for the telephone company to refuse. Undoubtedly the continuing dispersal of industry and housing will bring about a greater need for a blending of the area from a communications standpoint.

There has been much speculation about optional EAS plans to replace the flat rate variety. As mentioned in the historical review of EAS in the Toronto area in the main report an optional message rate plan was in effect between Toronto and its first fringe exchanges for many years (1930's and 1940's). This gave way to a flat rate plan.

It is interesting to note also as mentioned in the main report that not too

long ago Bell introduced a one-way optional plan from Ajax - Pickering to Toronto (including Scarboro and West Hill). Information reaching us recently suggests that Bell is abandoning this plan in favour of non-optional flat rate.

Lets face the facts. Canadians are steeped in the two-way flat rate concept and are not likely to readily accept any substitute.

Exchange	Present Rate Group	New Rate Group	\$ Tot. Ann. EAS Differential		
			Res.	Bus.	Tot.
Toronto Core	12	12	-	-	-
Will. - Don Mills	12	12	-	-	-
Weston	12	12	-	-	-
New Tor. - Isl.	12	12	-	-	-
Scarborough	12	12	-	-	-
Tot. 1st Fringe					
Pt. Credit	12	13	106,284	48,823	155,107
Cooksville	12	14	147,835	56,739	204,574
Malton	12	13	61,488	156,860	218,348
Woodbridge	12	12	-	-	-
Thornhill	12	12	-	-	-
Unionville	12	13	16,236	45,664	61,900
Agincourt	12	13	210,450	154,426	364,876
West Hill	12	13	164,782	43,482	208,264
Tot. 2nd Fringe			707,075	505,994	1,213,069
Clarkson	12	14	147,835	56,740	204,575
Streetsville	12	14	83,314	39,809	123,123
Brampton	12	13	197,235	119,067	316,302
Castlemore	12	13	1,522	858	2,380
Kleinburg	12	13	4,957	2,289	7,246
Maple	12	13	7,026	4,039	11,065
Richmond Hill	12	13	57,921	29,089	87,010
Gormley	12	14	9,471	7,155	16,626
Markham	12	14	65,375	33,189	98,564
Dunbarton	12	*15	92,981	42,505	135,486
Tot. 3rd Fringe			667,637	334,740	1,002,377
Oakville	12	*15	408,135	225,866	634,001
Overall Total			1,782,847	1,066,600	2,849,447

\* Estimated - Bell's top rate group now 14.

Note: Dunbarton has recently been changed to South Pickering, although the former name is still in common use. Both Richmond Hill and Dunbarton (South Pickering) are now filed as group 11, but both have exceeded the upper limits of the group. The re-grouping of Richmond Hill to group 12 is imminent, to be followed by that of South Pickering in due course.

Under these circumstances both exchanges have been shown as being in rate group 12 throughout the Toronto EAS report.



SECTION 2

Hypothetical Case  
of  
Including 1st Fringe  
in Toronto Core Exchange

## Section 2

Assuming that the existing Toronto EAS was not expanded the effect on rate groups would be as follows:

	<u>Group Now</u>	<u>Revised Group</u>
Core	12	12
All 1st fringe ( 4 exchanges)	12	12 (become part of core)
All 2nd fringe ( 8 exchanges)	12	13 (become 1st fringe)
All 3rd fringe (10 exchanges)	12	13 (become 2nd fringe)
All 4th fringe ( 1 exchange )	12	13 (become 3rd fringe)

This plan would provide some spread in rates between the core and the outer limits. Sample rates are:

	<u>Group 12</u>	<u>Group 13</u>
Ind. Residence	\$7.45 per mo.	\$8.00 per mo.
Ind. Business	\$22.10 per mo.	\$23.80 per mo.

As will be observed from the table of rate groupings above, the core and first fringe exchanges would not experience any up-grouping. All existing second, third and fourth fringe exchanges would be re-grouped from 12 to 13. The amount of extra EAS revenue generated in this process would be minimal. In total it amounts to only some \$2,567,000 per annum. Against this would be the cost of circuitry and central office switching which could be substantial. A broader range of calling would of course result for many of the exchanges. For example all existing first fringe exchanges would have universal calling privileges throughout the Toronto EAS complex. Undoubtedly as covered in the main EAS report, customer pressure for wider calling privileges is very likely to emerge.

It is quite probable that the Toronto EAS complex will continue to expand. As mentioned in the main EAS report Bell is planning to include the following 4 comparatively small exchanges by the end of 1977:

	<u>Distance to Toronto</u>	
Bolton	23	(now has EAS to 9 other exchanges)
Nobleton	21	(now has EAS to 8 other exchanges)
Bethesda	22	(now has EAS to 9 other exchanges)
Stouffville	23	(now has EAS to 4 other exchanges)

Each of the above has EAS to 2 or more exchanges in the Toronto EAS complex at present. Assuming that only Toronto core in its present form (i.e., without first fringe being incorporated into the core) was added to each of the above, all 4 exchanges would be in group 12. Because these are comparatively small exchanges, an annual amount of only \$217,300.00 would be added to the existing EAS revenue for the Toronto complex. It is probable of course that in incorporating the 4 exchanges into the Toronto complex, more than just the Toronto core would be added. This might place the 4 exchanges in a group higher than 12.

Bell has evidently given some consideration to including Milton in the Toronto EAS complex. However there is also a suggestion that this exchange may be divided, with the southwestern portion being incorporated into the Burlington exchange which is part of the Hamilton EAS complex. This would indicate that at least to the west of Toronto the present EAS limits which now include Oakville, may be close to the point where Hamilton is commencing to have a strong influence from a community of interest standpoint, at least for some customers.







In view of the nature of the development between Toronto and Hamilton, there probably is now in the western extremities of Toronto area, a dual interest in both metropolitan areas. To satisfy this may become a problem of no small proportions.

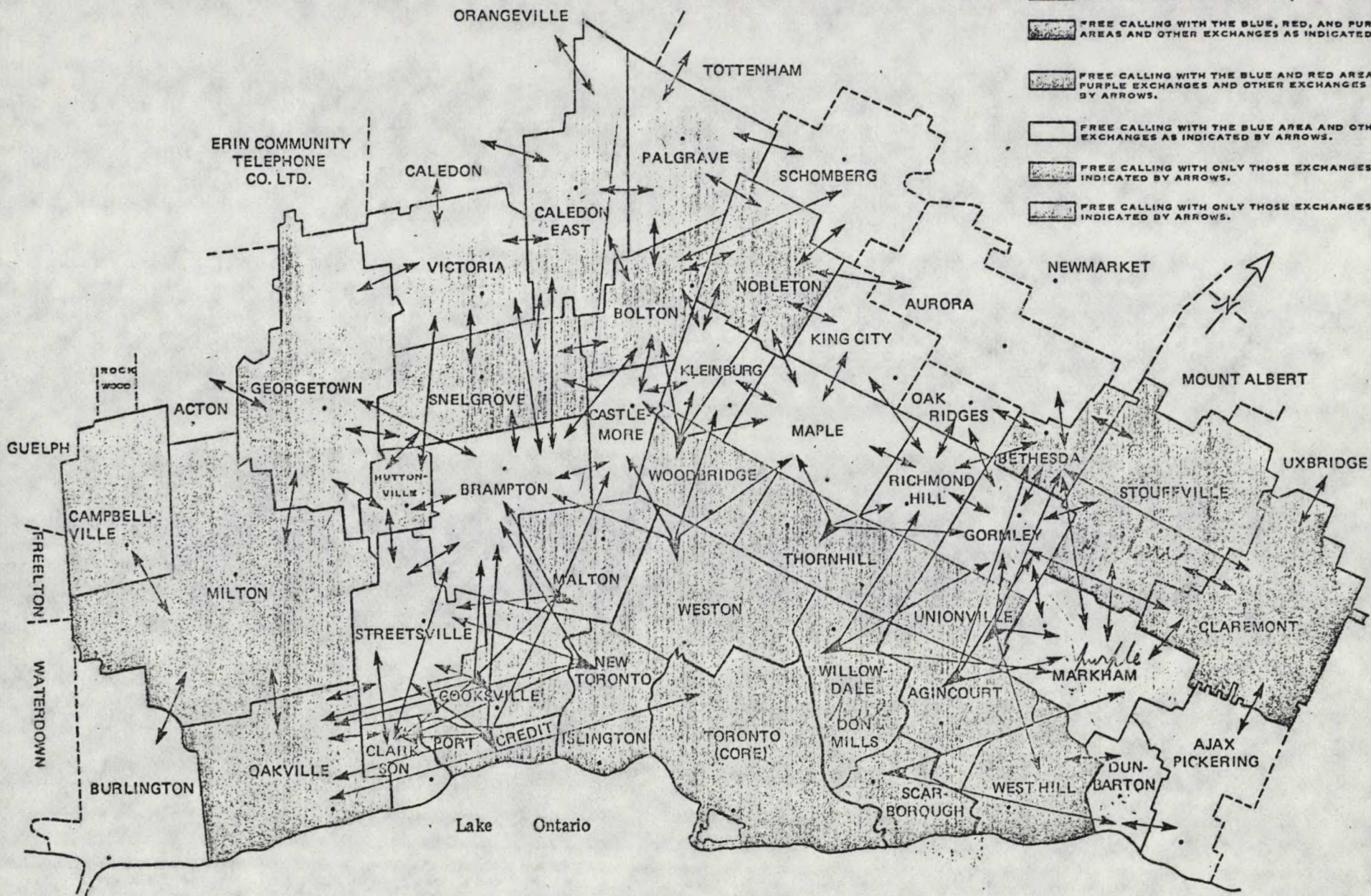
A map of Toronto area is included in this section for reference purposes.

# TORONTO AREA E.A.S. PLAN

APRIL 19, 1975

## LEGEND:

-  FREE CALLING WITH THE RED, PURPLE, YELLOW SHADED AREAS AND OAKVILLE EXCHANGE.
-  FREE CALLING WITH THE BLUE, RED, AND PURPLE SHADED AREAS AND OTHER EXCHANGES AS INDICATED BY ARROWS.
-  FREE CALLING WITH THE BLUE AND RED AREAS, CONTIGUOUS PURPLE EXCHANGES AND OTHER EXCHANGES AS INDICATED BY ARROWS.
-  FREE CALLING WITH THE BLUE AREA AND OTHER EXCHANGES AS INDICATED BY ARROWS.
-  FREE CALLING WITH ONLY THOSE EXCHANGES AS INDICATED BY ARROWS.
-  FREE CALLING WITH ONLY THOSE EXCHANGES AS INDICATED BY ARROWS.



TORONTO AREA COMMERCIAL - RATES

S.R.'s - PLEASE NOTE: Use the S.R. Handbook, E.A.S. Section, to advise Customers of Local Calling Areas.



Effect of Applying  
B.C. Telephone Weighting Factors  
to Toronto EAS Complex

Section 3

The summary table (next page) shows the effect of applying B.C. Telephone weighting factors to the Toronto EAS complex. Also subsequent tables show samples of detailed computations for the following exchanges.

Toronto	Core
New Toronto - Islington	1st fringe
Unionville	2nd fringe
Brampton	3rd fringe
Oakville	4th fringe

Observations

- a) All exchanges exceed by wide margins the top of Bell's rate schedule of 2,700,000 main telephones (telephone numbers).
- b) Brampton has the highest total weighted main telephones at 11,007,483.
- c) Obviously if Bell was to adopt weighting factors in the order of those used by B.C. Tel., a complete overhaul of rate schedules would be required.
- d) In view of the above factors it has not been practicable to estimate EAS revenue using B.C. weighting factors.

Summary - Using B.C. Weighting Factors  
on Toronto EAS Complex.

	Main Tels.	Weighted Main Tels.
Toronto	504,258	4,652,968
Willowdale	111,960	4,438,901
Weston	137,765	4,451,847
New Toronto	74,815	5,754,895
Scarborough	75,724	4,374,063
Pt. Credit	16,026	8,959,221
Cooksville	38,947	8,684,097
Malton	15,233	7,971,763
Woodbridge	2,263	6,750,406
Thornhill	14,577	6,132,207
Unionville	4,083	9,167,742
Agincourt	33,772	7,799,847
West Hill	23,303	9,662,417
Clarkson	11,562	9,476,184
Streetsville	6,977	9,660,440
Brampton	30,621	11,007,483
Castlemore	268	9,968,029
Kleinburg	770	9,833,912
Maple	1,134	9,900,135
Richmond Hill	9,069	8,975,070
Gormley	861	10,005,607
Markham	5,457	10,388,760
Dunbarton	5,142	9,349,101
Oakville	23,805	9,541,875
Tot.	1,147,672	196,906,970

Note: Within the total Toronto EAS complex weighting multiplies the actual

Toronto	Main Tels.	Distance (Miles)	B.C. Weighting Factor	Weighted Main Tels.
Toronto	504,258	-	-	504,258
Will. - Don Mills	111,960	10	3	335,880
Weston	137,765	8	3	413,295
New Toronto	74,815	8	3	224,445
Scarborough	75,724	7	3	227,172
Pt. Credit	16,026	12	9	144,234
Cooksville	38,947	13	9	350,523
Malton	15,233	13	9	137,097
Woodbridge	2,263	15	9	20,367
Thornhill	14,577	13	9	131,193
Unionville	4,083	15	9	36,747
Agincourt	33,772	11	9	303,948
West Hill	23,303	13	9	209,727
Clarkson	11,562	17	17	196,554
Streetsville	6,977	18	17	118,609
Brampton	30,621	20	17	520,557
Castlemore	268	19	17	4,556
Kleinburg	770	18	17	13,090
Maple	1,134	16	17	19,278
Richmond Hill	9,069	17	17	154,173
Gormley	861	20	17	14,637
Markham	5,457	18	17	92,769
Dunbarton	5,142	18	17	87,414
Oakville	23,085	20	17	392,445
Total	1,147,672			4,652,968

New--  
Toronto  
Islington

	Main Tels.	Distance (Miles)	B.C. Weighting Factor	Weighted Main Tels.
New Tor. -- Isl.	74,815	-	-	74,815
Agincourt	33,772	18	17	574,124
Brampton	30,621	14	9	275,589
Clarkson	11,562	9	3	34,686
Cooksville	38,947	6	3	116,841
Malton	15,233	10	3	45,699
Oakville	23,085	14	9	207,765
Port Credit	16,026	6	3	48,078
Scarborough	75,724	13	9	681,516
Streetsville	6,977	11	9	62,793
Thornhill	14,577	15	9	131,193
Toronto	504,258	8	3	1,512,774
Unionville	4,083	21	20	81,660
West Hill	23,303	21	20	466,060
Weston	137,765	8	3	413,295
Will. - Don Mills	111,960	14	9	1,007,640
Woodbridge	2,263	14	9	20,367
Total	1,124,971			5,754,895

<u>Unionville</u>	Main Tels.	Distance (Miles)	B.C. Weighting Factor	Weighted Main Tels.
Unionville	4,083	--	-	4,083
Agincourt	33,772	6	3	101,316
Bethesda	328	9	3	984
Gormley	861	6	3	2,583
Markham	5,457	3	-	5,457
N. Tor. - Islington	74,815	21	20	1,496,300
Scarborough	75,724	10	3	227,172
Thornhill	14,577	7	3	43,731
Toronto	504,258	15	9	4,538,322
West Hill	23,303	9	3	69,909
Weston	137,765	16	17	2,342,005
Will. - Don Mills	111,960	8	3	335,880
Total	986,903			9,167,742

<u>Brampton</u>	Main Tels.	Distance (Miles)	B.C. Weighting Factor	Weighted Main Tels.
Brampton	30,621	-	-	30,621
Bolton	2,240	14	9	20,160
Caledon E.	1,001	14	9	9,009
Castlemore	268	8	3	804
Clarkson	11,562	14	9	104,058
Cooksville	38,947	10	3	116,841
Georgetown	7,683	9	3	23,049
Huttonville	440	4	3	1,320
Malton	15,233	7	3	45,699
N. Tor. - Islington	74,815	14	9	673,335
Pt. Credit	16,026	13	9	144,234
Snelgrove	694	4	3	2,082
Streetsville	6,977	8	3	20,931
Toronto	504,258	20	17	8,572,386
Victoria	1,023	9	3	3,069
Weston	137,765	13	9	1,239,885
Total	849,553			11,007,483

<u>Oakville</u>	Main Tels.	Distance (Miles)	B.C. Weighting Factor	Weighted Main Tels.
Oakville	23,085	--	-	23,085
Clarkson	11,562	6	3	34,686
Cooksville	38,947	9	3	116,841
Milton	5,837	12	9	52,533
New. Tor. - Islington	74,815	14	9	673,335
Pt. Credit	16,026	9	3	48,078
Streetsville	6,977	10	3	20,931
Toronto	504,258	20	17	8,572,386
Total				9,541,875



SECTION 4

Effect of Applying  
Bell Weighting Factors  
to Vancouver EAS Complex

Section 4

The summary (last page in this section) shows that by applying Bell weighting factors, only six of the thirteen exchanges in the Vancouver complex are affected by EAS. The total EAS revenue is a mere \$2,041,700 per annum compared to \$15,272,700 per annum based on the EAS methods employed by B.C. Tel.

Samples of the resulting rates under B.C. Tel. and those for Bell in corresponding rate groups are as follows:

<u>Bell</u>	<u>Bell Group 9</u>	<u>Bell Group 10</u>
Ind. Res.	\$6.20 per mo.	\$6.55
Ind. Bus.	\$17.00 per mo.	\$18.70
<u>B.C. Tel.</u>	<u>B.C. Tel. Group 9</u>	<u>B.C. Tel. Group 10</u>
Ind. Res.	\$6.65	\$7.00
Ind. Bus.	\$17.40	\$19.00

There is a striking similarity in the rate levels between the two companies in the rate groups shown.

The actual rate levels in the Vancouver complex are of course of a much higher level. For example the highest group applied to an exchange is 15, and the lowest 11, sample rates being:

	<u>Group 15</u>	<u>Group 11</u>
Ind. Res.	\$9.20 per mo.	\$7.30 per mo.
Ind. Bus.	\$27.15 per mo.	\$20.55 per mo.

For the Toronto complex all exchanges fall in Bell Rate Group 12, sample rates being:

	<u>Group 12</u>
Ind. Res.	\$7.45
Ind. Bus.	\$22.10

When comparing the number of main telephones in the Toronto complex of 1,147,672 with that of Vancouver of 478,482 it would appear that customers in the former receive relatively more value for the monthly rentals they are paying. This is a very general observation, and it must be recognized that in both complexes only the core exchange enjoys service to all others.

Again without much greater knowledge of many other factors it is not wise to judge one Company's plans vs. the other. Such comparisons as shown only tend to arouse curiosity and perhaps lead to further and more comprehensive analysis.

Effect of Applying Bell Weighting Factors  
to Vancouver EAS Complex - using B.C. Tel. Rates

<u>Summary</u>	<u>Basic Rate Group</u>	<u>EAS Rate Group</u>	<u>Ann. Rev. Increase due to EAS</u>
Vancouver	8	9	1,752,588
Cloverdale	9	10	27,228
White Rock	9	10	53,016
Ladner	9	9	-
Langley	9	10	71,340
Newton	9	10	86,832
New Westminster	9	9	-
Whalley	9	9	-
North Vancouver	9	9	-
Pt. Coquitlam	9	10	50,688
Pt. Moody	9	9	-
Richmond	9	9	-
West Vancouver	9	9	-
Total			\$2,041,692

The Comparison of Rates for the Vancouver  
Eas Complex With Those Obtained by Applying  
Bell Canada Weighty Factors, Rate Groupings and Rates

	Actual			Using Bell W.F. and Bell Rates			Using Bell W.F. and B.C. Rates		
	B.C. Rate Gr.	Ind. Res.	Ind. Bus.	Bell Rate Gr.	Ind. Res.	Ind. Bus.	B.C. Rate Gr.	Ind. Res.	Ind. Bus.
Vancouver	12	\$7.65	\$22.20	11	\$6.80	\$20.25	9	\$6.65	\$17.40
W. Vancouver	11	7.30	20.55	10	6.55	18.70	9	6.65	17.40
N. Vancouver	11	7.30	20.55	10	6.55	18.70	9	6.65	17.40
Pt. Moody	12	7.65	22.20	11	6.80	20.25	9	6.65	17.40
New West.	11	7.30	20.55	10	6.55	18.70	9	6.65	17.40
Richmond	12	7.65	22.20	11	6.80	20.25	9	6.65	17.40
Ladner	13	8.00	23.85	10	6.55	18.70	9	6.65	17.40
Newton	14	8.45	25.50	11	6.80	20.25	10	7.00	19.00
Whalley	13	8.00	23.85	11	6.80	20.25	9	6.65	17.40
Pt. Coquitlam	14	8.45	25.50	11	6.80	20.25	10	7.00	19.00
White Rock	15	9.20	27.15	11	6.80	20.25	10	7.00	19.00
Cloverdale	15	9.20	27.15	11	6.80	20.25	10	7.00	19.00
Langley	15	9.20	27.15	11	6.80	20.25	10	7.00	19.00

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E.A.S. FINAL REPORT BY S.F. MURBY

FEBRUARY, 1976

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234-3916



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## Extended Area Service Report

### Introduction and Purpose

As a beginning, it would be well to create an understanding of what is meant by Extended Area Service. This first necessitates a definition of the term "exchange."

### Exchange

The territory of a telecommunications enterprise is divided into a number of geographical segments within which customers to be served are connected to switching centres termed central offices. An exchange may comprise only one central office, or several depending upon the exchange area to be served. Well defined exchange boundaries are established. Within the exchange boundaries telephone service is provided at fixed monthly rates (except for a few call-measured services) and provides unlimited calling within the exchange. Normally an exchange comprises a concentrated urban development surrounded by a rural area. The urban area within which there is continuous development is termed the Base Rate Area. This area is well defined and is filed with the C.T.C. as an individual exchange tariff. It is revised periodically to conform to expanding urban development. Within the base rate area grades of service such as individual, two party, trunk lines etc. are supplied at uniform rates. The standard offering outside the base rate area is multi-party. The other grades of service are supplied outside the

base rate area at increased rates varying with the distance from the BRA.

In large metropolitan areas such as Toronto, Montreal, Hamilton etc. the base rate area may coincide with the exchange boundary.

The traditional basis of charging for calls between subscribers located in different exchanges has been by imposing a toll. Where the toll charge is eliminated and flat rate calling exists between exchanges at fixed monthly service charges the arrangement is known as Extended Area Service. There are other forms of extended area service such as one-way optional but these are rare. Generally it is two-way flat rate and non-optional.

In both Bell Canada and B.C. Telephone Co. EAS is widespread and is now almost universally in existence between communities which are contiguous to each other. Special charging methods have been established by the carriers to offset the consequent loss in toll revenues.

One of the main purposes of the EAS study is to determine the effect of EAS in terms of added cost to the customer for the flat rate calling privilege, and the added amount of revenue which the carriers are thus deriving in lieu of normal toll charges. There will be no attempt to determine the net position of the carriers as a result of foregoing toll charges and substituting EAS. This would require very involved cost and other analyses which are beyond the scope

of this report, but which might be pursued at some later date.

The report traces the history of EAS in each Company up to the present, and provides broad analyses of the extent of its development.

The index immediately following provides a list of the components of the report.



## Index

### Part I - Bell Canada

- Section 1. Background and Present Outlook
- Section 2. Broad EAS analysis - Company-wide
- Section 3. Effect of EAS on rate levels for Toronto and Montreal Complexes
- Section 4. Extent of EAS and effect on rate levels in following metro areas
  - Ottawa-Hull
  - Kitchener-Waterloo
  - London
  - Hamilton
  - Quebec
- Section 5. Effect of EAS on exchanges over 10,000 tels. - except those in major metro areas covered in previous sections
- Section 6. Method used to determine revenue effect for Toronto Area
- Section 7. Revenue effect of EAS for Toronto Complex only
- Section 8. Revenue effect of EAS by type of service for Toronto Complex
- Section 9. Revenue effect of EAS on 13 exchanges outside Toronto Complex
- Section 10. Summary of revenue effect for all Toronto area - 37 exchanges
- Section 11. Revenue effect of Weighting Factor only on Toronto EAS Complex
- Section 12. Estimate of revenue effect of EAS for Total Company

Part II - B.C. Telephone Co.

- Section 1. Background and Present outlook
- Section 2. Broad Summary for B.C. Tel. Co.
- Section 3. Review of B.C. Tel. Weighting Factor
- Section 4. EAS Revenue effect for Vancouver Complex
- Section 5. Revenue effect of Weighting Factor only on Vancouver Complex
- Section 6. EAS Revenue by type of service for Vancouver Complex
- Section 7. Estimate of EAS Revenue for entire B.C. Tel. Co.

Part III

Comparison of Toronto and Vancouver EAS Complexes

Part IV

Commentary



Part I - Bell Canada

Section 1. Background and Current Outlook

From the earliest days of telephone service on any appreciable scale, the concept was that the country to be served consisted of a number of identifiable settlements, large or small, each with its own community of interest both social and business. Exchange boundaries were established to conform to this community of interest as closely as possible.

In the early part of the century there were a number of cases of what was termed "free" service between exchanges some of which belonged to independent companies. The origin of the "free" service arrangement is obscure as is the question of whether customers paid any differential. As Bell purchased the independents, the "free" service was perpetuated where it was in existence. However, Bell's opinion even as late as the nineteen forties was that the service was highly irregular, and should be ended at the first opportunity. At that time there were approximately 59 Bell exchanges involved in "free" service arrangements. Some of the cases were eliminated by combining two or more exchanges to form one e.g. Port Dalhousie, St. Catharines and Thorold.

The system of rate grouping dependent on the number of telephones in a local calling area was not introduced until 1927. Prior to that period the application of rates was unsystematic, and there is no way of telling at this point in time just to what extent, if any, the "free" service was affected by the number of telephones in the exchanges involved.

Prior to 1950 as mentioned there were only 59 exchanges with free service to one or more others. At that time there were probably in the order of 500 exchanges in Bell territory so that only about 12% of exchanges were involved in free service. To-day 81.7% of exchanges are involved representing 98.4% of Bell Canada telephones. One exchange (Montreal) has flat rate service to and from 36 other exchanges. A rather dramatic change to say the least and in a relatively short space of time. The term "free" service was changed to Extended Area Service.

The process has of course resulted in drastic reductions in toll revenues, and some incorporation of these revenues in what has traditionally been termed local service revenues, but which now are in reality a combination of local exchange and toll revenues.

The causes for the dramatic change are several e.g. improved transportation, better roads, spread of large metro areas, and even better telephone and other communications forms. The idea of an individual exchange representing a distinct community of interest is practically gone, except where the community is very isolated such as in the far north.

It may be found interesting at this point to trace the history of EAS in a large metro area, and for this purpose Toronto has been chosen as it involves a great variety of change in arriving at the prevailing plan, and is typical of what is occurring not only in Canada but the U.S. as well.

Toronto

In the early 1930's Toronto exchange was surrounded by several distinct communities each with its own community of interest. Development was scattered and there was a limited community of interest with Toronto. Then began a migration of people from Toronto to the suburbs brought about by the desire for more and less expensive living space, and made possible by better roads, transportation media etc. This not only changed the local community aspect of these suburban areas, but also generated a much greater community of interest with Toronto.

As a result of this trend which was continually gaining momentum, pressure began to mount for some substitute for the 10¢ toll charge between Toronto and the suburbs, especially from the newcomers to the suburbs. While these people were still in the minority there were sufficient numbers to warrant consideration of some plan which would better accomodate their requirements. After much study and customer surveying the Bell decided upon offering an optional plan. This recognized that there was still a strong local community call pattern among the original group of people whose basic requirements were adequately met by the local exchange. It also recognized that there were sufficient immigrants from the city to warrant offering them some alternative. Briefly the plan was this: By paying a fixed differential over and above the local service rate the customer was given a reduced

toll rate in calling Toronto. Business customers were offered a service at a fixed fee above the local rate, providing 60 calls to Toronto with no timing. This worked out to something about 5¢ per message. Messages over 60 were charged at 5¢ per message. In the case of residence the number of calls, at the fixed differential was 45 with excess calls at 5¢. Another feature of the plan was that Toronto customers calling a customer with Suburban Zone Service (the name given the service) was charged only 5¢ per message -- also untimed.

It should be remembered that at this time all toll handling was manual and obviously Zone service must have operated at a loss to the company.

Suburban Zone Service was introduced in the latter part of the 1930's. It was well received and during its 12-14 years of existence reached a reasonably high development.

Following cessation of hostilities of the last world war, the metro area began to undergo a much more rapid change, resulting in a complete alteration in the community of interest feature in the suburbs. Bell recognized that the Suburban Zone Service was ceasing to meet the requirements of the suburbs as well as Toronto. Studies were therefore begun to determine the feasibility of introducing non-optional service on a normal flat rate basis.

These studies which were made over a period of time in the late 1940's, and which included customer plebiscites

proved that the majority were in favour. Cost studies made by the Company showed that by charging Toronto rates in the suburbs, its financial position was about a break-even situation.

As will be remembered all telephone companies faced colossal backlogs of orders for telephones following the war, and it took many years before this was satisfied. It was decided, and undoubtedly wisely, that improvements in service such as extending Toronto flat rate service to the suburbs was of lower priority than supplying service to waiting applicants.

It was therefore not until 1952-3 that the Company introduced EAS between Toronto and exchanges immediately adjacent to it. This area became known as "First Fringe." Board of Transport approval was granted Aug. 28, 1951. A copy of its judgement is included as exhibit 1 in the separate reference binder.

Recognizing that this was only a first stage, and eventually the service would be extended to at least 2nd and 3rd fringes, the Company undertook to accomplish some degree of uniformity in the size of exchanges, and their distance from Toronto. Without such uniformity, conditions could arise where, for example, some customers in a 3rd fringe office not having EAS with Toronto, being closer to Toronto than some customers in a 2nd fringe office who were enjoying such a service.

This examination resulted in a decision to make many boundary alterations. Initially these changes involved mostly Toronto and first fringe areas, as this was the initial extent of the plan. Large areas of Toronto were transferred to first fringe. Some first fringe exchanges had portions moved to 2nd fringe and the customers so affected were excluded from the EAS plan. Some of these changes were extremely unpopular at the time, and resulted in representations to the Board of Transport Commissioners. One of the more drastic cases was that of Scarborough which originally included West Hill, but was divided to create a second fringe exchange in the latter.

Later as the plan was extended to 2nd and 3rd fringe exchanges a similar process of boundary revisions transpired. The map included in section 3 shows the result of this process. Obviously if the plan moves further to embrace all 4th fringe, the boundary changing process should continue. At present Oakville is the only 4th fringe exchange within the Toronto EAS plan.

Early in the 1950's pressure began to mount for extension of the plan to 2nd fringe exchanges and through customer surveys it was determined that the majority were in favour. The cost-revenue relationship for 2nd fringe presented an entirely different picture. In the 1st fringe the standard toll rate to Toronto was 10¢, and many customers were enjoying a 5¢ rate via Suburban Zone Service. In

contrast, in the case of 2nd fringe the toll rate was 15¢ and therefore the cost revenue picture in extending Toronto service to 2nd fringe without some differential being paid by the customers, could not be justified. In the case of 1st fringe, the rates were determined solely on the basis of the total telephones in the local calling area, which included Toronto.

The Company therefore proposed and received Board approval for the 2nd Fringe plan in 1955 together with consent to adopt an incremental plan. (See exhibit 2 in separate reference binder.)

Under this plan customers in the second fringe paid a differential in rates over Toronto. At the same time customers in Toronto and first fringe experienced a nominal increase in rates. Also first fringe exchanges, coincident with this change, had their calling areas expanded materially. This was accomplished partly by combining exchanges to form one where two formerly existed e.g. New Toronto and Islington formerly separate, were combined.

In 1963 (July 22) the Board of Transport granted approval to proceed with a third fringe plan. Under this, the third fringe customers paid higher rates than those in first and second fringe. At the same time a small increase in rates took effect in first and second fringes. For reference see Board ruling July 1963 exhibit 3 in separate reference binder.

While this EAS expansion was proceeding in Toronto, a like process was occurring in Montreal, where the EAS plan was continually being expanded. As in Toronto the incremental plan was in effect.

At the same time EAS was being introduced very widely not only in other metro areas but between exchanges not involved in metro areas.

In 1960 the Bell received approval for a substitute plan for the incremental plan, this alternative being known as the Weighting Plan. This was introduced widely and involved 663 exchanges in 1972.

The purpose of the weighting plan was similar to the incremental plan i.e. compensation for loss of toll revenue and to have rates increase gradually with distance i.e. from the core outward in a Metro area. The weighting plan functions thusly:

<u>Distance in Miles</u>	<u>Weighting Factor</u>
0 - 10	1
11 - 15	1.5
16 - 20	2.0
21 - 25	3.0
26 - 30	5.0

Example

A		B
exchange		exchange
4000	11 miles	10,000
tels		tels

Exchange A's rates would be based on:

$$4000 \text{ tels} + 10,000 \text{ tels} \times 1.5 = 19,000 \text{ tels}$$

Exchange B's rates would be based on:

10,000 tels + 1.5 x 4000 tels = 16,000 tels

This method was designed on the assumption that the value of EAS is greater for subscribers in the smaller exchange.

However the incremental plan was still in effect in these metro areas in addition to Toronto and Montreal:

Ottawa  
Hamilton  
Quebec  
Windsor

As a result of two different plans, problems were beginning to appear in all six metro areas. For example some outlying exchanges involved in the EAS plans of these metro areas, were beginning to require EAS to exchanges other than those involved in the metro complexes. It became obvious that a mixture of incremental plan and a weighting plan was not practical. Therefore the Bell beginning in 1968 began negotiations with the C.T.C. to convert from the incremental plan to the weighting plan. As support they stated that the weighting plan was already in effect in the more medium sized metro areas of London, Kitchener Waterloo, St. Catharines, Sherbrooke and Trois Rivières.

The Bell applied to the C.T.C. among other proposals, for adoption of the weighting factor to be applied universally. However the C.T.C. postponed a decision on this question pending further investigation as to its rate effects in these

areas where the incremental plan was in existence (See C.T.C. document exhibit 4 in separate reference binder accompanying this report.)

It would also be worthwhile to review exhibits 5(a) and 5(b) in the reference binder. These present the Bell's case in 1971 and 1972 respectively. The 1971 submission was in response to questions raised at the 1968 rate hearing. Bell's original recommendation was changed to the extent of leaving Toronto and Montreal on the incremental plan. However the C.T.C. judgement May 19, 1972 rejected the proposal of leaving Toronto and Montreal EAS on the incremental plan. By this action the C.T.C. agreed with Bell's 1968 proposal to have the weighting factor apply universally. (See exhibit 6 in separate reference binder.)

While the C.T.C. approved the weighting plan to apply universally it ordered that to avoid relatively high increases in Windsor and Quebec, that the plan be introduced in three stages. See page 25 in exhibit 5.

As of this date, Feb. 1976, the weighting plan applies to all Bell exchanges involved in EAS.

#### Procedure for Gaining Customer Acceptance of EAS

In its earlier stages, 1940's and 1950's, it was Bell's practice to conduct customer plebiscites. However laterally with the widespread acceptance of EAS, it is the practice to file a tariff with the C.T.C. and to send letters to all customers affected. A sample of such a letter is

included at the end of this historical narrative.

Position of Bell relative to EAS

In connection with this report Bell was asked a series of questions, to which they have responded. The questions and Bell's verbatim replies are as follows:

Question

At present Oakville is the only 4th fringe exchange in the Toronto Complex. What plans are there for extending to additional 4th fringe exchanges.

Answer

"At this time Company forecasts include the provision of EAS between Toronto and Bolton, Nobleton and Bethesda in late 1976 and between Toronto and Stouffville in late 1977. In the Montreal area EAS is planned between Montreal and Hudson in mid 1976 and between Montreal and Oka in 1977."

Question

What data is available regarding increase in traffic when EAS is substituted for toll.

Answer

"No specific data is available regarding the increase in traffic when EAS is substituted for toll. Current estimates of this increased traffic are in the order of six to seven times the regular toll volumes. However detailed studies would be required to determine this more precisely. The magnitude of demand, distance between exchanges, demographics, social and economic considerations are factors

involved in determination of calling patterns, frequency of calling etc and each EAS configuration must be examined for specific engineering."

Question

Under system of weighting for EAS has experience proved that this provides adequate compensation to the Company. On average is its position better than with regular toll, a break-even or is some loss experienced. It is recognized of course that the situation may vary widely between different cases.

Answer

"When EAS weighting factors were first introduced in 1960 they were directly related to the charge for operator-handled message toll in the short-haul toll rate schedule. For example the weighting factor of 1 was established for the distance of up to 10 miles and the message toll rate was 10¢. Similarly the weighting factor of 1.5 was related to the message toll rate of 15¢ in the next mileage band.

In these circumstances there is reason to believe that these weighting factors produced adequate revenues to compensate for the loss of toll revenues at that time. The single most important factor at that time was the administrative saving to the Company because these EAS calls would no longer require manual handling and ticketing of the calls by traffic operators.

The development of additional weighting factors has

been constrained somewhat by the objective to maintain reasonable relationships over the various distance bands. In addition D.D.D. has now essentially replaced operator-handled short haul message toll, so that there is no longer the same expense saving.

In recent years the rates for short haul message toll have increased and the mileage bands have changed so that there is no longer a direct relationship between the message toll distance bands and weighting factor distances.

The provision of EAS does not necessarily result in upgrading of the exchanges involved. In fact the only time this happens is when the majority of customers involved are in favour of the proposal, including the exchange upgrouping.

In general, considering the cost of provisioning for the distances involved in current EAS requests, and the message toll loss, indications are that the Company does not benefit economically by the provision of EAS."

#### Question

Has the Company any idea as to how far an EAS flat rate plan such as Toronto can be extended and kept within acceptable economic limits of costs to the Company and rates to the customers. What kind of plans does the Company foresee for the long term. What is the trend in the U.S.

#### Answer

"It is the Company's opinion that non-optional two-way EAS may have reached economic limits at approximately

25 to 30 miles. Current rate planning on this subject includes the possibility of offering optional one-way EAS such as the Ajax-Pickering to Toronto trial with either flat monthly rates or on a usage sensitive rate basis. Another possible alternative is the provision of specific short haul toll plans for certain rate distances. The experience in the U.S. is very similar to that in Bell Canada and we understand that they are equally concerned with further expansion of the traditional EAS."

#### Question

It would be helpful to have some information with respect to the one-way optional plan being tried for Ajax-Pickering to Scarborough Toronto and West Hill. What degree of public acceptance has there been and what is the development to date.

#### Answer

"The Ajax-Pickering one-way optional EAS trial started Dec. 17, 1973 and will be replaced by two-way non-optional EAS in Nov. 1976. Relatively favourable customer acceptance (of the optional plan) is indicated by the following development figures (Nov. 1975)

Business	52
Residence	735
Total	787

#### Question

What are the implications of EAS for independents where they are involved with Bell. What is their feeling

toward it, do they apply weighting factors etc. Do they feel that whatever plans they are using (and these may of course vary between companies) compensate them for loss of toll.

Answer

"Over 100 independent exchanges either have or soon will have EAS with Bell exchanges. Roughly 50% of the EAS situations occur in each of the two provinces where Bell operates.

The implications for the Independents of providing EAS are the substantial capital costs required coupled with the loss of toll revenue. In addition for those independents having EAS with Bell multi wire-centre exchanges there is a long term commitment to continue EAS with a continuously expanding large centre which could force the Independent into additional expenditures in the future, at a time which is not necessarily at its discretion.

Their feeling toward EAS to the best of our knowledge is that in the past they frequently had to request EAS to satisfy the service demands of their customers but increasingly to-day they wish to avoid the provision of EAS unless they can be assured that they will be able to recover the costs incurred. Many of them do not have the capability of making comprehensive estimates of these kinds of situations. Thus they cannot be certain that EAS will be profitable for them and are reluctant to enter into what may be a losing venture. The major companies in Quebec (Quebec Telephone, Telebec and

Telephone du Nord) all have EAS plans based on various weightings, higher than Bell's, approved by the Regie des Services Publiques, which to date are felt to be generally compensatory. The smaller companies in Quebec and all Ontario Companies in EAS situations have generally applied for exchange rates closely related to those that would be applicable to Bell exchanges in similar circumstances although no fixed rules exist. Most of these latter companies are not in a position to segregate their costs in such a manner as to ascertain if they are being adequately compensated for the loss of toll on their EAS routes."

(End of Questions and Answers)

# THE BELL TELEPHONE COMPANY OF CANADA

Toronto, Ont.,  
23 January 1963.

TO ALL TELEPHONE CUSTOMERS IN THE AGINCOURT, COOKSVILLE,  
MALTON, NEW TORONTO-ISLINGTON, PORT CREDIT,  
SCARBOROUGH, THORNHILL, WEST HILL, WESTON, WILLOWDALE-  
DON MILLS AND WOODBRIDGE EXCHANGES.

In response to widely expressed demand, we have developed a plan to increase the number of exchanges that you may call free of long distance charges.

Here are the main features of the plan.

It will provide a major increase in the local calling area of all customers in the exchanges listed above.

To be introduced in 1965 — it will meet the growing needs of 250,000 suburban customers.

Additional switching and cable facilities costing some \$12,000,000 will be required because calling between exchanges increases six to ten times when long distance charges are removed. This construction program will take a little over two years to complete.

Slightly higher monthly rates in the exchanges involved will apply when the service is introduced in 1965. In total, the removal of long distance charges will more than offset the rate increase, and many customers will actually save money.

Since all its calling advantages are inter-related, introduction of the plan will depend on its general acceptance in all the exchanges involved.

The plan has been provisionally reviewed with the Board of Transport Commissioners for Canada and they have directed that any representations concerning it be forwarded to: Secretary, Board of Transport Commissioners for Canada, Ottawa, not later than February 28, 1963, with a copy sent to The Bell Telephone Company of Canada, Room 200, 188 University Avenue, Toronto 1.

On the next two pages of this letter is a complete description of how the plan affects you. If you wish further information, please call our Business Office at 368-3911 and ask for your Service Representative.

Yours very truly,



Vice-President & General Manager.



For Agincourt Customers, This Wider Local Calling Area Means . . . .

In 1965 — Calling to and from the following additional suburban exchanges free of long distance charges:

New Toronto-Islington

Weston

These exchanges will add approximately 180,000 telephones to your local calling area.

The following monthly rates would become effective when the wider local calling plan is implemented in 1965:

RESIDENCE SERVICE	PRESENT	PROPOSED	INCREASE
Individual Line .....	\$ 6.35	\$ 6.50	.15
Two-Party Line .....	5.00	5.10	.10
Multi-Party Line .....	4.50	4.55	.05
BUSINESS SERVICE			
Individual Line .....	17.25	17.55	.30
PBX Trunk .....	25.25	25.75	.50
Individual Message Rate .....	10.05	10.35	.30
Multi-Party Line .....	8.10	8.25	.15
Semi-Public .....	12.00	12.30	.30

Rates for all other items of equipment and service remain unchanged.

Part I

Section 2. Broad EAS Analysis -  
Company-Wide

Broad analysis of extent of EAS in Bell Canada territory, together with data relative to involvement of Independent Companies; also included is the extent of application of the weighting factor.

Total telephones Dec. 1974	7,518,505
Total telephones involved in EAS	7,400,386
% Total telephones involved in EAS	98.4
Total Bell exchanges	941
Exchanges involved in EAS	770
% Exchanges involved in EAS	81.7

Note: Practically all exchanges excluded from EAS are isolated communities the bulk of which are in the mid and far north. Of the exchanges in the more populated areas of the two provinces almost all have EAS with one or more other exchanges. Following are some of the exchanges involving a high number of other exchanges in EAS arrangements:

	<u>No. of other Exchanges</u>
Montreal	36
Toronto	23
Mirabel Airport	21
Ottawa-Hull	19
Quebec	18
Weston	16
New Toronto-Islington	16
Willowdale-Don Mills	15
Brampton	15
Iachine	15
Pte Aux Trembles	15
Scarborough	14
Sherbrooke	14

No. of other Exchanges

Terrebonne	13
Valleyfield	13
Longueuil	13
Chomedey	13
Woodbridge	12
Boucherville	12
Malton	12

Independent Companies

Total EAS arrangements with Bell	127
Independent Co. exchanges involved	96

Weighting Factor

Total times W.F. applied incl. Independents	1136
No. Independent cases only	38
Bell Cases only	1098

Bell + Independents

No. weighted by factor of 1.5	847
No. weighted by factor of 2.0	249
No. weighted by factor of 3.0	32
No. weighted by factor of 5.0	<u>8</u>
Total	1136

	<u>Bell only</u>	<u>Indep. only</u>
No. weighted 1.5	812	35
No. weighted 2.0	246	3
No. weighted 3.0	32	
No. weighted 5.0	<u>8</u>	<u>—</u>
Total	1098	38

Non-Weighted Cases

Total including Independents	1862
Bell only	1820
% Bell cases non-weighted	62.4

Therefore 62.4% of cases, involve exchanges with less than 11 miles intervening.

Part I

Section 3. Effect of EAS on Rate Levels  
in Toronto and Montreal Complexes

## (a) Toronto (see Toronto Area Map in this section)

<u>Exchange</u>	<u>Rate Group without any EAS</u>	<u>Rate Group with EAS Non-Weighted</u>	<u>Rate Group with EAS weighted</u>
Toronto	11	12	12
Weston	9	12	12
New Toronto-Isl.	9	12	12
Willowdale	9	11	12
Scarborough	9	11	12
Port Credit	7	11	12
Woodbridge	4	11	12
Malton	7	11	12
Thornhill	7	11	12
Unionville	5	11	12
West Hill	7	11	12
Agincourt	8	11	12
Cooksville	8	11	12
Clarkson	7	11	12
Streetsville	6	11	12
Brampton	8	11	12
Castlemore	3	11	12
Kleinburg	3	11	12
Maple	4	11	12
Richmond Hill	6	11	12
Gormley	3	11	12
Markham	5	11	12
Dunbarton	5	11	12
Oakville	7	11	12

Total Tels in Toronto exchange 793411

Toronto Summary

Of the 24 exchanges in the Toronto EAS complex 21 or 87.5% are upgrouped by the weighting factor. Following are a few examples of the effect of EAS on rate levels including the weighting factor:

Rate Group Differential  
Basic to weighted EAS

Res. Ind.  
per mo.

Bus. Ind.  
per mo.

3 - 12  
4 - 12  
5 - 12  
6 - 12  
7 - 12  
8 - 12  
9 - 12  
11 - 12

\$ 3.15  
2.85  
2.60  
2.25  
2.00  
1.65  
1.25  
.65

\$ 14.45  
13.35  
12.15  
10.75  
9.05  
7.10  
5.10  
1.85

(b) Montreal (based on Dec. 1974 Telephone Statistics)

(See Montreal map following)

Total tels in Montreal Core area	1,158,708
Total main telephones Montreal Core area	718,400
Total exchanges in EAS Complex	37

Approx.

<u>Exchange</u>	<u>Rate Group without any EAS</u>	<u>Rate Group with EAS Non-Weighted</u>	<u>Rate Group EAS Weighted</u>
Montreal	11	11	12
Beloeil	6	11	12
Boucherville	6	11	11
Chambly	5	11	12
Chateauguay	6	11	12
Chomedey	7	11	11
Ile Perrot	5	11	12
Lachine	7	11	11
Laprairie	5	11	11
Laval	5	11	12
L'Epiphanie	4	11	13
Longueuil	8	11	11
Mascouche	4	11	12
Mirabel Airport	4	11	14
Pointe aux Trembles	7	11	11
Pointe Claire	7	11	12
Pont Viau	7	11	11
Roxboro	7	11	12
Ste Anne	4	11	13
St. Bruno	6	11	12
St. Constant	5	11	11
Ste. Dorothee	5	11	12
St. Eustache	6	11	12
Ste. Genevieve	6	11	12
Ste. Julie de Vercheres	4	11	12
St. Lambert	8	11	11
St. Marc	3	11	13
St. Paul L'Ermite	6	11	12
St. Remi	4	11	12
Ste. Therese	6	11	12
St. Vincent de Paul	6	11	11
Terrebonne	5	11	12
Varenes	4	11	12
Vaudreuil	5	11	13
Vercheres	3	11	13
Terrebonne Heights	4	11	12
Ste. Rose	7	11	12

Summary

Of the 37 exchanges in the Montreal Complex 27 or 73% are upgrouped by the weighting factor.

See following Toronto Montreal comparison.

Comparison of Toronto and Montreal

	<u>Toronto</u> 24	<u>Montreal</u> 37
Total exchanges in EAS		
EAS routes unweighted	143	209
EAS routes weighted	110	157
% EAS routes weighted	43.4	42.9

In Toronto complex all exchanges are in group 12. In Montreal there is a spread from group 11 to group 14. Following are examples of the highest rate differentials caused by EAS in the two complexes.

	<u>Greatest Differential</u>	<u>Rate Differential per Month</u>	
		<u>Ind. Res.</u>	<u>Ind. Bus</u>
Toronto Complex	3 - 12	\$ 3.15	\$14.45
Montreal Complex	4 - 14	4.05	16.95

Weighting Distribution (no. of times applied)

	<u>Toronto</u>	<u>Montreal</u>
Factor of 1	151	209
1.5	71	98
2.0	38	37
3.0	4	16
5.0	---	6

The core area of Montreal is larger than that of Toronto, and the total area of Montreal EAS complex is greater than that of Toronto. These two factors would account for Montreal having more weighting factors in the 3.0 bracket and 6 in the 5.0 bracket while Toronto has none in this latter category.






While areas in square miles for both complexes was requested, Bell stated it did not have this information.

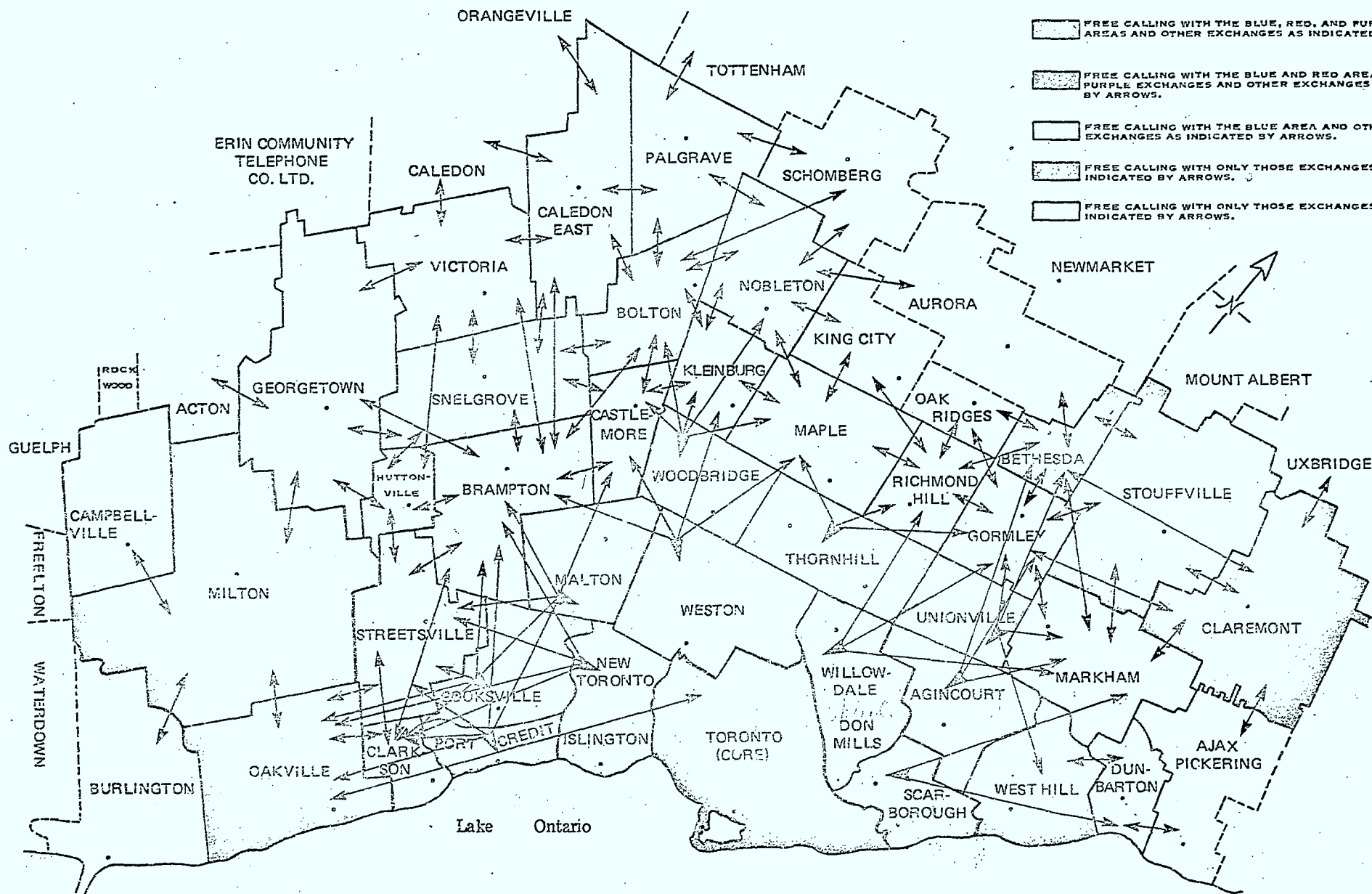
Comparing the maps of the two complexes it will be noted that the Toronto area has more uniformity in the size of fringe areas and their distances from the core area.

Toronto map shows EAS routes marked by arrows or other means.

# TORONTO AREA E.A.S. PLAN

APRIL 19, 1975

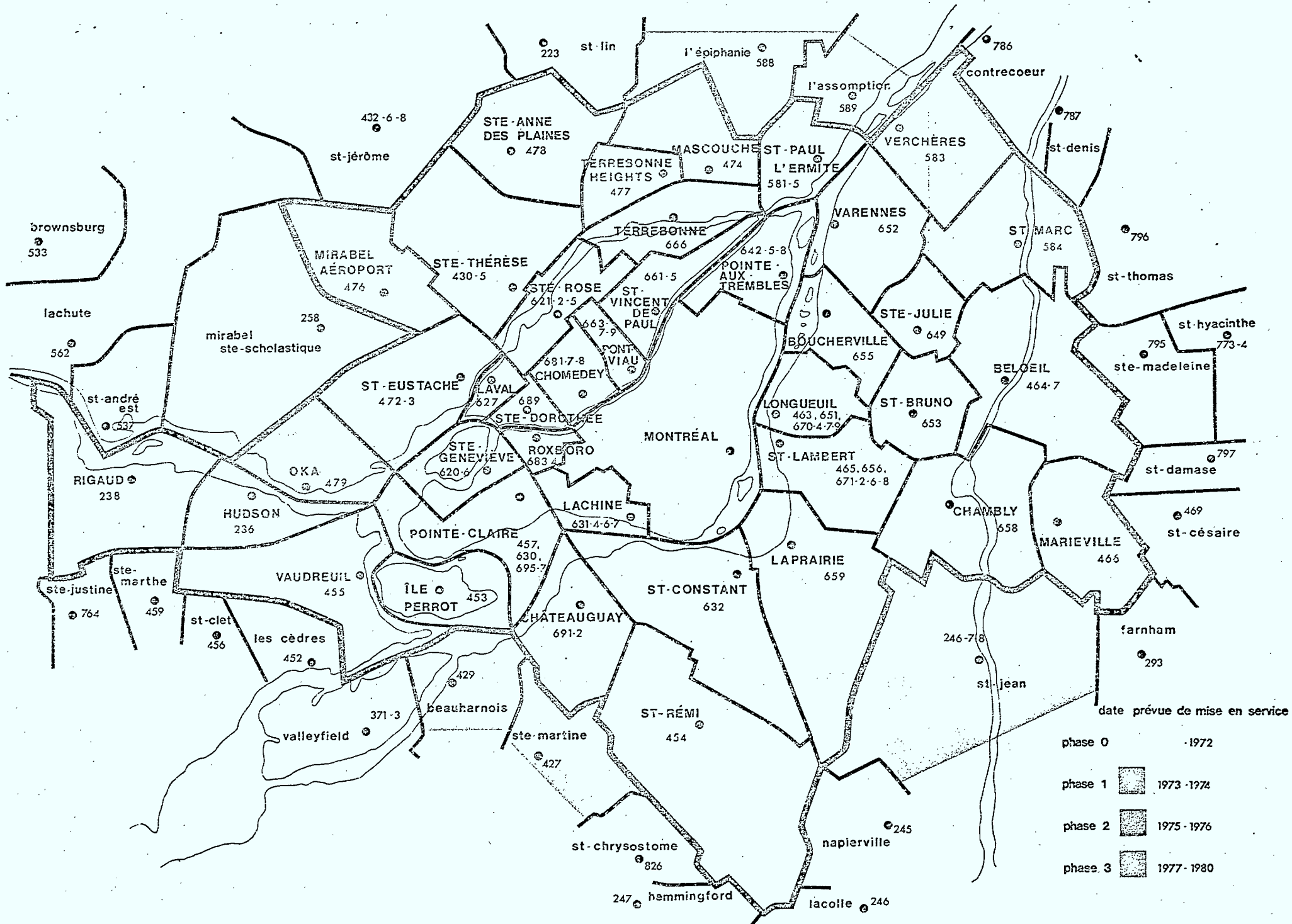
- LEGEND:
-  FREE CALLING WITH THE RED, PURPLE, YELLOW SHADED AREAS AND OAKVILLE EXCHANGE.
  -  FREE CALLING WITH THE BLUE, RED, AND PURPLE SHADED AREAS AND OTHER EXCHANGES AS INDICATED BY ARROWS.
  -  FREE CALLING WITH THE BLUE AND RED AREAS, CONTIGUOUS PURPLE EXCHANGES AND OTHER EXCHANGES AS INDICATED BY ARROWS.
  -  FREE CALLING WITH THE BLUE AREA AND OTHER EXCHANGES AS INDICATED BY ARROWS.
  -  FREE CALLING WITH ONLY THOSE EXCHANGES AS INDICATED BY ARROWS.
  -  FREE CALLING WITH ONLY THOSE EXCHANGES AS INDICATED BY ARROWS.



TORONTO AREA COMMERCIAL - RATES

S.R.'s - PLEASE NOTE: Use the S.R. Handbook, E.A.S. Section, to advise Customers of Local Calling Areas.

SECTEUR D'APPEL LOCAL DE MONTRÉAL



Part I

Section 4. Effect of EAS on rate levels  
in a number of Metro Areas

Extent of EAS and effect on rate levels in the  
following metro areas:

Ottawa-Hull

Kitchener-Waterloo

London

Hamilton

Windsor

Quebec

(see following pages)

Ottawa Hull - Including Ottawa-Hull there are 19 exchanges in this EAS complex as follows:

	<u>Weighting Factor</u>
<u>Ottawa Hull</u>	-
Carp	2.0
Chelsea	-
Constance Bay	2.0
Cumberland	2.0
Gatineau	-
Gloucester	-
Luskville, Que.	2.0
Manotick	1.5
Merivale	-
Metcalf	2.0
Navan	1.5
North Gower	2.0
Orleans	-
Osgoode	2.0
Richmond, Ont.	2.0
Russell	2.0
Stittsville	1.5
Wakefield	2.0

Following is the effect of the above on Ottawa-Hull rate group.

	<u>Rate Group</u>
Ottawa-Hull without any EAS	10
Ottawa-Hull with EAS non-weighted	10
Ottawa-Hull with EAS weighted	10

In spite of the number of times a weighting factor is applied to the Ottawa-Hull suburbs, there is no effect on rate levels in this exchange. The main reason for this is that most suburban exchanges are small, many in the range of 1000 to 4000 telephones. Thus the weighting factor adds relatively few telephones.

In the suburban exchanges the highest EAS differential is from group 3 to group 10 or

Differential

Ind. res.                   \$ 2.25 per mo.

Ind. bus.                   11.05 per mo.

Kitchener-Waterloo - Including Kitchener-Waterloo there are 12 exchanges in the EAS complex as follows:

	<u>Weighting Factor</u>
Kitchener-Waterloo	-
Baden	-
Breslau	-
Elmira	1.5
Hespeler	-
Linwood	1.5
New Dundee	-
New Hamburg	1.5
Preston	-
St. Clements	-
St. Jacobs	-
Wellesley	1.5

Following is effect on Kitchener-Waterloo rate group:

Rate group without any EAS	9
Rate group with EAS non-weighted	9
Rate group with EAS weighted	9.

Due to the few times the weighting is applied, and the small exchanges involved, there is no effect on the rate group.

For the suburban exchanges the highest EAS differential is 3 - 9.

London - Including London there are 11 exchanges in the EAS complex as follows:

	<u>Weighting Factor</u>
London	-
Belmont	1.5
Dorchester	-
Granton (indep.)	2.0
Harrietville	1.5
Ilderton	-
Lambeth	-
Lucan	2.0
Mt. Brydges (indep.)	1.5
Thamesford	1.5
Thorndale	-

Effect on London's rate group is as follows:

	<u>Group</u>
with no EAS	9
with non-weighted EAS	9
with weighted EAS	9

Highest differential for the suburban offices is from group 3 to group 9 or

Ind. res.	\$ 1.90 per mo.
Ind. bus.	9.35 per mo.

Hamilton - Including Hamilton there are 12 exchanges in the EAS complex as follows:

	<u>Weighting Factor</u>
Hamilton	-
Ancaster	-
Binbrook	-
Burlington	-
Caledonia (indep.)	1.5
Dundas	-
Freelton	1.5
Lynden	1.5
Mt. Hope	-
Stoney Creek	-
Waterdown	-
Winona	1.5

Following is effect on Hamilton's rate group:

Rate group with no EAS 9

Rate group with EAS non weighted 10

Rate group with EAS weighted 10

Highest differential in suburban exchanges is from group 3 to group 10 or:

Ind.res. \$ 2.25 per mo. differential

Ind.bus. II.05 per mo. differential

Windsor - Including Windsor there are 8 exchanges in the EAS complex as follows:

	<u>Weighting Factor</u>
Windsor	-
Amherstburg	1.5
Emeryville (indep.)	1.5
Essex	1.5
Ia Salle	-
Maidstone	-
McGregor	1.5
Tecumseh	-

Following is effect on Windsor's rate group:

	<u>Group</u>
without any EAS	9
with EAS non-weighted	9
with EAS weighted	9

Quebec - Including Quebec there are 19 exchanges in the EAS complex as follows:

	<u>Weighting Factor</u>
Quebec	-
Ancienne Lorette	-
Boischâtel	-
Charny	-
Chateau-Richer (indep.)	1.5
Levis	-
Loretteville	-
Notre Dame de Laurentides	-
Ste. Anne de Beaupré	3.0
St. Augustin (indep.)	1.5
St. Brigitte-de-Laval	1.5
Ste. Catharine	2.0
St. Charles de Bellechasse (indep.)	1.5
St. Jean Ile d'Orleans	2.0
St. Lambert de Lauzon (indep.)	2.0
St. Michele de Bellechasse (indep.)	1.5
Ste. Petronille	-
Valcartier	1.5

Following is effect of EAS on Quebec rate group

Group without any EAS	9
Group with EAS non-weighted	10
Group with EAS weighted	10

Highest differential among suburbs is from Group 3 to Group 10.

Summary

Of the 6 metro areas reviewed in this section, it is surprising to find that only 2 core exchanges experience rate differentials as a result of applying the weighting factor. Much of this is attributable to the fact that most of the suburban exchanges to which the factors apply are relatively small.

Part I

Section 5. Effect of EAS on exchanges  
over 10,000 telephones

(with exceptions as noted)

5000 <sup>and</sup> 10,000

(a) Effect of EAS weighting factor on exchanges over 10,000 telephones

(b) Effect of EAS weighting factor on exchanges between 5000-10,000 telephones

Note: In both cases exchanges involved in major metro areas covered in previous sections are excluded

(a) over 10,000 tels.

Total no. of cases	45
No. with higher group due to weighting	5
% affected	11.1

Following are the 5 cases involved:

	<u>Group non-weighted</u>	<u>Group weighted</u>
Alma	6	7
Barrie	7	8
Joliette	7	8
Sherbrooke	8	9
Victoriaville	6	7

(b) Effect of weighting factor on exchanges 5000-10,000 tels.

Total cases	38
No. with higher group due to weighting	9
% affected	23.7

At the lower end of the rate group scale, there are fewer units of service between groups than at the upper end.

For example:

<u>Telephone No. Count</u>	
Group 3	1 to 1500
Group 4	1501 to 3500
Group 6	7501 to 15000
Group 10	175,001 to 500,000
Group 14	2,300,001 to 2,900,000

Under these circumstances the effect of the weighting factor is more pronounced at the lower end of the scale.

Part I

Section 6. Explanations of Method  
used to determine revenue  
effect of EAS

This section deals with the revenue effect of EAS in the Toronto area. It was mentioned earlier that the revenue analysis was confined to Toronto area for these reasons:

- (a) It was felt to be representative.
- (b) It was difficult for Bell to produce the necessary data on any broader scale.
- (c) The time and effort by the Department to broaden the study to any great extent was considered unwarranted.

In order to accomplish the revenue effect it was necessary for Bell to produce for the Dept. quantities of those services the rates for which vary with rate groups. This was supplied for 37 exchanges comprising the Toronto administrative area. Only 24 of these comprise the Toronto EAS complex. The remaining 13 exchanges do not as yet have EAS with Toronto.

Following is a list of the services affected:

Individual Res.

2 pty res. varies with all Groups

multi pty res. varies with all Groups

Extension Tel. res. only 2 groups 3-5 and 6-14

Individual Bus. varies with all Groups

2 pty Bus. varies with all groups

multi pty Bus. varies with all groups

measured Bus. only offered in groups 7-14

PBX trunk: varies with all groups

Extension Tel. bus. 2 groups only, 3-5 and 6-14

PBX extension tel. bus. 2 groups only 3-5 and 6-14

Centrex Primary only offered groups 7-14

Semi. Public varies with all groups

Hotel PBX trunks (dial only) varies with all groups

Hotel PBX extensions 2 groups only 3-5 and 6-14

Extra Exchange Mileage 3 groups 3-5, 6-9, 10-14

\*Local Mileage

\*Directory listings

\*Private Automatic Switching System

\*Joint Use

\*Emergency Reporting

\*The figures for these categories were not available in some cases, and in others could not be produced in a form useable for purposes of this study. However in total they would represent a relatively insignificant revenue figure, and therefore their omission is of no great consequence.

The method used in determining the overall EAS revenue effect was to compute the differential for a given exchange between the rate applicable for a specific service with no EAS, and that applicable under EAS. By applying the appropriate differential to the quantity of the specific service the total revenue differential is determined. Adding the revenue differentials for all services produces the overall EAS effect.

To determine the effect of the weighting factor only, rate differentials were used reflecting the difference in rates between EAS with and without weighting.

Part I

Section 7. EAS Revenue Effect for Toronto  
EAS complex

The table included in this section shows the total annual EAS revenue effect for all exchanges in the Toronto EAS complex. These revenue figures are equated against main stations (telephone nos.) to determine revenue per main station .

The total annual EAS revenue is \$23,826,600 divided almost evenly between residence and business. The fact that the rate differential for Toronto proper is only from group 11 to 12, results in a comparatively low annual EAS revenue per main station and this weighs heavily downward in the overall figures for both residence and business for the total EAS area.

The total annual revenue for those services listed in section 6, at group 12 rates is about \$151,300,000. The EAS differential of \$23,826,600 represents 15.7% of the total revenue.

In the absence of EAS the total revenue excluding toll would be in the order of \$127,473,400. Therefore EAS represents an increase over this figure of 18.7%

Relationship of EAS revenue to total revenue including toll will be covered in Part I, section 10 which is for the total Toronto area comprising 37 exchanges. A total revenue for Toronto EAS complex separately is not available.

The EAS revenue of \$23,826,600 represents the amount of toll built into local service rates. (The term "local" service may no longer be a suitable term to apply to exchange

service, in view of the constantly expanding EAS, particularly in larger metro areas.)

The effect of EAS for the Toronto complex was also determined on the basis of rates in effect prior to Jan. 1976. The EAS amount was \$22,436,272. Therefore the new rates effective Jan. 1976 added about \$1,400,000 to the EAS revenue.

Exchange	Basic	Main Tels.			Rate Gr.
	Rate Gr.	Res	Bus	Tot.	Differ. EAS
Toronto Core	11	349143	155115	504258	11-12
Will. Don Mills	9	88660	23300	111960	9-12
Weston	9	112091	25674	137765	9-12
N. Tor.	9	60080	14735	74815	9-12
Scarb.	9	63675	12049	75724	9-12
Tot. 1st. Fr.					
Pt. Credit	7	13863	2163	16026	7-12
Cooksville	8	31023	7924	38947	8-12
Malton	7	7920	7313	15233	7-12
Woodbridge	4	1796	467	2263	4-12
Thornhill	7	10422	4155	14577	7-12
Unionville	5	2125	1958	4083	5-12
Agincourt	8	27158	6614	33772	8-12
West Hill	7	21334	1969	23303	7-12
Tot. 2nd Fr.					
Clarkson	7	10327	1235	11562	7-12
Streetsville	6	5866	1111	6977	6-12
Brampton	8	25679	4942	30621	8-12
Castlemore	3	226	42	268	3-12
Kleinburg	3	666	104	770	3-12
Maple	4	957	177	1134	4-12
Rich. Hill	6	7759	1310	9069	6-12
Gormley	3	700	161	861	3-12
Markham	5	4674	783	5457	5-12
Dunbarton	5	4476	666	5142	5-12
Tot. 3rd Fr.					
Oakville	7	19638	3447	23085	7-12
TOT		870258	277414	1147672	

\$			\$			
Tot. Ann. EAS Differ. Rev.			Ann. Rev. Per			
			Main Tel			
Res	Bus	Tot.	Res	Bus	Tot	Tot. Tels.
2675498	2713426	5388924	7.66	17.49		793411
1318474	1089682	2408156	14.87	46.77		192636
1668225	1500546	3168771	14.88	58.45		219065
886588	944815	1831403	14.75	64.12		121758
942921	683628	1626549	14.80	56.74		111740
4816208	4218671	9034879				
327485	234354	561839	23.62	108.35		24853
609525	709039	1318564	19.64	89.48		64876
188928	748565	937493	23.85	102.36		32299
65671	77593	143264	36.57	166.15		3652
247126	452920	700046	23.71	109.00		26605
64827	316682	381509	30.51	161.74		6512
533841	583581	1117422	19.66	88.23		66056
505531	208086	713617	23.70	105.68		35534
2542934	3330820	5873754				
245776	140112	385888	23.80	113.45		20646
156542	110030	266572	26.69	99.04		10452
500359	450544	950903	19.49	91.17		50634
11248	7263	18511	49.77	172.92		442
28214	18777	46991	42.36	180.55		1288
38966	31591	70557	40.72	178.48		2038
200064	160337	360401	25.78	122.39		14030
30808	29461	60269	44.01	182.99		1412
156896	114827	271723	33.57	146.65		8841
145406	103387	248793	32.49	155.08		8069
1514279	1166229	2680608				
464727	383699	848426	23.67	111.31		39347
12013646	11812945	23826591	13.80	42.58	20.76	1856196
50.4%	49.6%					

Part I

Section 8. EAS Revenue by Type of Service  
for Toronto Complex

The table in this section provides an EAS revenue breakdown by type of service for each exchange in the Toronto EAS complex.

Following are highlights of this analysis.

	<u>Ann. EAS Rev. Differential</u>	<u>% of Total Ann. Differ.</u>
<u>Basic Serv. Rev.</u>		
Res. Ind.	\$ 11,513,254	48.3
Bus. Ind.	8,207,810	34.5
PBX Trks.-bus.	<u>2,797,695</u>	<u>11.7</u>
Total	\$ 22,518,759	94.5
<u>Auxiliary Revenue</u>		
Res.	\$ 58,769	
Bus.	<u>47,692</u>	
Total	\$ 106,461	0.4

The bulk of the EAS revenue derives from the 3 basic services listed above. Basic services in total generate 99.6% of EAS revenue.

\$  
Ann. Residence Differ.

\$  
Ann. Business Differ.

	Main Tels.			Aux.		Main Tels.							Auxiliary			
	Ind.	2 Pty	Multi	Ext. Mlg.	Ext.	Ind	Meas.	Multi	PBX Trks.	Hotel Trks.	Semi Pub.	Cent. Prim.	PBX Ext.	Reg. Ext.	Hotel Ext.	Ext Mlg.
Tor. Core	2567908	107590				1621421	66144		716199	4935	12787	291940				
Will.	1282290	36184				733972	21721		319325		2693	11971				
Weston	1626615	41610				1116472	27434		300233	857	3611	51939				
N. Tor.	840315	46273				661511	20783	25	249439	3570	4406	5081				
Scarb.	904275	38646				491681	20258		138262	1928	2754	28745				
Tot. 1st Fr.	4653495	162713				3003636	90196	25	1007259	6355	13464	97736				
Pt. Cr.	315288	12197				180710	9116		41972	396	2160					
Cooksville	596911	12614				532585	11354		161460	616	3024					
Malton	186240	2688				440807	3493		263689	1188	1512	37876				
Woodbridge	54994	4257	455	2660	3305	57832	1917	214	10217	389	1944		2038	2441	187	414
Thornhill	240120	7006				351321	8946		78979	7788	2484	3402				
Unionville	60528	4095	186		18	232259		4082	60865				9295	10181		
Agincourt	522522	11059		260		434179	10534		134633		1987	2225				23
West Hill	490368	15154		9		163009	10352		30919	1848	1944					14
Tot. 2nd Fr.	2466971	69070	641	2929	3323	2392702	55712	4296	782734	12225	15055	43503	11333	12622	187	451
Clarkson	240864	4889		23		98174	3749		36365	528	1296					
Streetsville	148581	5894	974	1093		83076	844	131	17856		648	7358				117
Brampton	475160	23371	696	1132		318904	6053	64	121592	1026	2678					227
Castlemore	4082	1987	1021	3780	378	5722	279	173	257					504		328
Kleinburg	20450	2870	466	2894	1534	16473	223		515		518		36	742		270
Maple	25240	3767	1445	6566	1948	18423	1108		7841		486		2045	878		810
Richmond Hill	189702	9754	226	382		132870	1630		24768		1037					32
Gormley	19694	3284	1332	4658	1840	22715	446	115	4633		346			756		450
Markham	127358	10834	2399	6635	9670	98269	2087	437	5848		1181		1958	4529		518
Dunbarton	130853	6502	74	853	7124	80919	1466	49	11913		443		5285	3254		58
Tot. 3rd Fr.	1381984	73152	8633	28016	22494	875545	17885	969	231588	1554	8633	7358	9324	10663		2810
Oakville	442896	17993	1831	2007		314506	6560	40	59915		2376					302
	11513254	430518	11105	32952	25817	8207810	236497	5330	2797695	25069	52315	440537	20657	23285	187	3563

(Note: All figures are in annual dollars)

Tot. res. - \$12013646

Tot. bus. - \$11,812,945

Tot. Differ. Res + Bus.

\$ 23,826,591

Part I

Section 9. - Revenue Effect of EAS for

13 exchanges Outside Toronto

Complex

The table following covers the revenue effect for the 13 exchanges in the Toronto Area, but which are beyond the scope of the Toronto EAS complex.

The total EAS revenue is \$526,328 per annum, of which 61% is generated by residence services and 39% from business. This contrasts with Toronto EAS where the division was about 50% for each.

However it is interesting to note that the average annual EAS revenue per total main service is almost identical - Toronto \$20.76 and 13 exchanges outside \$20.33.

Based on rates in effect prior to Jan. 1976 total annual EAS revenue for the 13 exchanges was \$505,060. The Jan. 1976 rates therefore increased EAS revenue by \$21,300 or about 4.2%.

The rate levels in none of the 13 exchanges is affected by the weighting factor.

	Basic Rate Gr.	Main Tels.			EAS Rate Diff.	\$ Ann. Rev. Differ.			\$ Ann. Differ per main tel.		
		Res.	Bus.	Tot.		Res.	Bus.	Tot.	Res.	Bus.	Tot.
Campbellville	3	623	81	704	3-5	3212	2124	5336	5.16	26.22	7.58
Palgrave	3	568	56	624	3-6	11704	3211	14915	20.61	57.34	23.90
Stouffville	4	3137	358	3495	4-6	30966	13944	44910	9.87	33.95	12.85
Claremont	3	707	63	770	3-7	12192	4444	16636	17.24	70.54	21.60
Nobleton	3	950	93	1043	3-7	17594	6286	23880	18.52	67.59	22.90
Bolton	4	1929	320	2249	4-8	32979	25390	58369	17.10	79.34	25.95
Caledon E.	3	916	85	1001	3-8	21566	7502	29068	23.54	88.26	29.04
Georgetown	6	6794	889	7683	6-8	46407	37097	83504	6.83	41.73	10.87
Huttonville	3	416	24	440	3-8	8088	2767	10855	19.44	115.29	24.67
Snelgrove	3	615	79	694	3-8	16441	7700	24141	26.73	97.47	34.79
Victoria	3	950	73	1023	3-8	21328	6745	28073	22.45	92.40	27.44
Bethesda	3	294	34	328	3-9	8287	3812	12099	28.19	112.11	36.89
Milton	5	4929	908	5837	5-9	89787	84755	174542	18.22	93.34	29.90
Total		22828	3063	25891		320551	205777	526328	14.04	67.18	20.33

Part I

Section 10. Summary of EAS Revenue Effect  
for Entire Toronto area

-- 37 Exchanges

This is a summation of EAS revenue effects for the entire Toronto Area comprising 37 exchanges.

As will be observed the EAS revenue for the 37 exchanges represents 6.4% of total revenue derived from all sources.

In Part II, section 12 an attempt will be made to estimate the total EAS for Bell Canada. The above percentage if considered representative will be useful in this process.

## Total EAS Effect Toronto area

(a) For exchanges within Toronto EAS Complex

(b) 13 exchanges outside Toronto EAS Complex

	<u>Toronto EAS</u>	<u>13 other exch.</u>	<u>Total</u>
Tot. tels	1857684	39039	1896723
Res. main tels.	870258	22828	893086
Bus. main tels.	277414	3063	280477
Tot. main tels	1147672	25891	1173563
<u>Ann. EAS Differ.</u>			
Res.	\$ 12013646	320551	12334197
Bus.	11812945	205777	12018722
Tot.	23826591	526328	24352919
<u>% EAS Differ.</u>			
res. to Tot.	50.4	60.9	50.6
bus. to Tot.	49.6	39.1	49.4
<u>Ann. Differ/ main tel.</u>			
Res.	\$ 13.80	14.00	13.81
Bus.	42.58	67.18	42.85
avg. res. + bus.	20.76	20.32	20.75
Ann. rev. W.F. only	4416245	*nil	4416245
%W.F. to total			
EAS Rev.	18.5	nil	18.1

\*W.F. has no effect in this group of exchanges.

Following is total revenue picture for Toronto Area  
for 1973 - latest available from Bell

Local	\$ 201.9 million
Toll	175.8 million
Misc.	<u>3.9 million</u>
Total	381.6

% EAS Rev. to total rev. - 6.4%

With rate increases between 1963 and the present the total revenue will have increased by at least 10%. Therefore the proportion represented by EAS revenue of 6.4% is not correct for the present and would be somewhat lower, possibly in the order of 6%.

Part I

Section 11. Revenue Effect of Weighting  
Factor Only, on Toronto EAS  
Complex

This section provides data relative to the amount of EAS revenue added by the application of the weighting factor on the Toronto EAS complex.

In total, the amount added by the weighting factor is \$4,416,245 or only 18.5% of the total EAS revenue of \$23,826,591. It can be concluded therefore that in a large metro area EAS complex such as Toronto Bell's weighting factor has a relatively minor effect.

	Rate Gr <u>Un-Wt.</u>	Rate Gr. <u>Wt.</u>	Ann. Rev. \$ <u>Effect of W.F.</u>			\$ Tot. EAS <u>Ann. Rev.</u>	% W.F. to Tot <u>EAS Rev.</u>
			<u>Res.</u>	<u>Bus.</u>	<u>Tot.</u>		
Toronto	12	12				5388924	
Willow.	11	12	683931	432459	1116390	2408156	
Weston	12	12				3168771	
New. Tor.	12	12				1831403	
Scarb.	11	12	488529	249198	737727	1626549	
Tot. 1st. Fr.	11	12	1172460	681657	1854117	9034879	20.5
Pt. Cr.	11	12	106389	48672	155061	561839	
Cooks.	11	12	239877	186581	426458	1318564	
Malton	11	12	61392	154084	215476	937493	
Wood.	11	12	13557	10305	23862	143264	
Thorn.	11	12	80291	93496	173787	700046	
Union.	11	12	16077	45494	61571	381509	
Agin.	11	12	209989	153652	363641	1117422	
West Hill	11	12	164241	43391	207632	713617	
Tot. 2nd Fr.	11	12	891813	735675	1627488	5873754	27.7
Clarkson	11	12	79852	28988	108840	385888	
Streets.	11	12	44883	19970	64853	266572	
Brampton	11	12	196261	118498	314759	950903	
Castle.	11	12	1479	857	2336	18511	
Kleinburg	11	12	4896	2288	7184	46991	
Maple	11	12	6938	4019	10957	70557	
Rich. Hill	11	12	57616	29012	86628	360401	
Gormley	11	12	5031	3637	8668	60269	
Markham	11	12	35037	17007	52044	271723	
Dunbarton	11	12	34236	14835	49071	248793	
Tot 3rd Fr.			466229	239111	705340	2680608	26.3
Oakville			150334	78966	229300	348426	
Overall Total			2680836	1735409	4416245	23826591	18.5

Part I

Section 12. Estimate of EAS Revenue on  
Total Company Basis

This is an attempt to estimate the Company-wide effect of EAS based on figures for Toronto area. It is recognized that this could produce a result far removed from the actual. However it may provide a ballpark figure.

It will be estimated on two different bases.

- (a) Using EAS differential per telephone for Toronto area as representative and applying this against the total telephones involved in EAS
- (b) Using 6% (figure for Toronto core) of total revenues as being representative of the EAS revenue generated throughout the Company. It is recognized that not all exchanges are involved in EAS. However over 98% of telephones are involved in EAS, so the factor of error introduced by 2% of the telephones should be minimal.

Method (a)

The figure of average EAS differential per telephone (annual) for all Toronto area is:

Total Telephones	1,857,684
Total EAS Revenue	\$ 23,826,600
EAS rev. per tel	\$12.85

This is comprised of the following:

	<u>Total Tels.</u>	<u>EAS Rev.</u>	<u>EAS Rev/Tel</u>
Toronto Core	793411	\$ 5388924	\$ 6.79
1st fringe	645199	9034879	14.00
2nd fringe	260387	5873754	22.56
3rd fringe	117852	2680608	22.75
4th fringe	39347	848426	21.56
13 add'l exchanges	<u>39039</u>	<u>526328</u>	<u>13.48</u>
Total	1895235	\$ 24352919	\$12.85

Probably most major metro areas would show the same wide variations. However the revenue per telephone for Toronto EAS complex is similar to that for the 13 other exchanges outside the complex.

In view of the fact that the major metro areas of Toronto, Montreal, Ottawa-Hull, Quebec, Hamilton, London, Windsor and Kitchener Waterloo comprise a large segment of total telephones for Bell, it may not be unreasonable to assume that the above figure of \$12.85 say \$13.00 may be used as an average for all telephones involved in EAS.

As of Dec. 31, 1974 in Bell there were 7,518,505 telephones of which 7,400,386 were involved in EAS, some to a limited extent, and some very widely.

Applying the figure of \$13.00 to the tels. in EAS produces

$$7,400,386 \times \$13.00 = \$96,205,000$$

Method (b)

Using 6% as representing the proportion that EAS comprises of total revenues produces the following:

Total Company revenues 1963	1275.2 million
6% of 1275.2 million	76.5 million

Comment

Neither method can be considered at all accurate. A mean between the two is about \$86 million and this is perhaps the best estimate that can be made under the circumstances.

Some further indication of the magnitude of EAS revenue overall is provided by the fact that Toronto plus Montreal would probably be about \$50 million per annum. These two complexes comprise about 48% of the total telephones in Bell Canada. On this basis it may not be unreasonable to estimate a total company EAS figure in the order of 90-100 million.



Part II

B.C. Telephone Company

### Background and Present Outlook

Generally demand for EAS has risen where a community of interest has developed between nearby exchanges, one of which has generally become the predominant social and economic centre. Under these conditions the principal demand for removal of toll charges will occur in the satellite exchange. While the volume of calling between the two is usually uniform in each direction, the main benefit of enlarging the local calling service areas will fall upon those in the smaller exchange.

During the early 1950's EAS was provided over relatively short distances, eliminating 10 and 15 cent toll charges. This included the so-called "First Fringe" exchanges around Vancouver.

Development of EAS has been fairly steady over the past several years. EAS has been established between 38 pairs of exchanges over the past ten years.

Future plans include

June 1976

-- Haney-Pt. Coquitlam

Pitt Meadows-Pt. Moody and  
New Westminster

Whannock-Vancouver and Richmond

Plebiscites were in progress in the Fall of 1975 in the Pender Harbour, Sechelt, Gibsons and Pt. Mellon area relative to EAS between Pender Harbour and Sechelt Gibsons and Pt. Mellon in 1977. Results of this have not been made known to the Dept. This area is some 50 miles north of Vancouver.

### Development of Vancouver Toll-Free Calling Area

1. Between Jan. 1954 and Mar. 1958 the first fringe exchanges North Vancouver, Richmond, New Westminster, West Vancouver and Pt. Moody were given toll free calling to and from Vancouver at the Vancouver rate.

2. In 1961 subscribers in the second fringe exchanges of Port Coquitlam, Newton and Ladner were polled to determine whether they wished toll-free calling with Vancouver. The rate was to be Vancouver rate plus an increment to partially compensate the Company for the additional cost of the arrangement and the consequent loss of toll. All three exchanges accepted the proposal and the rates, and toll free calling was introduced in May of 1963. It is interesting to note here that while the customers in the smaller outlying exchanges were willing to accept a rate increase for toll free calling to the core, the core area customers were unwilling to accept even a ten cent increase to have the additional exchanges included in their toll free calling area. The reason for this is of course that only a small fraction of the customers in the core area placed calls to the outlying areas involved. Conversely most customers in the suburb made frequent use of service to the core. This pattern is experienced in all metro areas across the country.

In 1956, a plebiscite was held in White Rock, a third fringe exchange to determine customer attitude toward EAS with Vancouver. Rates proposed included an increment

over Vancouver rates in excess of that applied to second fringe exchanges. The service was introduced to White Rock in March 1967.

In 1972 4th fringe exchanges Cloverdale and Langley which are some distance west of Vancouver, received EAS with Vancouver at differentials in rates over Vancouver of \$4.00 per mo. for business and \$2.00 for residence.

Summary of sequence of EAS introduction in  
Vancouver Area from 1954 to 1972

<u>Date EAS Introduced</u>	<u>Rate Group</u>	<u>Exchange</u>
Jan. 3, 1954	9	North Vancouver
Aug. 3, 1954	9	Richmond
June 29, 1956	9	New Westminster
Sept. 9, 1956	9	West Vancouver
Mar. 2, 1958	9	Pt. Moody
May 5, 1963	9A	Pt. Coquitlam
May 5, 1963	9A	Newton
May 5, 1963	9A	Iadner
Mar. 11, 1967	9B	White Rock
April 16, 1972	9C	Cloverdale
April 16, 1972	9C	Langley

Throughout the 50's, 60's and early 70's the Company introduced 3 new rate groups. In establishing the rates there were no upper limits prescribed as to the number of telephones in each group, and therefore there could be no natural upgrouping as the communities expanded. This was considered discriminatory as all other exchanges in rate groups 1-7 were subject to natural re-grouping. Also the rate schedule provided no means of increasing rates when "cross-core" calling was introduced e.g. North Vancouver with Richmond, and New Westminster with Port Moody.

Therefore Feb. 15, 1975 a new rate structure was introduced to correct these problems by assigning rate group limits based on B.C.'s method of telephone count, to all exchanges. The new structure formally recognized distance as a factor in calculating the number of telephones in an exchanges local calling area for rate grouping purposes. The objective was to ensure that customers in exchanges enjoying EAS would pay a fairer share of the cost of providing toll free arrangements. Rates for exchanges with no EAS generally remained at prevailing rate levels or decreased.

The process imposed was a weighting plan as follows:

<u>Airline Mileage Between Exchanges</u>	<u>Weighting Factor</u>
0-3	1
4-10	3
11-15	9
16-20	17
21-25	20
26-30	23
31-35	26
36-40	29
41-45	32

An example

Exchange A	16 miles	Exchange B
5000 tel. count		10,000 tel. count

Exchange A rate Group

$$5000 + (17 \times 10,000) = 175,000 \text{ Tel. Count}$$

Exchange B rate Group

$$10,000 + (17 \times 5000) = 95,000$$

The effect of the weighting factor plan from a rate and revenue standpoint will be covered in a later section of this B.C. portion of the report.

The immediate effect of applying the new process in the Vancouver area was as follows

	Rate Group <u>Feb. 15/75</u>	<u>% Increase</u>	
		<u>Ind. Bus</u>	<u>Ind. Res</u>
Vancouver	12	15	9
North Vancouver	11	7	4
Richmond	12	15	9
New Westminster	11	7	4
West Vancouver	11	7	4
Pt. Moody	12	15	9
Pt. Coquitlam	14	25	12
Newton	14	25	12
Ladner	13	17	5
White Rock	15	26	12
Cloverdale	15	15	(1)
Langley	15	15	(1)

In addition to a continued expansion of EAS in the Vancouver area, the service is being introduced in all parts of the province where there is sufficient community of interest between exchanges. From 1965 to the present including the Vancouver area 38 new EAS arrangements have been inaugurated. In no cases including the Vancouver area, have there been exchange boundary adjustments to accomodate EAS.

There is a wide difference in the size of exchanges in the complex as shown by the following:

	<u>Area Square Miles</u>
Cloverdale	49
Langley	89
Newton	35
Richmond	46
Ladner	55
Whalley	22
New Westminster	30
West Vancouver	12
Pt. Coquitlam	25
Vancouver	71
White Rock	25
Pt. Moody	30
North Vancouver	<u>25</u>
Total	514

Interest in the expansion of EAS in the Vancouver area and throughout the province continues unabated. B.C. Telephone is continually confronted with pressures, political and otherwise. In all cases where public reaction is to be tested B.C. Tel. still conducts a plebiscite to measure the degree of public acceptance. A favourable vote of over 50% is sufficient basis for proceeding.

B.C. Telephone was asked by the Dept. about their present outlook on EAS (a) with respect to the adequacy of weighting plans, and (b) to what extent EAS can be extended for example in the Vancouver area and keep within economic limits of costs and consequent rates to customers.

Following are their verbatim replies to these questions:

- (a) "The Company's existing weighting factors and rates are not sufficient to recover the additional costs and lost message toll revenues in many EAS situations. The rate

structure introduced earlier this year (1975) is an improvement over the old structure but it still does not go far enough in the more complex configurations. This is understandable, however, when one considers the constraints or objections under which the plan was developed. Some were:

- Relative revenue contribution from basic exchange services versus other Company services.
- New rates could not create an undue burden on customers.

(In fact the average increase for Residence and Business services were 4.7% and 9.5% respectively)

(Writer's note: It should be remembered here that B.C. already had an incremental plan for Vancouver suburbs.)

Customer impact was the major limiting factor in keeping us from going as far as we would have liked with the schedule."

- (b) "Firstly considering the Company's present financial situation, we would probably reject any EAS proposal that was not at least close to a break-even situation, (unless there were some substantial non-economic overtones.)

Secondly from a customer standpoint the issue is more difficult. In the past customers have accepted substantial rate increases for EAS with no appreciable

effect on demand for service. This would tend to indicate that the market for basic service is relatively inelastic. There is probably a barrier above which customers will turn down an EAS plan. That barrier would be the sum of the existing basic exchange rate and the toll charges to the distant exchange. If for example a customer in exchange "A" pays \$6.00 per month for basic service and averages \$4.00 per month in toll charges to exchange "B", then he should be willing to pay a \$10.00 basic exchange rate for EAS between A and B. He may not be willing to pay \$12.00 however because he can satisfy his calling requirement for \$10.00 without EAS. This, of course, assumes a rational customer. The possibility exists that customers are not rational. They may refuse to pay the \$10.00 basic rate because they perceive that a \$4.00 increase is too high. They may be willing to pay more than their existing charge because they think they will call much more with no toll charge.

The point is we really do not know whether there is a limit to rates that will be accepted by customers for EAS."

Writers Note: Experience, at least in Bell Canada is that most customers will accept EAS rates in excess of the combined local and toll charges. Where there are toll charges customers usually use restraint in

the use of toll. They are willing to pay more for the privilege of unlimited calling through the removal of the need for restraint.

B.C. Tel. was also asked for any information they might have on traffic volumes prior and subsequent to introduction of EAS.

Following is their reply:

"The following EAS stimulation factors are used as guidelines by our engineering Groups in determining the impact on traffic volumes when EAS replaces toll. These factors are based on a study of before and after usage for twelve EAS routes implemented between 1970 and 1972. They indicate the relationship between busy hour CCS before EAS (toll usage) and busy hour CCS after EAS (local usage).

<u>Toll miles</u>	<u>Factor*</u>
0-10	4.2
10-15	4.5
15-20	4.9
20-25	5.3
25-30	5.7
30-35	6.2

\*This factor should be applied to busy hour CCS for toll usage between the two points receiving EAS in order to get busy hour CCS for local usage."

To sum up for B.C. Telephone, they are experiencing the same pressures for toll free calling as that which persists throughout the entire country, and particularly in major metro areas. They seem also to be facing the same

quandary with regard to the extent to which EAS can be extended and kept within reasonable cost limits and consequent charge for service.

Part II

Section 2. Broad Summary of EAS for  
B.C. Telephone Company

Broad Summary of EAS for B.C. Tel. Co.

Total exchanges in B.C. Tel.	258
No. with EAS	136
% with EAS	52.7
Total main tels.	882,164
Total main tels with EAS	801,670
% main tels with EAS	91.0
No. of exchanges with EAS to 1 other exchange	41
2	32
3	35
4	16
5	2
6	1
7	2
8	3
9	1
11	1
12	2

Following table shows the Vancouver EAS complex relative to rates charged for all exchanges involved.

Rates as of August 1975

<u>Exchange</u>	EAS non-weighted tel. <u>Count</u>	Weighted tel. <u>count</u>	Rate Group	\$ <u>Monthly rates</u>		Actual tel. count for ex- change
				<u>Ind. Bus.</u>	<u>Ind. Res.</u>	
Vancouver	491834	2114705	12	22.20	7.65	267111
<u>1st fringe</u>						
W. Vancouver	404690	1683634	11	20.55	7.30	16066
N. Vancouver	404690	1307542	11	20.55	7.30	37897
Pt. Moody	436668	3135228	12	22.20	7.65	21552
New West.	491834	1906048	11	20.55	7.30	33853
Richmond	482374	2718784	12	22.20	7.65	28211
<u>2nd fringe</u>						
Ladner	389642	3255800	13	23.85	8.00	10214
Newton	406859	5158079	14	25.50	8.45	16301
Whalley	428411	3217713	13	23.85	8.00	22518
Pt. Coquitlam	322516	4716562	14	25.50	8.45	9460
<u>3rd&amp;4th fringe</u>						
White Rock	406859	6533060	15	27.15	9.20	11434
Cloverdale	396645	6319692	15	27.15	9.20	4601
Langley	200947	6536309	15	27.15	9.20	12616
Total	5263969	43603156				*491834

\*published figure

Note 1 All exchanges on a non-weighted EAS basis (i.e. addition of telephone count only) would be in group 9. The greatest spread is therefore from group 9-15. For Ind. bus. this differential is \$9.75 per mo. and for res. ind. \$2.55 per mo.

Note 2 (a) Pt. Moody is presently in group 12 but according to tel. count should be in group 13.

(b) New Westminster is presently in group 11 but according to tel. count should be in group 12.

Possibly both these exchanges are due to be up-grouped in the near future.

In the case of Vancouver it would appear that the weighting factor is having the desired effect of increasing the rates as the distance from Vancouver increases (whether the W.F. in itself is adequate is another question)

It will be noted that three exchanges are in a lower group than Vancouver proper and this appears somewhat difficult to justify. However ignoring this, the spread in rates from the core to the outer limits is as follows:

	<u>Ind. Bus.</u>	<u>Ind. Res.</u>
Vancouver	\$ 22.20	\$ 7.65
Langley	27.15	9.20
Spread in rates	4.95	1.55
% spread in rates	22.3	20.3

Part II

Section 3. Effect of Weighting Factor for  
Vancouver EAS Complex (non  
revenue)

The weighting factor plan of B.C. Tel. was recorded in Part II, Section 1. However for ease of reference it is repeated here:

<u>Airline Distance Between Exchanges</u>	<u>Weighting Factor</u>
0-3	1
4-10	3
11-15	9
16-20	17
21-25	20
26-30	23
31-35	26
36-40	29
41-45	32

To accomodate the weighting factor, rate groups have had to be expanded to 16 as follows:

<u>Rate Group</u>	<u>Telephone Count</u>
1	exchanges without 24 hr. service
2	1-1000
3	1001-4000
4	4001-12500
5	12501-30000
6	30001-75000
7	75001-145000
8	145001-300000
9	300001-550000
10	550001-1000000
11	1000001-1900000
12	1900001-3100000
13	3100001-4300000
14	4300001-5500000
15	5500001-6700000
16	6700001-7900000

Note: Tel. Count includes all main telephones  
Centrex stations and PBX trunks.

The rate group schedule therefore bears no direct relationship to the number of main services in an exchange or a group of exchanges in an EAS complex. For example the Vancouver complex contains only 491,834 telephone count, but the weighted overall count is 48,603,156.

Following is the distribution of the weighting factor for all of B.C. Tel

	*	<u>% total</u>
No of times factor 1 applied	14	3.8
No of times factor 3 applied	201	54.4
No of times factor 9 applied	102	27.6
No of times factor 17 applied	26	7.0
No of times factor 20 applied	24	6.5
No of times factor 23 applied	2	0.5

Therefore a weighting factor (greater than 1) was applied in 96.2% of the EAS cases in B.C. Tel. (This will be contrasted with Bell in Part III of this report.)

\*Note: These figures are double the number of actual EAS routes as the weighting factor applies to each exchange. However this does not affect the percentages with respect to where the W.F. is or is not applied.

It is interesting to note that if a given exchange is 1 mile over the next lower step in the weighting schedule e.g. 16 rather than 15 miles, for example between exchange "A" and Vancouver, this one mile can add  $8 \times 267111^*$  or 2,136,888 main telephones. This seems rather severe and may suggest the need for a more gradual process.

\* Published Figure

5' 11.219 to 2,136,888

Part II

Section 4. Total EAS Revenue Effect  
for Vancouver EAS Complex

(See map of Vancouver area in this section)

The determination of the revenue effect of EAS for B.C. Tel. was confined to Vancouver for the same reasons that it was restricted to Toronto for Bell Canada.

The method followed was the same. B.C. Tel supplied quantities of those services which vary with rate groups. The basic rate group was established for each exchange on the assumption that no EAS existed. The differentials in rates were then determined between this basic group and the weighted EAS group.

Following is the list of services which vary with rate group.

1. Business Individual line
2. Business measured line
3. Business party line
4. PBX trunks - 2-way
5. PBX trunks - 1-way
- \*6. Business data line
- \*7. Computer trunk
8. Residence Individual Line
9. Residence two-party line
10. Residence multi party line
- \*11. Joint-user service
- \*12. Off-premises extension
- \*13. Transfer of calls

The data for items 6, 7, 11, 12 and 13 was not supplied. However the EAS revenue derived from these is insignificant and would have a very slight effect on the overall result.

The chart following shows the EAS revenue effect for each exchange in the Vancouver complex and differentials per main station for both residence and business. Also shown is total annual revenue including EAS for basic services as computed from detailed data supplied.

The key items from this table are:

1. Total EAS revenue effect	\$16,735,476
2. Ann. EAS rev. per main sta.	\$34.98
3. % EAS of total basic service rev. incl. EAS	28.2
4. % increase in basic rev. due to EAS	39.3

Overall annual revenues of all categories of service including toll etc. were not supplied. However the EAS effect on increasing basic revenues by 39.3% seems substantial.

(comparisons with Bell Canada will be covered in Part III of this report.)

Exchange	Basic Rate Group	EAS Group	\$ Ann. Rev. Differ.		
			Res.	Bus.	Tot.
Vancouver	8	12	3030762	4277602	7308364
Cloverdale	4	15	162488	148924	311412
White Rock	4	15	449370	166784	616154
Ladner	4	13	318552	151335	469887
Langley	5	15	424230	329238	753468
Newton	5	14	520428	245177	765605
Whalley	5	13	638850	399674	1038524
New West.	6	12	632346	646680	1279026
N. Vancouver	6	11	627771	453816	1081587
Pt. Coquitlam	4	14	338376	152916	491292
Pt. Moody	5	13	601614	271028	872642
Richmond	5	12	617706	631555	1249261
W. Vancouver	5	11	325629	172625	498254
Total			8688122	8047354	16735476

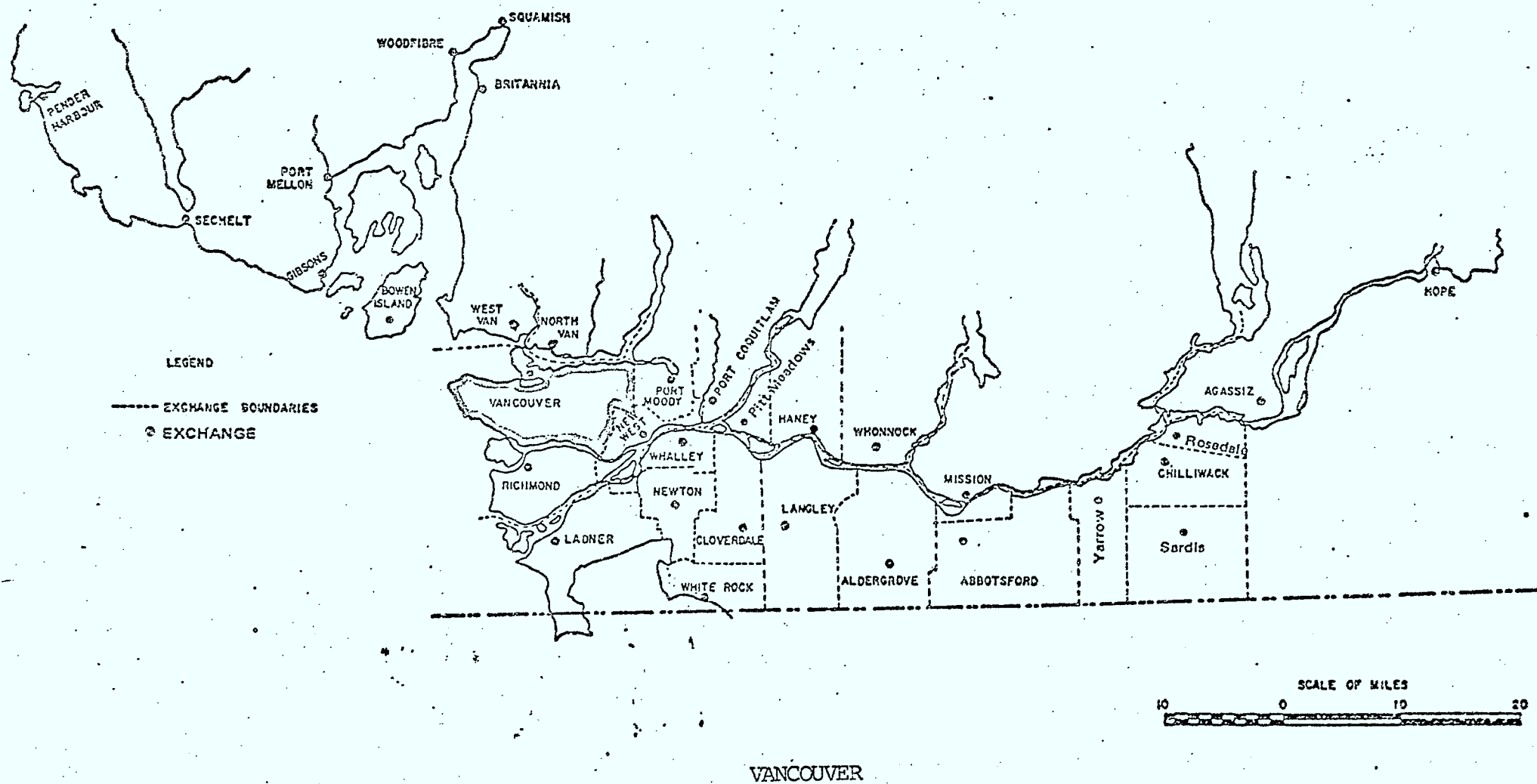
Table based on  
rates effective  
July 1975

Res.	Bus.	Tot.	Total Main Tels.	\$ Ann. Differ per main tel.		Total ann. basic service rev. Incl. EAS	% EAS diff to Total basic
				Res.	Bus.		
15.20	75.50	28.50	256219			33389000	21.9
48.00	200.00	75.00	4139			597000	52.2
48.30	187.00	60.50	10186			1249400	49.3
35.00	149.00	46.00	10134			1130000	41.6
44.00	179.00	65.50	11484			1583000	47.6
36.00	156.00	48.00	15937			1878700	40.8
31.00	140.00	44.00	23502			2736600	37.9
23.00	106.00	38.00	33630			4062400	31.5
19.30	84.00	28.50	37955			4098400	26.4
39.60	166.00	52.00	9460			1090200	45.1
31.00	137.00	40.50	21502			2366700	36.9
27.00	121.00	44.00	28312			3447500	36.2
23.00	93.00	31.00	16022			1652800	30.1
22.20	92.43	34.98	*478482			59281700	28.2

Note: It has been assumed that Pt. Moody and New Westminster are in rate groups specified by the schedule; as of Aug. 22, 1975, each was filed at 1 group below that shown above.

\*This figure was determined from detailed service breakdowns provided by B.C. Tel. for this analysis

The official published main telephone figure is 491,834. This difference has a minor effect on the EAS revenue per: main tel. i.e. \$34.98 versus \$34.03.



Part II

Section 5. Revenue Effect of Weighting  
Factor only on Vancouver  
Complex

The table following shows the annual revenue effect of the weighting factor only. All exchanges in the complex in the absence of a weighting factor would be in Rate Group 9. The weighting factor effect is therefore the difference between revenues produced by group 9 and the weighted rate group. The greatest effect of the weighting is in those exchanges where the differential is from group 9 to group 15.

It is interesting to note the revenue contribution of the weighting factor. Of a total EAS revenue \$16,735,500 the W.F. accounts for \$10,387,600 representing 62.1%. The W.F. for B.C. is a very significant factor as a revenue producer.

EAS Group Non- Weighted	Main Telephone			EAS Group	Ann. Res.	\$ EAS rev.differ W.F. only		\$ Ann. differ. per main tel. W.F. only			\$ Tot.Ann. basic serv. rev. incl. EAS		% tot. W.F. differ. of Tot. basic		% W.F. of Total EAS rev.
	Res.	Bus.	Tot.			Bus.	Tot.	res.	bus.	tot.					
Vancouver	9	199515	56704	256219	12	2332917	3247123	5580040	11.70	57.26	21.78	33389000	16.7		76.4
Cloverdale	9	3395	744	4139	15	100023	86659	186682	29.46	116.48	45.10	597000	31.3		59.9
White Rock	9	9295	891	10186	15	276373	99259	375622	29.73	111.40	36.88	1249400	30.1		60.9
Ladner	9	9115	1019	10134	13	142563	74715	217278	15.64	73.32	21.44	1130000	19.2		46.2
Langley	9	9650	1834	11484	15	282930	209779	492709	29.32	114.38	42.90	1583000	31.1		65.4
Newton	9	14370	1567	15937	14	302904	147649	450553	21.08	94.22	28.27	1878700	24.0		58.8
Whalley	9	20650	2852	23502	13	317130	216505	533635	15.36	75.91	22.71	2736600	19.5		51.4
New West.	9	27530	6100	33630	12	318174	357850	676024	11.56	58.66	20.10	4062400	16.6		52.9
N. Vancouver	9	32555	5400	37955	11	248235	194700	442935	7.63	36.05	11.67	4098400	10.8		41.0
Pt. Coquitlam	9	8540	920	9460	14	179712	84659	264371	21.04	92.02	27.95	1090200	24.2		53.8
Pt. Moody	9	19530	1972	21502	13	296406	148282	444688	15.18	75.19	20.68	2366700	18.8		54.1
Richmond	9	23110	5202	28312	12	268638	296121	564759	11.62	56.92	19.95	3447500	16.4		45.2
West Vanc.	9	14165	1857	16022	11	93327	65011	158338	6.59	35.00	9.88	1652800	9.6		31.8
		<u>391420</u>	<u>87062</u>	<u>478482</u>		<u>5159332</u>	<u>5228312</u>	<u>10387644</u>	<u>13.18</u>	<u>60.05</u>	<u>21.71</u>	<u>59281700</u>	<u>17.5</u>		<u>62.1</u>

Note: Based on July 31, 1975 rates

Effect of W.F. only

Part II

Section 6. EAS Revenue by Type of Service  
for Vancouver Complex

This section provides data with regard to the contribution that each type of service makes to the total EAS revenue.

Following are highlights of the table in this section:

	Ann EAS rev.	% of Tot. EAS rev.
Individual Res.	\$ <u>7351029</u>	<u>43.9</u>
Individual Bus	5853732	35.0
PBX trunks (both types)	<u>1973377</u>	<u>11.8</u>
	\$ 15178138	90.7

(Total EAS Rev. \$16,735,476)

Note: As covered in a previous section a few auxiliary service items were omitted from the EAS analysis but these produce a relatively minor amount of EAS revenue and their exclusion is insignificant in the overall figures.

EAS Rev. Residence Ann. \$EAS Rev. Business Ann. \$

	<u>Ind.</u>	<u>2 pty</u>	<u>Multi Pty</u>	<u>Tot.</u>	<u>Ind.</u>	<u>Meas.</u>	<u>Multi pty</u>	<u>1 way trk.</u>	<u>2 way trk.</u>	<u>Tot.</u>	<u>Res &amp; Bus Total</u>
Vancouver	25818.00	448800	162	3030762	2818560	175508	134	649980	633420	4277602	7308364
Cloverdale	127260	21900	13328	162488	121680	1410	1327	8169	16338	148924	311412
White Rock	356580	72270	20520	449370	150972	5640	569	2334	8169	166784	616154
Ladner	288900	23040	6612	318552	126480	4275	1050	6510	13020	151335	469887
Langley	328020	51750	44460	424230	290160	4080	2958	4272	27768	329238	753468
Newton	457560	44388	18480	520428	200880	4500	929	13272	25596	245177	765605
Whalley	564450	66000	8400	638850	324720	4185	134	29085	41550	399674	1038524
New West.	499200	132660	486	632346	493680			55080	97920	646680	1279026
N. Vancouver	553905	72414	1452	627771	360360		396	41580	51480	453816	1081587
Pt. Coquitlam	271584	57768	9024	338376	131760	5700	170	2722	12564	152916	491292
Pt. Moody	515160	80784	5670	601614	210330	3720	470	14958	41550	271028	872642
Richmond	510600	104130	2976	617706	479250	2880	115	56880	92430	631555	1249261
W. Vancouver	296010	28215	1404	325629	145800		95	11880	14850	172625	498254
<b>Total</b>	<b>7351029</b>	<b>1204119</b>	<b>132974</b>	<b>8688122</b>	<b>5853732</b>	<b>211898</b>	<b>8347</b>	<b>896722</b>	<b>1076655</b>	<b>8047354</b>	<b>16735476</b>

Based on rates effective August, 1975

Part II

Section 7. Estimate of EAS Revenue  
for Entire B.C. Tel. Co.

This section deals with an attempt to estimate the total EAS revenue for the entire B.C. Telephone Co. Again it must be mentioned that the basic development data necessary to determine EAS effect was made available only for the Vancouver complex. Therefore any estimate of the total B.C. Tel. effect will necessarily be based on the Vancouver data.

The EAS revenue per main station for Vancouver as contained in Part II section 4 is \$34.98 per annum. This figure might be a high average for the entire B.C. Tel. territory. However with the high weighting factors applying throughout, a figure of about \$30.00 per main station may not be unrealistic. Also the Vancouver EAS would weigh heavily on the total company figure. Of the total main stations in B.C. Tel. of 882,000, there are 478,500 in the Vancouver complex or about 55%. Of the total of 882,000 there are 801,700 involved in EAS. As a percentage of total main stations in EAS arrangements Vancouver represents about 60%.

Assuming an annual EAS rev. per main station of \$30.00 per annum and applying it to the main stations involved in EAS produces the following

$$801,700 \times 30.00 = \$24,051,000$$

The Vancouver EAS revenue is \$16,735,500. This leaves only \$7,315,500 for the remainder of the province.

At best this method of projection can only be considered as speculation. However in the absence of concrete data, it gives some idea of the total EAS effect.

The total operating revenue for B.C. Tel. for 1974 (latest available) was shown in a Statistics Canada publication (confidential) as \$295,776,000 approximately. This includes all services -- toll, etc.

The figure of \$24,051,000 for EAS represents 8.1% of total revenues. This EAS figure is however based on higher rates than those prevailing in 1974 and therefore the % of total revenues based on 1974 rates would probably be slightly lower.



Part III

Comparison of Toronto and Vancouver

The table in this section comparing the two complexes is for the purpose of merely showing the effect of EAS in each case.

The table shows wide variations between the two in major areas. It is not intended however that definite conclusions be drawn from the data as to the merits of one vs. the other. There may be and probably are defensible reasons for the differences. However it may point to the necessity for further study of an economic nature to either confirm or deny the justification for the marked difference. It is obvious of course that the much more severe weighting factor plan in the case of B.C. as compared to Bell, contributes heavily to EAS revenues for the former company.

Further reference will be made to weighting plans in Part IV - "Commentary."

Comparison: Toronto EAS with Vancouver EAS

	<u>Toronto</u>	<u>Vancouver</u>
Exchanges in complex	24	13
Total telephones	1857684	747641
<u>Main Stations (basic services)</u>		
res.	870258	391420
bus.	277414	87062
tot.	1147672	478482
% tot. main to tot. tels.	61.8%	64.0%
<u>Ann. rev. from EAS (from basic services only)</u>		
res.	\$ 11954900	\$ 8688100
bus.	\$ 11765300	\$ 8047400
tot.	\$ 23720200	\$ 16735500
% EAS rev. provided by res.	50.4	51.9
% EAS rev. provided by bus.	49.6	48.1
ann rev. from <u>basic serv. incl.</u> EAS	\$151271110	\$ 59281700
ann rev. from basic serv. excl. EAS	\$127550900	\$ 42546200
% incr. ann. rev. due to EAS	18.6%	45.4%
<u>Ann. rev. from weighting factor only</u>		
res.	\$ 2680800	\$ 5159300
bus.	\$ 1735400	\$ 5228300
tot.	\$ 4416200	\$ 10387600
% W.F. rev. to tot. EAS rev.	18.5	62.1
<u>Ann. rev. incr. per basic service due to EAS</u>		
res.	\$13.74	\$22.20
bus.	42.41	92.43
avg. res.-bus.	20.67	34.98

Note: Revenue figures for Toronto based on rates Jan./76  
Revenue figures for Vancouver based on rates Aug./75



Part IV

Commentary

Extended Area Service(a) From customers' viewpoint

The customer is interested in, and will strive through organizations, political and otherwise, to have a service (bus. or res.) which provides a non-toll calling feature to the bulk of the territory called on a highly repetitive basis, and which could be considered within the person's community of interest.

In spite of quite noticeable increases in rates under EAS, in general there has been a very minor degree of negative reaction. The telephone company and others keep repeating that at some point development will be retarded. However considering what the public pays for other commodities most people still think telephone service is a bargain.

As mentioned elsewhere in this report it has been proved conclusively that customers who have been expending a certain amount for local service plus toll to nearby points, are willing to pay more in the form of an expanded local calling service. Under a toll system there is a tendency to exercise controls of one kind or another, and in general customers are glad to be free of this responsibility. The Canadian subscriber is oriented to the flat rate calling concept.

(b) From Telephone Co. Viewpoint

By converting short haul toll to local service there are substantial savings in billing mechanisms and general

administration. By having this toll incorporated in local service rates, the telephone company's revenues are more stabilized. Historically toll has tended to rise and fall with the state of the economy.

Another important factor is that by providing customers with a service, the scope of which meets most of their day-to-day needs without a toll charge, means a more satisfied public and a good image for the Company.

From a revenue standpoint there is some evidence from statements made by the companies that their EAS rating methods are not sufficiently compensatory to offset loss of toll. If this is indeed so, it seems incumbent on them to develop more appropriate plans. It is in the metro areas where this seems to be of greatest concern because of the tendency for EAS to become constantly more widespread in terms of distance from the core area which is of course the centre of attraction. However as industry migrates to the suburban areas, as it is doing on a large scale, the core area by itself is very gradually diminishing in importance in relation to the suburbs collectively. As time goes on therefore, and more outlying exchanges are added to the EAS, it may be necessary to provide a wider scope of service than heretofore. The time may arrive when customers will want universal calling throughout the entire EAS complex. The core area of course is the only exchange now enjoying this scope. The first fringes while having some restrictions, do have a quite broad

calling scope. In general the scope diminishes progressively, for 2nd and 3rd and 4th fringe exchanges.

In some quarters the view is held that the future of EAS is in the direction of optional service, and perhaps of the usage sensitive type.

Bell has experimented with optional plans as far back as the 1930's as mentioned in Part I of this report. There have been other trials in the Toronto complex since that time, but eventually the service has been converted to two-way non-optional flat rate service.

The latest experiment is Ajax-Pickering where a one-way optional flat rate service is offered to cover calls to Toronto, Scarborough and West Hill, the latter two being in a corridor position between Ajax-Pickering and Toronto. The latest word from Bell is that this service will be converted to two-way flat rate non-optional service some time in 1976.

In a metro area the problem with optional service is that it is only economically feasible from a facilities point of view to provide it in the smaller outlying point where there will be sufficient demand, the pull being inward to the core.

In the case of the large centre the number of customers interested in an optional plan to the suburb, in relation to the total customers in the large centre is so low as to make provision of facilities impractical and uneconomical. It is this imbalance situation which is a strong influence in

adopting a non-optional two-way plan.

B.C. Telephone for some time has offered a service entitled "Residence Optional Calling Plan." For a fixed monthly amount a customer is entitled to unlimited calling to another exchange (specified) within a range of 25 miles. This is intended as alternative to full EAS and in some cases a stop-gap. As of Oct. 1975 there were about 1700 ROCP subscribers.

### Weighting Plans

Weighting plans in both companies were intended as a means of at least partially offsetting toll loss in EAS situations.

While weighting plans have been recorded elsewhere in the report they are repeated here along with rate schedules of the two companies.

<u>Bell Canada</u>		<u>B.C. Tel. Co.</u>	
<u>Miles</u>	<u>W.F.</u>	<u>Miles</u>	<u>W.F.</u>
0-10	1	0-3	1
11-15	1.5	4-10	3
16-20	2.0	11-15	9
21-25	3.0	16-20	17
26-30	5.0	21-25	20
		26-30	23
		31-35	26
		36-40	29
		41-45	32

In the case of Toronto an exchange 26 miles from the core rather than 25 would result in adding 1,008,500 main telephones. In the case of Montreal, the same circumstances would add 1,436,800 main telephones

### Bell Rate Grouping

<u>Rate Group</u>	<u>Main Tels.</u>
3	1-1500
4	1501-3500
5	3501-7500
6	7501-15000
7	15001-35000
8	35001-75000
9	75001-175000
10	175001-500000
11	500001-1100000
12	1100001-1700000
13	1700001-2300000
14	2300001-2900000

Note: Prior to Jan. 1/76

Bell rate groups

were based on total

telephones. Both

Bell and B.C. are now

essentially on the

same basis.

### B.C. Rate Grouping

<u>Rate Group</u>	<u>Main Tels.</u>
*1	
2	1-1000
3	1001-4000
4	4001-12500
5	12501-30000
6	30001-75000
7	75001-145000
8	145001-300000
9	300001-550000
10	550001-1000000
11	1000001-1900000
12	1900001-3100000
13	3100001-4300000
14	4300001-5500000
15	5500001-6700000
16	6700001-7900000

\* Exchange with less

than 24 hour service.

It is worth mentioning here that the need to add another group to Bell's schedule may not be too far distant. One exchange in the Montreal EAS complex now has a weighted total main telephone figure of approximately 2,640,000 (estimated using a percentage of total telephones)

In the case of B.C. Tel. there are two exchanges with weighted main telephones of slightly over 6,000,000. With a top limit of 7,900,000 main telephones in the B.C. rate schedule, it would appear that the need for an additional rate group is further in the distance than in the case of Bell. However with the much more severe weighting plan in B.C. Tel, and if more exchanges are added, at further distances from Vancouver, this could accelerate the date when an additional group will be necessary.

Obviously the rate schedules in both cases are made to fit the weighting plan, and can therefore be considered a device or a means to an end.

As covered under Part II dealing with B.C. Tel. the revenue effect of the weighting factor is much greater than for Bell -- at least in comparing Vancouver and Toronto EAS complexes. Such a wide variation is difficult to comprehend. Both companies have stated that they do not feel their EAS plans are sufficiently compensatory. If this is so then it seems obvious that Bell is in a less favourable position than B.C. Tel. in this respect.

With weighting factors and related rate schedules in their present form it would of course be impossible to apply the B.C. rating plan to Bell. This has been tested during the analyses for this report, and the Bell rate schedule would have to be expanded to a top of at least 11,000,000 main telephones. This would involve a complete revision of the

rate schedule of Bell and probably considerable rate revisions.

It is interesting to note from the revenue analysis for the Toronto complex that while the weighting factor had an effect in raising rate levels to some degree, all 24 exchanges are in one group namely "12". It was intended to produce a rising gradation in rates moving outward from the core. In this respect the former incremental plan was more effective, at least for Toronto.

In the case of Montreal there is a spread in rates caused by the Weighting Factor. In one exchange the rates are based on Group 14 and a number of others on Group 13, while Montreal core is in Group 12. The rate spread from 12 to 14 is as follows:

	<u>Ind. Res.</u>	<u>Ind. Bus.</u>
Group 12	\$7.45	\$22.10
Group 14	8.65	25.70
% spread	16.1	16.3

For Vancouver there is a gradation in rates to the extent of 22% for individual business service and 20% for individual residence service. If Vancouver eventually reaches the proportions of Toronto, the B.C. Company will be faced with an expansion of its rate groups to a top limit of at least 11,000,000 main tels. to accomodate the weighting plan.

The weighting factor alone for Vancouver causes a revenue increase per main telephone of \$21.70 per annum while

the total EAS revenue for Toronto (including W.F.) produces \$20.75 per annum per main telephone.

#### Revenue Effect of EAS

While the revenue effect of EAS was determined only for the Vancouver and Toronto areas for reasons previously explained, it shows in both cases that the figure represents a significant segment of basic service revenues.

The traditional accounting methods showing the revenues from local service and toll are therefore not pure, and are likely to become more impure with time. Actually the EAS revenue is commuted toll and should be added to toll revenues. Whether the telephone companies could establish processes for extracting EAS revenues without undue cost is another question. A sampling process might suffice.

Likewise the revenue figures for so-called local service are being distorted by the inclusion of EAS revenues. They are further being distorted by the increasing extent to which local service facilities are being used in the completion of message toll traffic.

There may be some room therefore for an examination of accounting methods in view of the change and continually changing pattern of revenue derivation. The time may arrive with continued expansion of EAS when a division of revenue between local and toll will cease to have practical meaning.

### The Exchange

The foreword of this report related the traditional concept of the term "exchange."

With the widespread adoption of EAS, and particularly in metro areas, the exchange has lost most of its original meaning, and is now merely a point for message toll mileage measurement. Montreal has 37 exchanges (incl. Montreal) in its flat rate calling orbit. Toronto has 24 and Vancouver 13. For all practical purposes Montreal comprises 37 exchanges, likewise Toronto 24 and Vancouver 13.

In the larger exchanges such as the above 3, and also in some of their suburbs, there is more than 1 "wire centre." This is a term used to denote a location containing 1 or more central offices. One of these wire centres is chosen as the point from which mileages are measured for message toll purposes. With the exchange having lost its basic meaning, particularly in metro complexes, there seems to be merit in using wire centres at least for EAS measurements. To use wire centres for message toll measurements would of course require extensive and undoubtedly costly changes in switching and perhaps other facilities.

B.C. Telephone has already made a move in the direction of using wire centres in determining EAS mileage.

The idea of using wire centres other than that specified for message toll measurement, is not new in Bell Canada. Prior to the adoption of EAS, for example, in the

exchanges immediately adjacent to Toronto, there was a high development of what is termed "foreign exchange service." This provided Toronto service to a customer in the suburb, the rate being that for the same service in Toronto, plus a mileage charge based on the distance from the suburban exchange to the serving wire centre in Toronto. The serving wire centre was usually that nearest to the suburban exchange.

#### Final Comment

This report was undertaken for the primary purpose of providing the Department with as comprehensive a picture as practicable of EAS, its history, its current effect on customer rates, and its contribution to the revenues of the two Companies, namely, B.C. Tel. Co. and Bell Canada. While the EAS revenue contribution was confined to Toronto and Vancouver for practical reasons, the results for these two centres provides a representative sampling.

It is not intended as a means of reaching conclusions with regard to the appropriateness of any or all of its features and effects in either Company. Its purpose also was not directed toward making judgements as to the merits of one Company's plan versus the other.

However it does raise a number of important questions, which have current implications but perhaps more so for the future. It is anticipated therefore that the report will serve as a springboard to pursuing at least some of the more important of these, at sufficient depth to provide the required answers.

One overriding consideration is whether the Companies should be utilizing capital and other resources to expand EAS at this time, particularly in view of the present financial climate, and their continually climbing indebtedness.

Personal Note:

The author of this report is most grateful to Communications Canada for the opportunity to study EAS on its behalf. It is hoped that the contents of the report will prove to be of value in fulfilling the Department's role relative to its responsibility to the public and the telecommunications Companies which have the responsibility to supply service in all its forms.

S. F. Murby

February, 1976



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