THE DEMAND FOR MOBILES

IN

1980

TORONTO DISTRICT OFFICE

DEPARTMENT OF COMMUNICATIONS
ENVIRONMENTAL PLANNING
ECONOMIC SECTION

APRIL, 1972

PLAN

1. General information on mobiles in Toronto
2. Transportation Sector
3. Public Administration Sector
4. Public Utilities Sector
5. Construction Sector
6. Other Sectors
7. General Forecast

CONSTRAINTS

A) SCOPE

THE FOLLOWING FACTORS WERE NOT TAKEN INTO ACCOUNT AND THE STUDY IS, THEREFORE, CONSERVATIVE:

- MOBILES INCLUDED WALKIE-TALKIES AND RADIOS IN VEHICLES BUT EXCLUDED PAGING DEVICES
- DATA WAS PROVIDED ON A LICENSE BASIS, THE STUDY WAS ON A MOBILE BASIS. IN SOME SECTORS E.G. MUNICIPAL SERVICES, THE NUMBER OF LICENSES DID NOT EQUAL THE NUMBER OF MOBILES
- THE EXTENT OF USAGE OF LAND MOBILES WAS NOT KNOWN IN SOME SECTORS (IMPLEMENTATION OF LAND-MOBILES IN THE BUS SYSTEM IS A NEW PHENOMENON)

B) GEOGRAPHICAL

- THE REGION DEFINED AT FIRST (SOUTHERN ONTARIO) WAS REDUCED TO PETERBOROUGH, OSHAWA, TORONTO AS INFORMATION WAS PROVIDED ONLY FOR THESE THREE CITIES.
- SOME ORGANIZATIONS DEFINED THEIR OWN REGIONS, EX. ONTARIO HYDRO USES "CENTRAL REGION" AS A BASIS. CONSEQUENTLY, ESTIMATIONS HAD TO BE MADE.

C) ECONOMIC

- SEVERAL SECTORS, I.E. (FIRE AND POLICE SERVICES) ARE NOT PROFIT MAXIMIZING BUT SECURITY MAXIMIZING. THEREFORE, ECONOMIC ANALYSIS WAS NOT POSSIBLE
- ALL THE SECTORS WERE CORRELATED WITH THEIR SPECIFIC INDEX OF INDUSTRIAL PRODUCTION. HOWEVER, THIS DID NOT PROVE SATISFACTORY AS THE USE OF MOBILES OVER THE LAST 10 YEARS FOLLOWED AN EXPONENTIAL PATH. THIS IS A USUAL PHENOMENON WHEN A TECHNICAL INNOVATION IS INTRODUCED

Some Definitions:

DOC Toronto District Office = Toronto Metro

Peterborough

Oshawa

Mobiles = land-mobiles & portables

TORONTO DISTRICT

MOBILES

TORONTO AS PERCENTAGE OF CANADA

	%
1960	16.2
1961	16.5
1962	17.9
1963	21.1
1964	22.1
1965	23.1
1966	21.9
1967	21.5
1968	20.7
1969	20.6
1970	20.1

TORONTO DISTRICT

SECTORAL GROWTH OF MOBILES

1965-1970

Sector	Growth Mobiles	Percentage of Total %
Transportation	2,874	30.8
Public Utilities	1,061	11.4
Construction	914	9.8
Public Administration	883	9.4
Communication	847	9.1
Forestry	689	7.4
Manufacturing	642	6.9
Trade	566	6.1
Community, Business & Personal Service	573	6.1
Finance, Insurance & Real Estate	102	1.1
Agriculture	96	1.0
Mines	81	0.9
Total	9,328	100.0

TORONTO DISTRICT

	1965	1970
No. of Mobiles	7,986	17,314
Mobile per capita	.03	.06

1965-1970

Average Annual Growth

16.8%

MOBILES IN THE TORONTO DISTRICT

PERCENTAGE DISTRIBUTION

1970

SECTOR	%	CUMULATIVE %
TRANSPORTATION	28.8	28.8
PUBLIC ADMINISTRATION	15.2	44.0
PUBLIC UTILITIES	12.8	56.8
FORESTRY	8.9	65.7
COMMUNICATION	8.6	74.3
MANUFACTURING	7.5	81.8
CONSTRUCTION	6.8	88.6
COMMUNITY, BUSINESS & PERSONAL SERVICE	5.1	93.7
TRADE	4.4	98.1
AGRICULTURE	0.7	98.8
FINANCE, INSURANCE & REAL ESTATE	0.7	99.5
MINES	0.5	100.0
TOTAL	100.0	

TRANSPORTATION SECTOR

(28.8 PERCENTAGE TOTAL-TORONTO DISTRICT)

TRANSPORTATION INDUSTRY ENCOMPASSES SUCH MODES AS:

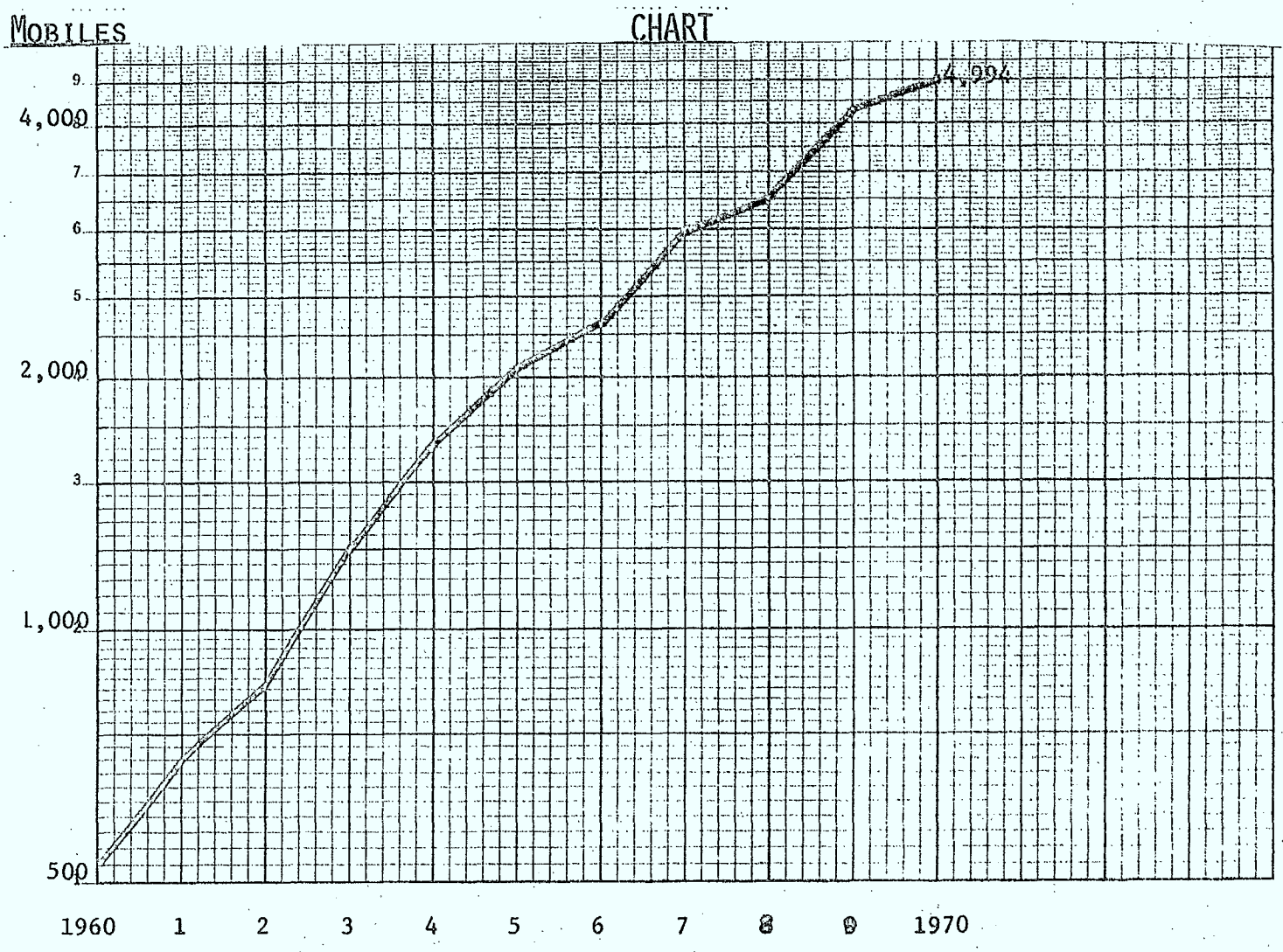
RAILWAYS

TRUCKS

WATER TRANSPORT

PUBLIC TRANSPORT.

TAXIS



TOTAL GROWTH 1960-1970 = 4,467 MOBILES

PERCENTAGE GROWTH 1960-1970 = 950%

AVERAGE ANNUAL PERCENTAGE GROWTH = 95%

TRANSPORTATION SECTOR

MOBILES

	1960	1970
TORONTO DISTRICT	527	4,994
CANADA	2,743	24,044
TORONTO DISTRICT AS A PERCENTAGE OF CANADA	19.2%	20.8%

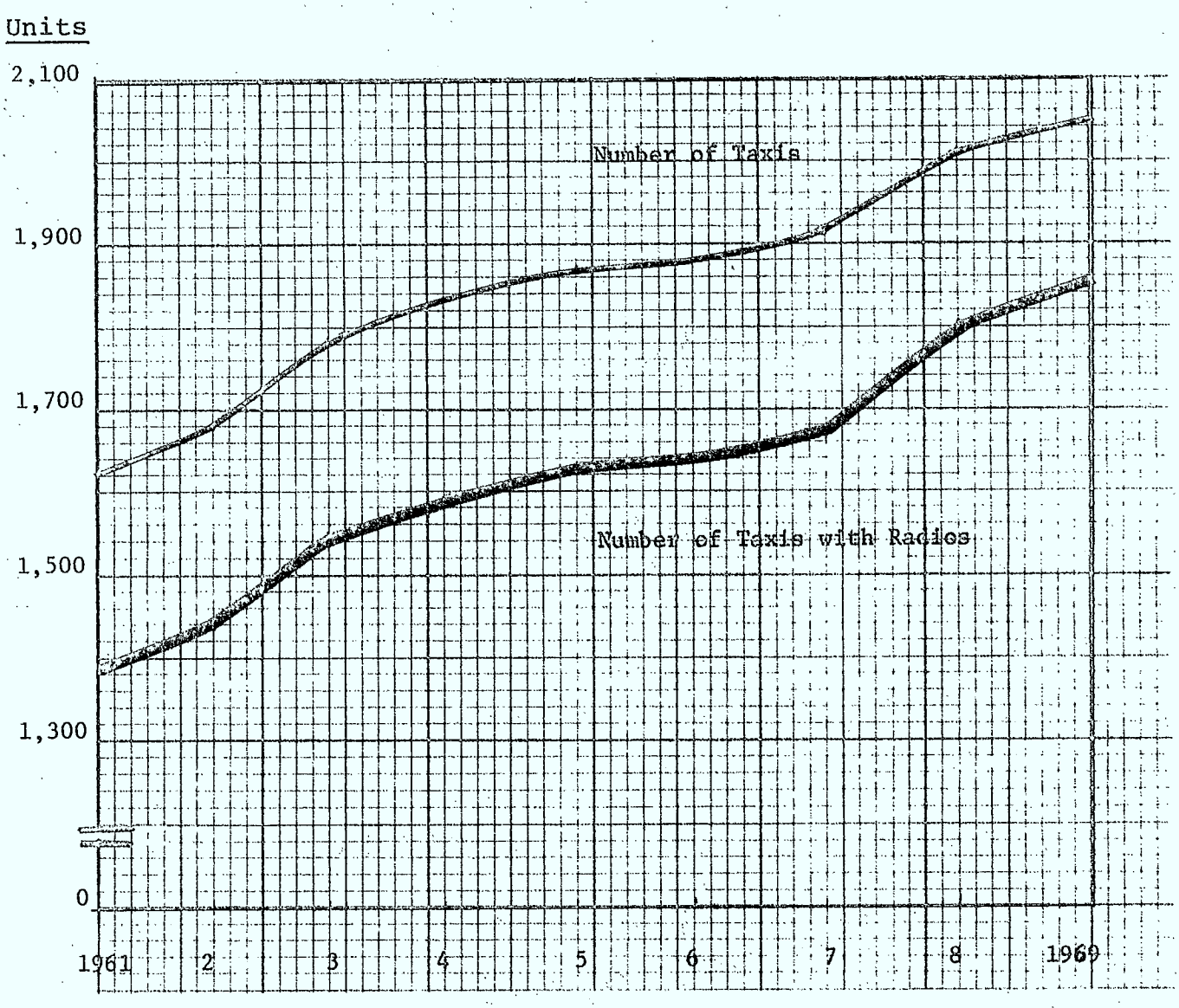
IN 1970 TORONTO DISTRICT ACCOUNTED FOR 10% OF TOTAL CANADIAN POPULATION.

IN THE TRANSPORTATION SECTOR, ONLY TAXIS AND PUBLIC TRANSPORT WILL BE ANALYSED.

IN 1969, TAXIS IN THE TORONTO DISTRICT USING MOBILES REPRESENTED 43% OF TOTAL MOBILES USED IN THE TRANSPORTATION SECTOR.

TORONTO DISTRICT

CHART



IN 1961, TORONTO DISTRICT HAD 1,395 TAXIS IN CIRCULATION USING RADIOS, REPRESENTING 85.6% OF TOTAL TAXIS.

THIS PROPORTION INCREASED TO 90.3% IN 1969 AND THE NUMBER OF TAXIS USING RADIOS ROSE TO 1,848.

TORONTO DISTRICT

NUMBER OF TAXIS

Year	TORONTO Total	TORONTO With Radios	PETERBOROUGH Total	OSHAWA Total	TOTAL Total	TOTAL With Radios
1961	1,553	1,320	40	35	1,628	1,395
1962	1,604	1,363	40	35	1,679	1,438
1963	1,713	1,473	40	35	1,788	1,548
1964	1,763	1,516	40	35	1,838	1,591
1965	1,791	1,558	40	35	1,866	1,633
1966	1,801	1,566	40	35	1,876	1,641
1967	1,840	1,619	40	35	1,915	1,674
1968	1,943	1,729	40	35	2,018	1,804
1969	1,971	1,773	40	35	2,046	1,848

TORONTO DISTRICT

TAXIS WITH RADIOS

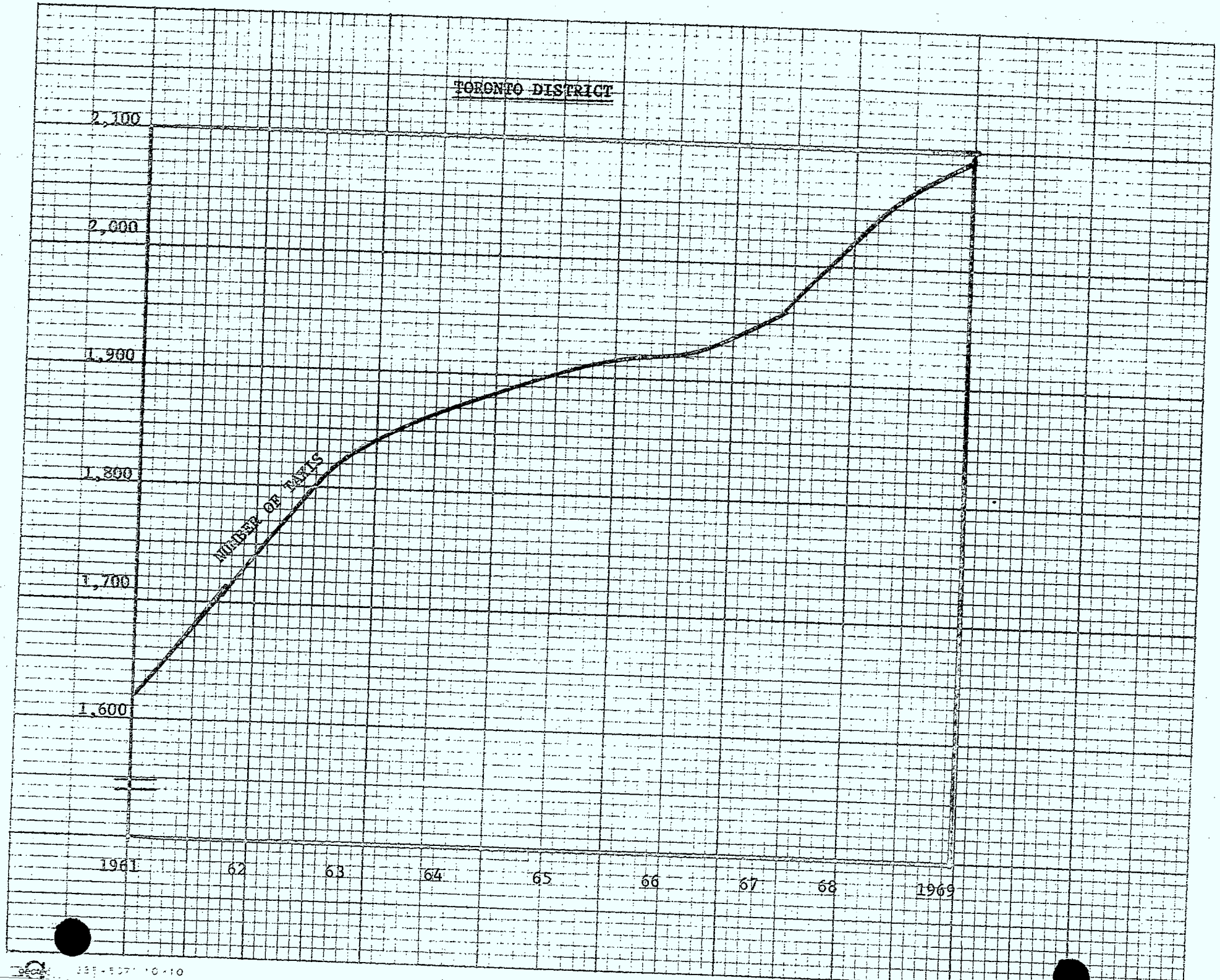
1961-1969

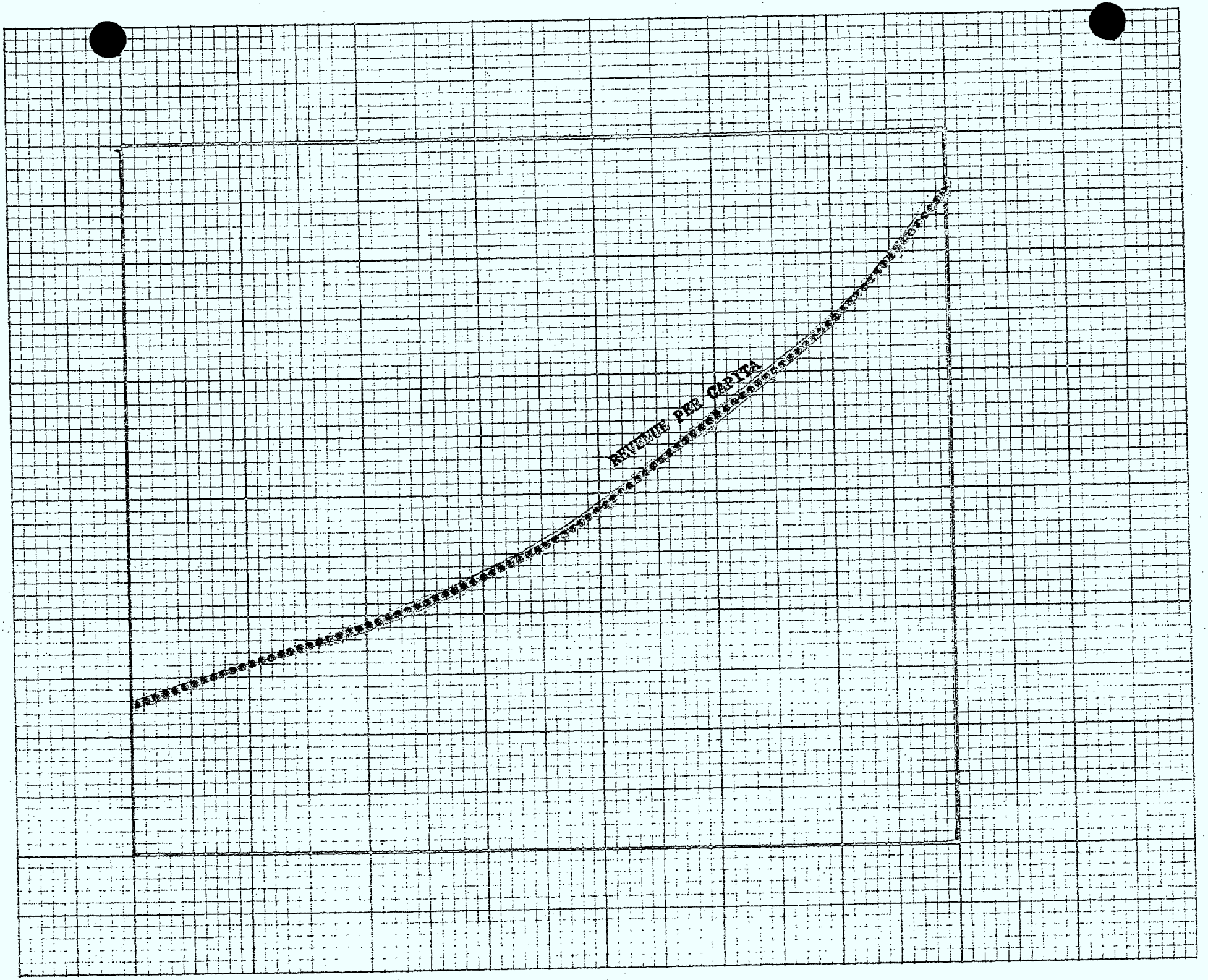
TOTAL GROWTH: 1,848 - 1,395 = 453

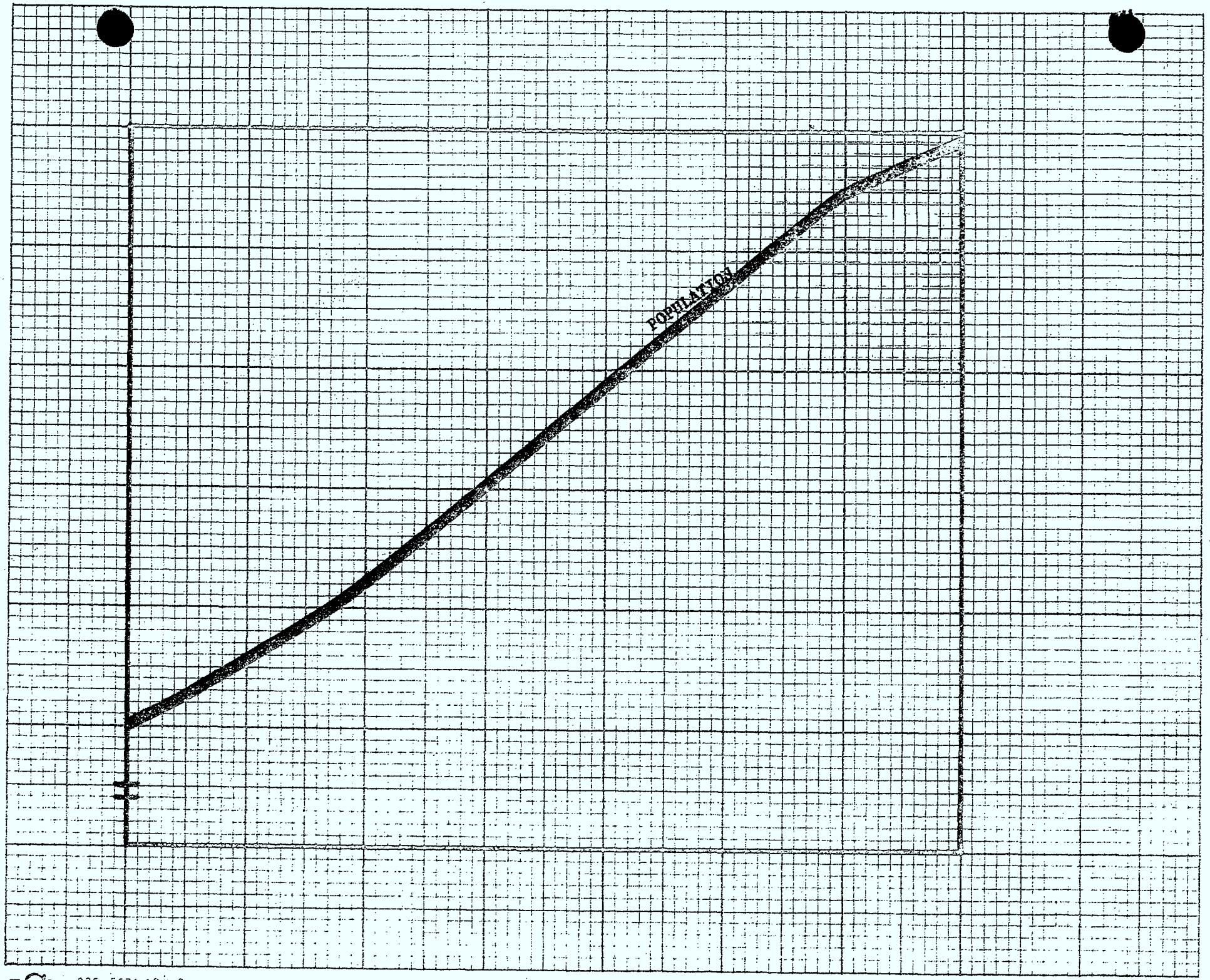
PERCENTAGE TOTAL GROWTH: 32.4%

PERCENTAGE ANNUAL GROWTH: 4.0%

PETERBOROUGH AND OSHAWA AS PERCENTAGE OF TOTAL (1961 TO 1969 AVERAGE) :4.6%


TORONTO DISTRICT
2,100
2,000
1,900
1,800
1,700
1,600
NUMBER OF TAXIS
1961
62
63
64
65
66
67
68
1969


REVENUE PER CAPITA



FORECASTING

(TAXIS IN TORONTO)

THE FOLLOWING REGRESSION EQUATIONS SHOWED THE BEST STATISTICAL RESULTS:

I) TAXIS IN TORONTO = 171.83 + 0.0627 REVENUE/CAPITA
(1.3)
+ 0.0007 POPULATION
(2.51)

R^2 = .95 D.W. = 1.5 N = 9

IT APPEARS THAT REVENUE PER CAPITA AND POPULATION FOR TORONTO EXPLAIN 95 PER CENT OF THE VARIANCE OF THE NUMBER OF TAXIS IN TORONTO

II) TAXIS IN TORONTO = 6.89 + 0.0008 POPULATION
(59.2)

R^2 = .99 D.W. = .96 N = 11

III) BASED ON THE ABOVE STATISTICAL ANALYSIS, THE FOLLOWING RESULTS WERE OBTAINED FOR 1980:

	1980 (FIRST EQUATION)	1980 (SECOND EQUATION)	1980 (AVERAGE)
TOTAL NUMBER OF TAXIS	2,896	2,430	2,663
TAXIS WITH RADIOS (ASSUMING THAT BY 1980 95% OF ALL TAXIS IN TORONTO WILL BE EQUIPPED WITH RADIOS)	2,751	2,308	2,530

In Summary:

Taxis with Radios

	Toronto	Toronto District
1969	1,773	1,848
1980	2,530	2,545

Taxis with Radios As Percentage Of Total Taxis

	Toronto %	Toronto District %
1969	89.9	90.3
1980	95.0	95.0

MUNICIPAL PUBLIC TRANSPORTATION

MAJOR FINDINGS:

TORONTO TRANSIT COMMISSION STUDY (TTC)

1. TTC'S SURFACE TRANSIT SYSTEM IS BOTH LARGE AND COMPLEX

2. SUCH A SYSTEM IS EXTREMELY DIFFICULT TO CONTROL WITHOUT AUTOMATED AIDS

3. THE SOLUTION IS TO USE MODERN RADIO COMMUNICATIONS AND CONTROL TECHNIQUES TO GATHER DATA AND EXERCISE CONTROL OVER THE SYSTEM AS A WHOLE

4. BENEFITS OF CONTROL:
   - A) IMPROVED SERVICE STANDARDS
   - B) REDUCED FIELD SUPERVISORY CONTROL
   - C) FASTER REACTION TO ACCIDENT, BREAKDOWN AND ADVERSE WEATHER
   - D) IMPROVED PUBLIC RELATIONS
   - E) BETTER PUBLIC AND OPERATOR SAFETY

TORONTO DISTRICT

TRANSPORTATION

BUSES

YEAR	*TORONTO PROJECTED		**OSHAWA PROJECTED		**PETERBOROUGH PROJECTED	
	TOTAL NUMBER OF BUSES	RADIO EQUIPPED NUMBER OF BUSES	TOTAL NUMBER OF BUSES	RADIO EQUIPPED NUMBER OF BUSES	TOTAL NUMBER OF BUSES	RADIO EQUIPPED NUMBER OF BUSES
1971	2,000	89	36	6	26	2
1980	2,500	2,500	50	50	30	30

SOURCES: * ELECTRICAL ENGINEERING ASSOCIATES LTD., A SURFACE TRANSIT CONTROL SYSTEM FOR METROPOLITAN TORONTO, TORONTO, 1968.

** TELEPHONE CONVERSATIONS WITH THE REPRESENTATIVES OF THE TRANSIT SYSTEM.

TRANSPORTATION SECTOR

FORECAST

BASED ON THE ABOVE ANALYSIS, IT IS EXPECTED THAT THE TRANSPORTATION SECTOR IN THE TORONTO DISTRICT WILL USE 12,813 MOBILES IN 1980.

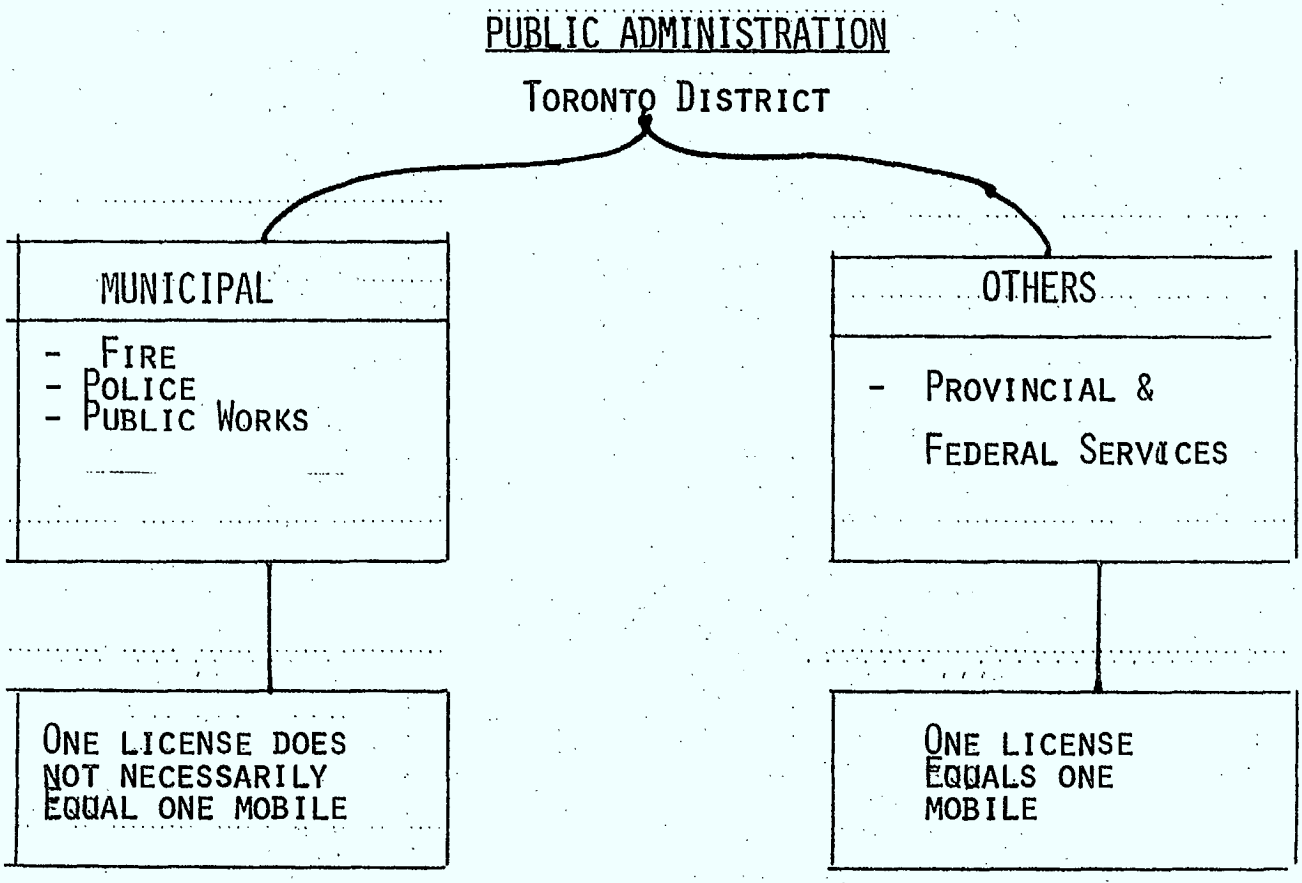
TORONTO DISTRICT

MOBILES

YEAR	TAXIS	BUSES	OTHER TRANSPORTATION*	TOTAL
1965	1,633	-	487	2,120
1969	1,848	89	2,367	4,304
1980	2,545	2,580	7,688	12,813

* MORE MOBILES ARE EXPECTED TO BE USED IN THE PROVINCIAL BUS SERVICES AS WAS THE CASE IN THE MUNICIPAL BUSES. MOVEROVER, OTHER MODES OF TRANSPORT, E.G., RAILWAYS, COMMERCIAL CARS, PRIVATE CARS, ETC., WILL FOLLOW THE SAME PATTERN AS ECONOMIC AND TECHNICAL FACTORS WILL ALLOW THIS MARKET PENETRATION.

PUBLIC ADMINISTRATION


PUBLIC ADMINISTRATION
TORONTO DISTRICT
MUNICIPAL
- FIRE
- POLICE
- PUBLIC WORKS
OTHERS
- PROVINCIAL & FEDERAL SERVICES
ONE LICENSE DOES NOT NECESSARILY EQUAL ONE MOBILE
ONE LICENSE EQUALS ONE MOBILE

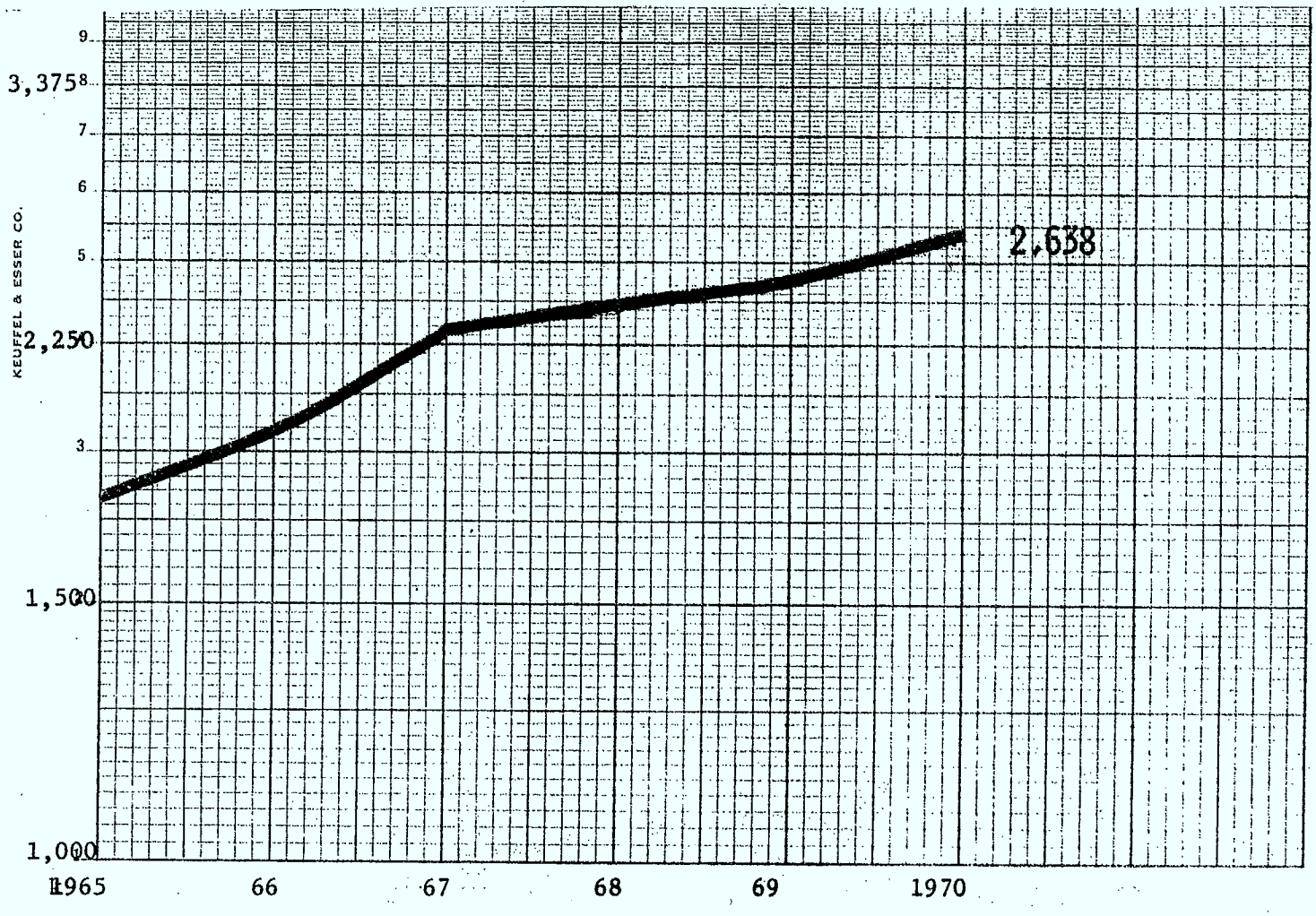
PUBLIC ADMINISTRATION SECTOR

(15.2 PERCENTAGE OF TOTAL - TORONTO DISTRICT)

THIS SECTOR COMPRISES: POLICE SERVICES
FIRE SERVICES
DEFENSE SERVICES
ON A FEDERAL, PROVINCIAL AND LOCAL BASIS

MOBILES

CHART



TOTAL GROWTH 1965-1970 = 883
PERCENTAGE GROWTH 1965-1970 = 50%
AVERAGE ANNUAL PERCENTAGE GROWTH = 10%

PUBLIC ADMINISTRATION SECTOR

IN THIS SECTOR, ONE LICENSE DOES NOT NECESSARILY COVER ONE MOBILE.

LICENSES

	1965	1970
TORONTO DISTRICT	442	1,062
CANADA	2,598	6,784
TORONTO AS A PERCENTAGE OF CANADA	17.0%	15.7

TORONTO DISTRICT

MUNICIPAL SERVICES

TO ARRIVE AT THE NUMBER OF MOBILES, WE USED DOC FILES AND OUR "MARKET SURVEY"

YEAR	TOTAL NUMBER OF MOBILES (DOC FILES)	NUMBER OF MOBILES FOR FIRE AND POLICE (MARKET SURVEY)	MOBILES USED IN FIRE AND POLICE AS % OF TOTAL MOBILES
1965	1,325	965	72.8
1966	1,414	992	70.1
1967	1,602	1,044	65.1
1968	1,624	1,135	69.8
1969	1,658	1,182	71.2
1970	1,827	1,231	67.3

ON AVERAGE MOBILES USED IN FIRE AND POLICE SERVICES REPRESENT ABOUT 70% OF TOTAL MOBILES USED IN MUNICIPAL SERVICES

TORONTO DISTRICT

PROVINCIAL & FEDERAL SERVICES

NUMBER OF MOBILES

YEAR	ONTARIO PROVINCIAL POLICE	RCMP	OTHERS	TOTAL
1965	298	78	54	430
1966	315	84	123	522
1967	339	83	258	680
1968	353	116	275	744
1969	387	139	256	782
1970	414	156	241	811

OVER THE PERIOD 1965-1970 OPP USED ON AVERAGE 55% OF TOTAL MOBILES IN THE PROVINCIAL AND FEDERAL SERVICES WHILE RCMP USED ON AVERAGE 16%

TORONTO DISTRICT

PUBLIC ADMINISTRATION

FORECAST

1) MUNICIPAL SERVICES

SEVERAL REGRESSION EQUATIONS WERE USED TO DETERMINE THE MAIN EXPLANATORY VARIABLES FOR MOBILES USED IN POLICE AND FIRE SERVICES. THE BEST RESULTS ARE SHOWN BELOW:

A) POLICE

MOBILES USED IN POLICE SERVICES = 138.34 + 0.0003214 POPULATION + 0.00195 CHARGES (3.4)
(2.8)

$R^2 = 0.97$ N = 8

TORONTO DISTRICT

MOBILES

YEAR	MUNICIPAL SERVICES	PERCENTAGE OF TOTAL	FEDERAL & PROVINCIAL SERVICES	PERCENTAGE OF TOTAL
1965	1,325	76	430	24
1966	1,414	70	522	30
1967	1,602	70	680	30
1968	1,624	69	744	31
1969	1,658	68	782	32
1970	1,827	69	811	31

B) FIRE

DIFFERENT EXPLANATORY VARIABLES WERE USED, E.G., POPULATION, FIRE CALLS...TO DETERMINE THE NEED FOR MOBILES IN FIRE SERVICES. HOWEVER, NONE PROVED SATISFACTORY AND A SIMPLE LINEAR EXTRAPOLATION WAS FINALLY APPLIED YIELDING A 4.6% GROWTH RATE PER ANNUM.

C) OTHER MUNICIPAL SERVICES

BASED ON THE FACT THAT MOBILES USED IN POLICE AND FIRE SERVICES REPRESENTED A CONSTANT SHARE OF TOTAL MOBILES IN MUNICIPAL SERVICES (70%), AN AVERAGE GROWTH RATE OF FIRE AND POLICE SERVICES WAS APPLIED TO "OTHER MUNICIPAL SERVICES".

MUNICIPAL SERVICES

TORONTO DISTRICT

MOBILES

	POLICE	FIRE	OTHERS	TOTAL
1970	931	300	596	1,827
1980	1,221	438	834	2,493

TORONTO DISTRICT

FORECAST

2) PROVINCIAL AND FEDERAL SERVICES

ONTARIO PROVINCIAL POLICE AND RCMP ANTICIPATE A MORE EXTENSIVE USE OF MOBILES OVER THE NEXT TEN YEARS:

	OPP	RCMP	OTHERS*	TOTAL
1970	414	170	227	811
1980	805	553	567	1,925

* AN AVERAGE RATE WAS USED, KEEPING THE SHARE OF THIS SECTOR CONSTANT AT AROUND 27%

PUBLIC ADMINISTRATION

TORONTO DISTRICT

FORECAST

	POLICE	FIRE	OPP	RCMP	OTHERS	TOTAL
1970	931	300	414	170	823	2,638
1980	1,221	438	805	553	1,401	4,418

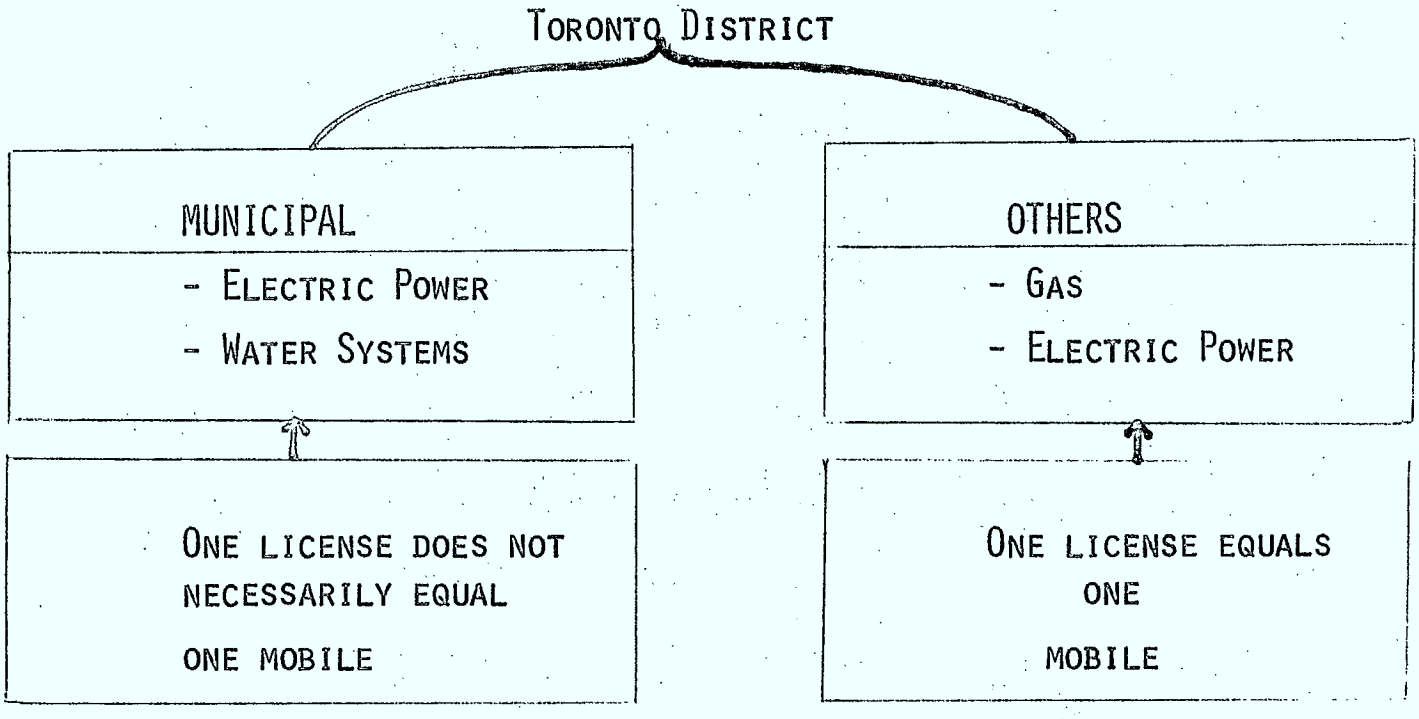
PUBLIC UTILITIES SECTOR

(12.8 % OF TOTAL - TORONTO DISTRICT)

THIS SECTOR INCLUDES:

ELECTRIC POWER
GAS DISTRIBUTION
WATER SYSTEMS
OTHER UTILITIES

PUBLIC UTILITIES



PUBLIC UTILITIES SECTOR

(12.8 PERCENTAGE OF TOTAL - TORONTO DISTRICT)

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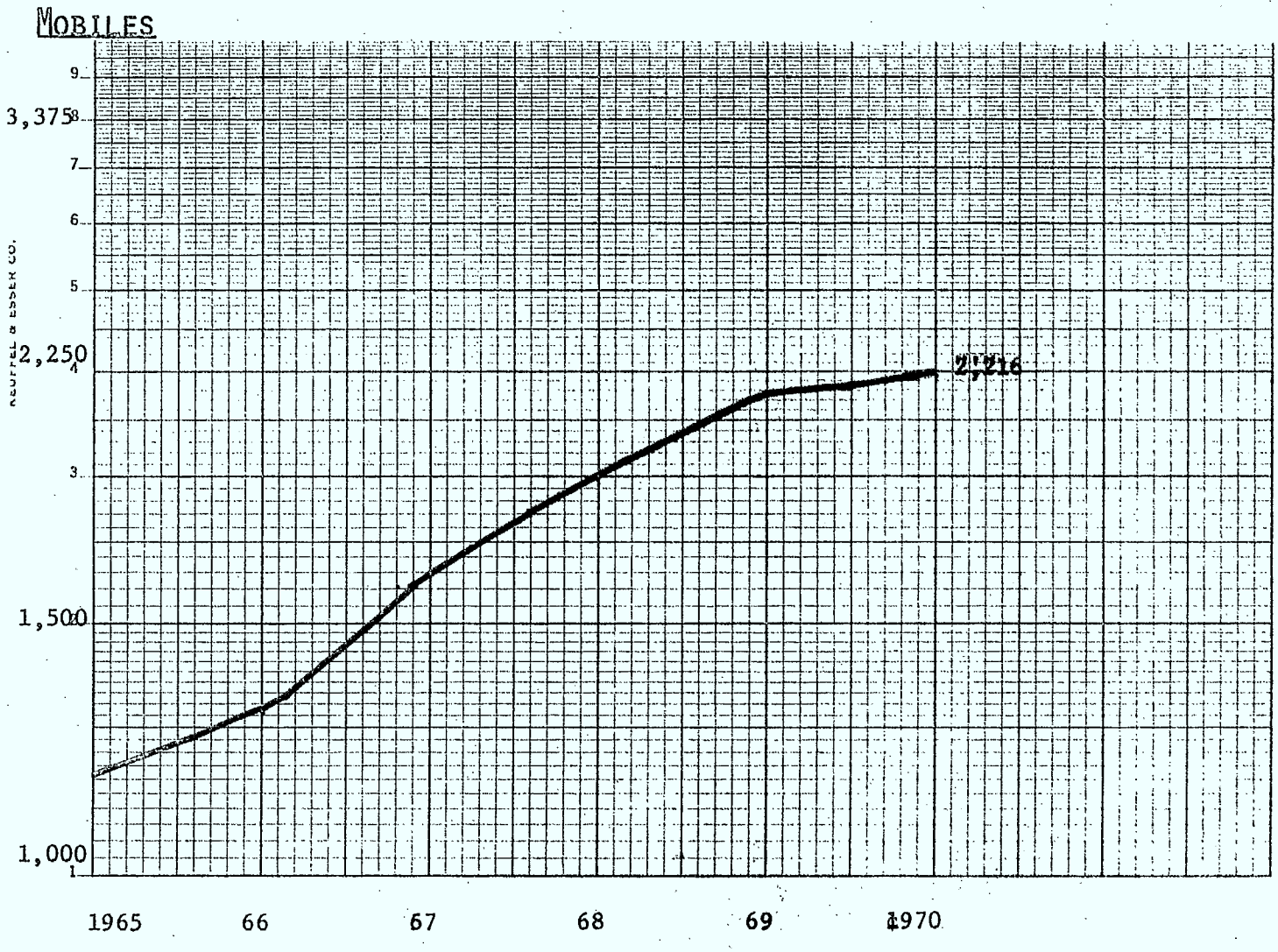


NUMBER OF MOBILES 1970 = 2,216

PERCENTAGE GROWTH 1968-1970 = 25%

PUBLIC UTILITIES

IN THIS SECTOR, ONE LICENSE DOES NOT NECESSARILY COVER ONE MOBILE.

LICENCES

	1965	1970
TORONTO DISTRICT	778	1,839
CANADA	3,325	6,997
TORONTO AS A PERCENTAGE OF CANADA	23.3%	26.2%

PUBLIC UTILITIES

TORONTO DISTRICT

TO ARRIVE AT THE NUMBER OF MOBILES, WE USED DOC FILES AND OUR "MARKET SURVEY"

YEAR	LICENSES	MOBILES
1965	778	1,155
1966	888	1,278
1967	1,219	1,609
1968	1,471	1,861
1969	1,756	2,146
1970	1,839	2,216

PUBLIC UTILITIES

(12.8%)

FORECAST

1) MUNICIPAL SERVICES

THE MARKET SURVEY CONDUCTED BY ENVIRONMENTAL PLANNING SHOWS THAT THIS SECTOR IS EXPECTED TO USE 526 MOBILES BY 1980.

2) OTHERS

USING SOME MARKET INFORMATION AND PAST TRENDS, A LEVEL OF 3,900 MOBILES WAS ESTIMATED FOR 1980.

PUBLIC UTILITIES

YEAR	MUNICIPAL SERVICES	OTHERS	TOTAL
1970	390	1,826	2,216
1980	526	3,900	4,426

CONSTRUCTION

CONSTRUCTION SECTOR

METHODOLOGY

1) ONLY "RESIDENTIAL CONSTRUCTION" STATISTICS ARE AVAILABLE FOR TORONTO DISTRICT

2) RESIDENTIAL AND NON-RESIDENTIAL STATISTICS ON A "NATIONAL ACCOUNT" BASIS ARE AVAILABLE FOR CANADA ONLY

3) AVERAGE VALUE OF A RESIDENTIAL UNIT FOR 1970 FOR CANADA AND THE TORONTO DISTRICT WAS:

ESTIMATED VALUE OF UNIT OF CONSTRUCTION

	1970
	$
CANADA	13,922
TORONTO DISTRICT	18,238

4) USING THE VALUE OF UNIT OF CONSTRUCTION WE CAN ESTIMATE THE VALUE OF TOTAL RESIDENTIAL CONSTRUCTION FOR THE TORONTO DISTRICT

TORONTO DISTRICT

	UNITS CONSTRUCTED	VALUE OF RESIDENTIAL CONSTRUCTION ($ MILLIONS)
1965	34,968	559
1966	23,393	385
1967	33,252	559
1968	39,218	674
1969	34,150	614
1970	32,330	589

CONSTRUCTION SECTOR

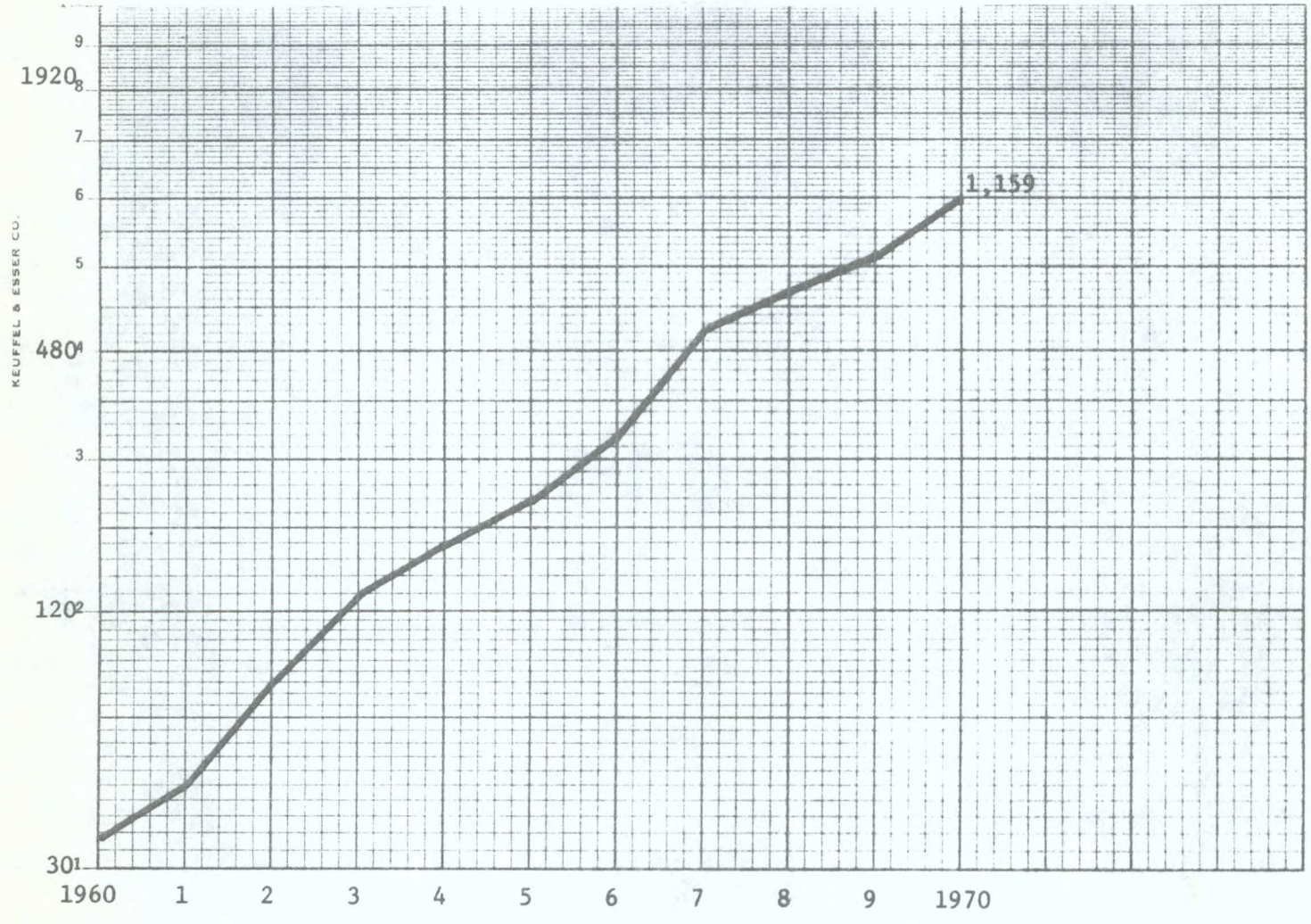
(6.6% OF TOTAL - TORONTO DISTRICT)

THE CONSTRUCTION INDUSTRY COMPRISES TWO SECTORS:

1) RESIDENTIAL CONSTRUCTION: SINGLE DETACHED
MULTIPLE UNITS
APARTMENTS

2) NON-RESIDENTIAL CONSTRUCTION: RETAIL OUTLETS
INSTITUTIONAL BUILDINGS
INDUSTRIAL BUILDINGS

MOBILES CHART



TOTAL GROWTH 1969-1970 = 1,121 MOBILES

PERCENTAGE GROWTH 1968-1970 = 202%

6) DETERMINE THE NUMBER OF MOBILES PER DOLLARS OF CONSTRUCTION

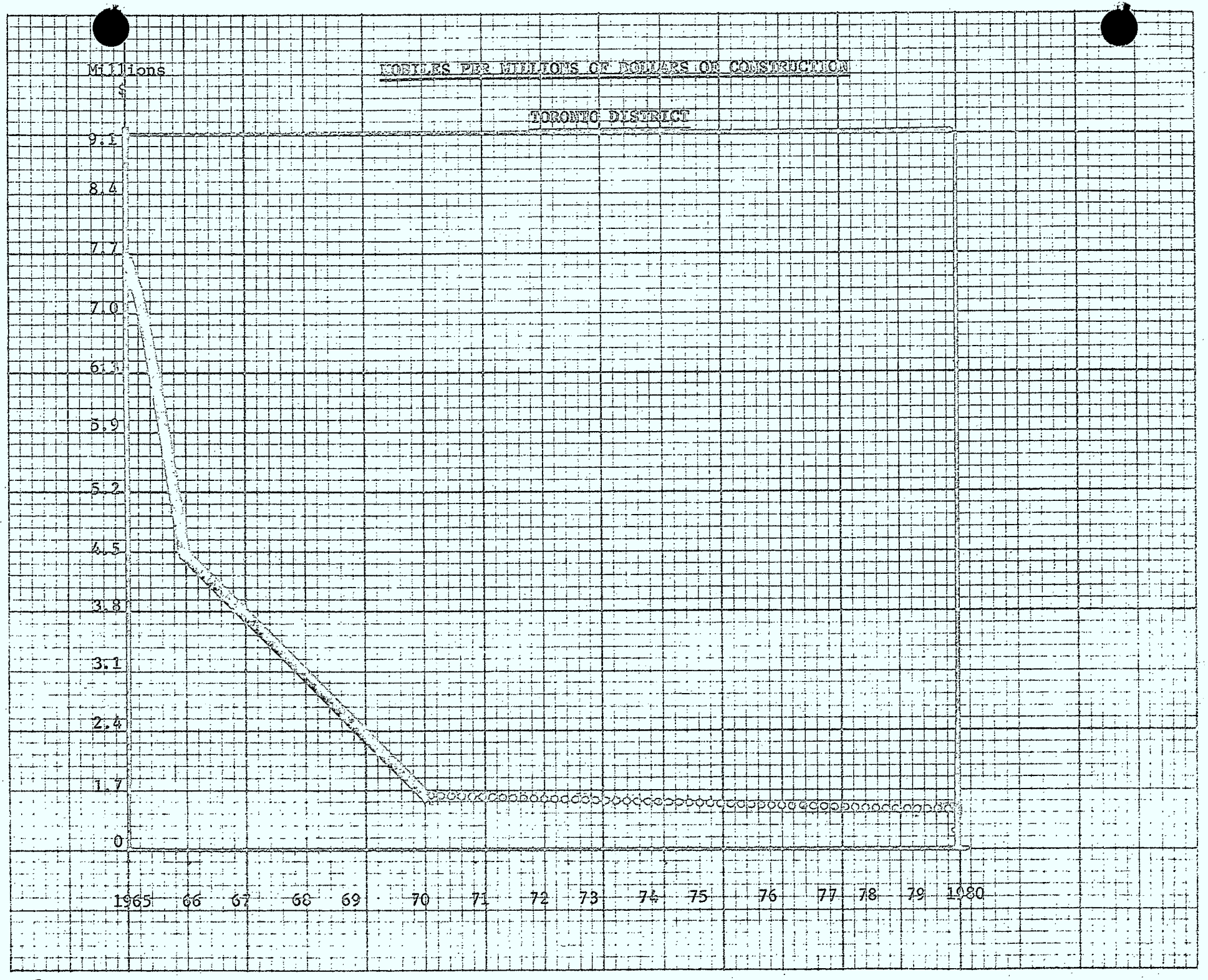
TORONTO DISTRICT

YEAR	VALUE OF TOTAL CONSTRUCTION $	MOBILES	MOBILE PER MILLIONS OF DOLLARS OF CONSTRUCTION $
1965	1,828	245	7.46
1966	1,426	325	4.38
1967	2,052	554	3.70
1968	2,247	719	3.12
1969	1,883	884	2.13
1970	2,026	1,159	1.75

5) When the national ratio of residential to non-residential construction is applied to the Toronto District, the following values for non-residential construction are estimated:

TORONTO DISTRICT

Year	Residential Construction	Non-residential construction	Total construction
	---$ Millions---		
1965	559	1,269	1,828
1966	385	1,043	1,428
1967	559	1,494	2,053
1968	674	1,572	2,246
1969	614	1,269	1,883
1970	589	1,437	2,026


MOBILES PER MILLION'S OF DOLLARS OF CONSTRUCTION
TORONTO DISTRICT
Millions
9.1
8.4
7.7
7.0
6.3
5.9
5.2
4.5
3.8
3.1
2.4
1.7
0
1965
66
67
68
69
70
71
72
73
74
75
76
77
78
79
1980

CONSTRUCTION SECTOR

FORECAST

I) RESIDENTIAL CONSTRUCTION

1) SEVERAL REGRESSION EQUATIONS WERE DEVELOPED AS A TOOL TO FORECAST THE EXPECTED NUMBER OF UNITS TO BE CONSTRUCTED IN THE TORONTO DISTRICT IN 1980.

THE FOLLOWING EQUATION YIELDED THE BEST RESULTS:

LOG HOUSING STARTS IN TORONTO DISTRICT = -2.3515 + 1.2948 LOG HOUSING STARTS IN CANADA + .0046 TIME
(6.0) (1.3)

R^2 = .87 N = 16

SEVERAL ECONOMIC STUDIES WERE USED TO DETERMINE THE UNKNOWN IN THIS EQUATION I.E. HOUSING STARTS IN CANADA.

IT WAS FOUND THAT THE BASIC FORCES UNDERLYING THE TOTAL DEMAND FOR HOUSING ACCOMODATION ARE MUCH THE SAME AS FOR OTHER GOODS - POPULATION, INCOME, PRICES THE COST AND AVAILABILITY OF CREDIT AND CONSUMER PREFERENCES.

IN THE LONG RUN, HOWEVER, DEMOGRAPHIC FORCES ARE THE STRATEGIC FACTORS IN DETERMINING THE LEVEL OF HOUSING DEMAND, ESPECIALLY UNDER CONDITIONS OF RISING INCOMES.

SOLVING THE ABOVE EQUATION ONE OBTAINS 56,505 UNITS FOR THE YEAR 1980 FOR THE TORONTO DISTRICT.

2) THE VALUE PER UNIT OF CONSTRUCTION FOR THE TORONTO DISTRICT FOR 1980 WAS ESTIMATED AT $20,000. THIS REPRESENTS AN INCREASE OF LESS THAN 10% OVER THE WHOLE PERIOD. THIS MODEST INCREASE IS DUE TO THE CHANGE IN MIX IN RESIDENTIAL CONSTRUCTION (LESS SINGLE DETACHED AND MORE ROW AND APARTMENTS)

3) BASED ON THE AVERAGE UNIT COST, THE VALUE OF RESIDENTIAL CONSTRUCTION IN THE TORONTO DISTRICT IS EXPECTED TO AMOUNT TO $1,301 MILLION IN 1980

4) IN 1980 IT IS ESTIMATED THAT FOR EVERY $1 MILLION OF CONSTRUCTION, THERE WILL BE A NEED FOR ONE MOBILE

5) APPLYING THIS RATIO, WE COULD EXPECT 1,301 MOBILES TO BE USED IN THE RESIDENTIAL CONSTRUCTION SECTOR IN THE TORONTO DISTRICT IN 1980.

COST OF THIS EQUIPMENT WOULD BE USEFUL AND WE RECOMMEND THAT SUCH A STUDY BE LAUNCHED. ENVIRONMENTAL PLANNING IS WILLING TO PROVIDE AN INPUT IN SUCH A STUDY

c) WE BELIEVE THAT A HIGHER DEGREE OF INTEGRATION BETWEEN ENVIRONMENTAL PLANNING AND TELECOMMUNICATIONS REGULATION BRANCH AS FAR AS STUDIES RELATED TO "SPECTRUM MANAGEMENT" WOULD BE BENEFICIAL AND WE RECOMMEND THE FORMATION OF A "WORKING GROUP" WHICH SPECIFICALLY WILL LOOK INTO THE FOLLOWING THREE AREAS:

EXTENSION OF THE DEMAND FORECAST TO INCLUDE OTHER URBAN CENTRES AND OTHER USERS OF SPECTRUM

EVALUATE THE COSTS AND BENEFITS OF ALTERNATIVE METHODS OF RE-ALLOCATING SPECTRUM TO ALEEVIATE POTENTIAL SHORTAGES AS IDENTIFIED BY DEMAND FORECASTS

STUDY THE ECONOMICS OF NEW OR EXISTING EQUIPMENT IN RELATION TO INCREASING THE USABLE SUPPLY OF SPECTRUM

II NON-RESIDENTIAL CONSTRUCTION

USING THE RATIO OF RESIDENTIAL TO NON-RESIDENTIAL CONSTRUCTION, IT WAS ESTIMATED THAT BY 1980 3,173 MOBILES WILL BE EMPLOYED IN THE NON-RESIDENTIAL SECTOR

TOTAL

TORONTO DISTRICT

NUMBER OF MOBILES

YEAR	RESIDENTIAL CONSTRUCTION	NON-RESIDENTIAL CONSTRUCTION	TOTAL CONSTRUCTION
1960	17	21	38
1970	337	822	1,159
1980	1,301	3,173	4,474

OTHERS

TORONTO DISTRICT

"OTHERS"

THIS SECTOR COMPRISES:

	1970 PERCENTAGE OF TOTAL
FORESTRY	8.8
COMMUNICATION	8.5
MANUFACTURING	7.5
COMMUNITY, BUSINESS & PERSONAL SERVICES	5.1
TRADE	4.3
AGRICULTURE	0.7
FINANCE, INSURANCE & REAL ESTATE	0.6
MINES	0.5
	36.0

THIS REGROUPMENT WAS MADE COMPULSORY BECAUSE OF THE FOLLOWING REASONS:

1) LACK OF TIME
2) RELATIVELY SMALL SHARES OF THESE SECTORS

IN 1970 "OTHERS" REPRESENTED 36.0% OF TOTAL IN THE TORONTO DISTRICT.

TORONTO DISTRICT

"OTHERS"

PAST ANALYSIS

TORONTO VERSUS CANADA

1) FROM 1960 TO 1970, "OTHERS" IN TORONTO DISTRICT CONSTITUTES A 23.2% AVERAGE OF "OTHERS" IN CANADA. HOWEVER, SOME SECTORS HAVE MORE IMPORTANCE AND OTHERS FORM ONLY A MINOR SHARE OF THE TOTAL

NUMBER OF MOBILES IN TORONTO DISTRICT
AS PERCENTAGE OF CANADA

COMMUNICATIONS	46.6
FINANCE, INSURANCE & REAL ESTATE	26.9
COMMUNITY, BUSINESS & PERSONAL SERVICES	23.6
TRADE	20.0
MANUFACTURING	19.7
FORESTRY	17.8
AGRICULTURE	14.3
MINES	1.7

2) "FISHERIES" AND "MINING" SECTORS IN TORONTO DISTRICT CONSTITUTE A RELATIVELY SMALL SHARE OF THE CANADIAN SECTORS, WHILE THE SECTOR "COMMUNICATION" TAKES A SHARE UP TO 46.6%

TORONTO DISTRICT

FORECAST

	1970		1980	
	MOBILES	% OF TOTAL	MOBILES	% OF TOTAL
FORESTRY	1,537	24.4	2,600	17.6
COMMUNICATION	1,484	23.5	3,710	25.1
MANUFACTURING	1,307	20.7	2,500	17.0
COMMUNITY, BUSINESS & PERSONAL SERVICES	886	14.0	3,000	20.3
TRADE	757	12.0	2,000	13.5
AGRICULTURE	123	2.0	300	2.0
FINANCE, INSURANCE & REAL ESTATE	120	1.9	320	2.2
MINES	93	1.5	350	2.3
TOTAL	6,307	100.00	14,780	100.0
OTHERS % OF TOTAL		36.4		36.1

TORONTO DISTRICT

"OTHERS"

SOME MARKET INFORMATION

FORESTRY

- 20 PARKS WERE SURVEYED IN THE TORONTO DISTRICT. IT APPEARS THAT ALREADY THESE PARKS ARE EQUIPPED WITH RADIOS AND A MORE MODEST GROWTH IS EXPECTED OVER THE NEXT 8 YEARS

COMMUNITY, BUSINESS & PERSONAL SERVICES

THE USE OF MOBILES IN THIS SECTOR IS CONCENTRATED IN:

- SERVICES TO BUILDINGS AND DWELLINGS
- LABOUR ORGANIZATIONS AND TRADE ASSOCIATIONS
- HOSPITALS
- ENGINEERING & SCIENTIFIC SERVICES
- EDUCATION & RELATED SERVICES

THIS SECTOR EXPERIENCED A DRAMATIC GROWTH OVER THE PAST 10 YEARS

18 MOBILES IN 1960
886 MOBILES IN 1970

FURTHER MARKET PENETRATION IS FORESEEN AS ECONOMIC AND TECHNICAL FACTORS WILL INCITE FURTHER USE OF MOBILES, E.G. AMBULATORY SERVICES

THE TASK FORCE REPORTS ON THE COST OF HEALTH SERVICES IN CANADA (1) RECOMMEND THE FOLLOWING:

"GIVEN THE ELEMENT OF SUBSTITUTION BETWEEN BED FACILITIES AND AMBULATORY SERVICES, THE RECOMMENDATION TO LIMIT THE NUMBER OF BEDS MEANS BETTER USE OF AN AMBULATORY SERVICE"

COMMUNICATIONS

THIS SECTOR INCLUDES RADIO AND TELEVISION BROADCASTING, TELEPHONE SYSTEMS AND TELEGRAPH AND CABLE SYSTEMS, FURTHER STUDIES IN THIS SECTOR WILL BE NECESSARY.

(1) HOSPITAL SERVICES, BEDS & FACILITIES, TASK FORCE REPORTS ON THE COST OF HEALTH SERVICES IN CANADA, OTTAWA, QUEEN'S PRINTER, 1970

MOBILES
FORECAST

TORONTO DISTRICT

SECTOR	1970	1980	INCREASE MOBILES	ANNUAL % GROWTH
TRANSPORTATION	4,994	12,813	7,819	9.8
PUBLIC ADMINISTRATION	2,638	4,418	1,780	5.3
PUBLIC UTILITIES	2,216	4,426	2,210	7.2
FORESTRY	1,537	2,600	1,063	5.4
COMMUNICATION	1,484	3,710	2,226	9.6
MANUFACTURING	1,307	2,500	1,193	6.7
CONSTRUCTION	1,159	4,474	3,315	14.5
COMMUNITY & BUSINESS SERVICES	886	3,000	2,114	13.0
TRADE	757	2,000	1,243	10.2
AGRICULTURE	123	300	177	9.3
FINANCE, INSURANCE & REAL ESTATE	120	320	100	10.3
MINES	93	350	257	14.2
TOTAL	17,314	40,911	23,497	9.0

AVERAGE ANNUAL GROWTH
1965-1970 = 16.8%
1970-1980 = 9.0%

MOBILES
FORECAST
TORONTO DISTRICT

	1970	1980	Percentage of Total 1970	1980
TRANSPORTATION	4,994	12,813	28.8	31.3
PUBLIC UTILITIES	2,216	4,426	12.8	10.8
CONSTRUCTION	1,159	4,475	6.8	11.0
PUBLIC ADMINISTRATION	2,638	4,418	15.2	10.8
SUB TOTAL	11,007	26,131	63.6	63.9
OTHERS	6,307	14,780	36.4	36.1
TOTAL	17,314	40,911	100.0	100.0

MOBILES

FORECAST

TORONTO DISTRICT

SECTOR	INCREASE MOBILES 1970-1980	PERCENTAGE RATE OF INCREASE
TRANSPORTATION	7,819	33.3
CONSTRUCTION	3,315	14.1
COMMUNICATION	2,226	9.5
PUBLIC UTILITIES	2,210	9.4
COMMUNITY & BUSINESS SERVICES	2,114	9.0
PUBLIC ADMINISTRATION	1,780	7.6
TRADE	1,243	5.3
MANUFACTURING	1,193	5.1
FORESTRY	1,063	4.5
MINES	257	1.1
AGRICULTURE	177	0.7
FINANCE INSURANCE & REAL ESTATE	100	0.4
TOTAL	23,497	100.00

MAJOR FINDINGS & RECOMMENDATIONS

1) MARKETING

A) IDENTIFY THE DISTRICT OF TORONTO AS A GROWTH AREA

B) IDENTIFY THE SECTORS WHICH WILL BE RESPONSIBLE FOR THAT GROWTH

C) WE RECOMMEND THAT MORE MARKET ANALYSIS SHOULD BE DEVELOPED FOR SOME SECTORS, E.G. THE COMMUNICATIONS SECTOR

D) WE RECOMMEND THAT THE STUDY SHOULD BE EXTENDED TO OTHER URBAN CENTRES, E.G. VANCOUVER

E) WE RECOMMEND THAT THE STUDY SHOULD BE EXTENDED TO OTHER USERS OF THE SPECTRUM, E.G. BROADCASTING

2) STATISTICAL PROBLEMS

A) STATISTICS PROVIDED BY DOC COVERS ONLY THE NUMBER OF LICENSES. WE RECOMMEND THAT THE NUMBER OF MOBILESSHOULD ALSO BE COLLECTED AND MAINTAINED

B) NO STATISTICS ON PAGING DEVICES ARE AVAILABLE. WE RECOMMEND THAT DOC COLLECT AND MAINTAIN SUCH STATISTICS BY USERS ON A REGIONAL BASIS

3) POLICY IMPLICATIONS

THIS STUDY COULD PROVIDE AN INPUT IN THE FOLLOWING AREAS:

A) RE-ALLOCATION OF THE GIVEN SUPPLY OF THE SPECTRUM BY TYPE OF USERS (JOHN MCMANUS STUDY)

B) GIVEN THE EXPECTED SPECTACULAR GROWTH IN MOBILE USAGE IN THE TORONTO DISTRICT, ONE CAN ANTICIPATE FURTHER TECHNOLOGICAL DEVELOPMENT IN ORDER TO INCREASE THE USABLE SPECTRUM. WE FEEL THAT A STUDY ON THE HARDWARE USED AND THE

COST OF THIS EQUIPMENT WOULD BE USEFUL AND WE RECOMMEND THAT SUCH A STUDY BE LAUNCHED. ENVIRONMENTAL PLANNING IS WILLING TO PROVIDE AN INPUT IN SUCH A STUDY

c) WE BELIEVE THAT A HIGHER DEGREE OF INTEGRATION BETWEEN ENVIRONMENTAL PLANNING AND TELECOMMUNICATIONS REGULATION BRANCH AS FAR AS STUDIES RELATED TO "SPECTRUM MANAGEMENT" WOULD BE BENEFICIAL AND WE RECOMMEND THE FORMATION OF A "WORKING GROUP" WHICH SPECIFICALLY WILL LOOK INTO THE FOLLOWING THREE AREAS:

EXTENSION OF THE DEMAND FORECAST TO INCLUDE OTHER URBAN CENTRES AND OTHER USERS OF THIS SPECTRUM

EVALUATE NEW CRITERION WHICH COULD BE USED FOR A BETTER PLANNING OF THE SPECTRUM

STUDY THE ECONOMICS OF NEW OR EXISTING EQUIPMENT