SLIDE PRESENTATION
ON
DATA COORDINATION
FOR
STANDING COMMITTEE ON REGIONAL DEVELOPMENT

PRÉSENTATION DE DIAPOSITIVES
SUR LA SECTION
COORDINATION DES DONNÉES

LE COMITÉ PERMANENT SUR LE DÉVELOPPEMENT RÉGIONAL

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PRIORITIES

MINISTER/DEPUTY CALL LETTER, JANUARY 13, 1981

"AS GUIDANCE IN PREPARING PART II OF THE PLAN, YOU SHOULD DEFINITELY KEEP IN MIND THE FOLLOWING;

- A HIGH PRIORITY SHOULD BE GIVEN TO THE DEVELOPMENT AND IMPLEMENTATION OF AN INTEGRATED STRATEGY AND MULTI-YEAR WORK PROGRAM TO TILT AND TAILOR THE POLICIES AND PROGRAMS OF OTHER FEDERAL GOVERNMENT DEPARTMENTS, AGENCIES AND CROWN CORPORATIONS TO ACHIEVE THE FEDERAL GOVERNMENT'S REGIONAL POLICY OBJECTIVES;

- A PRIORITY SHOULD BE GIVEN TO DEVELOPMENT AND IMPLEMENTATION OF A MULTI-YEAR ANALYSIS, RESEARCH AND ASSESSMENT PROGRAM CONCERNING REGIONAL DEVELOPMENT OPPORTUNITIES, ISSUES AND PROBLEMS, INTER-DEPARTMENTAL PROJECTS, A REORIENTATION OF STATISTICS CANADA, ACTIVITIES WITH UNIVERSITIES INCLUDING FELLOWSHIPS, RESEARCH CONTRACTS AND POSSIBLY THE ESTABLISHMENT OF CENTRES FOR THE STUDY OF REGIONAL ECONOMICS, AND A SUSTAINABLE PUBLICATION PROGRAM.

INFORMATION

REVOLUTION

INFORMATION REVOLUTION

- Recent technological developments have created
  a world information revolution.

- Next two pages contain a brochure illustrating
  the colour television mapping system (DIDS)
  developed for the President of the United States.

- DREE is not presently at that stage but is working
  towards a similar goal.

- As far as is known, there are no other federal
  departments who are working on this type of system.
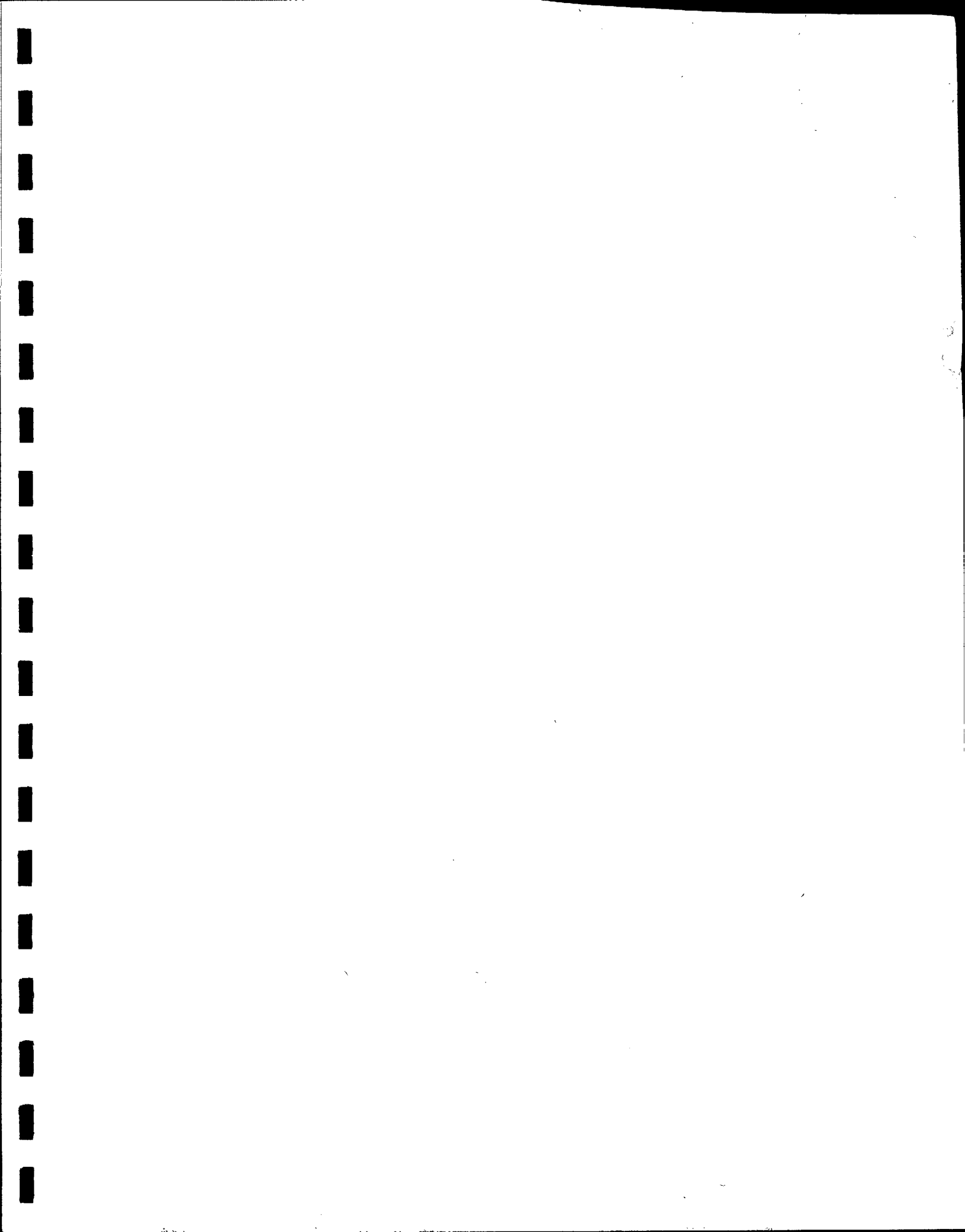
Domestic Information Display System (DIDS).

The system is being developed by more than 15 Federal agencies. It is a prototype of operational systems which will use public data and commercial hardware.

The system is questioned using a simple keyboard with a visual display. On the display, the system presents options of data based on the line of questioning of the decision–maker.

The system displays the data requested in color on simple geographic format for direct understanding.

For instance, green would indicate the highest income, while orange indicates the lowest income.

Flexibility is Built In.

The demonstration system approach for display of domestic information is inherently flexible. Its responses are easily tailored to the needs of the decision-maker.
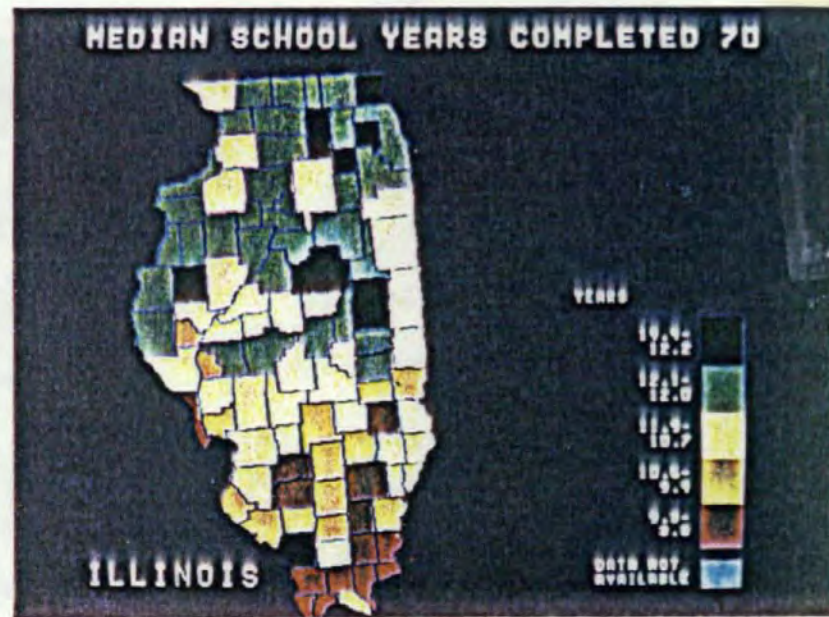
Display options are:

- Varying geographical coverage
- Progressive zoom
- Varying data ranges
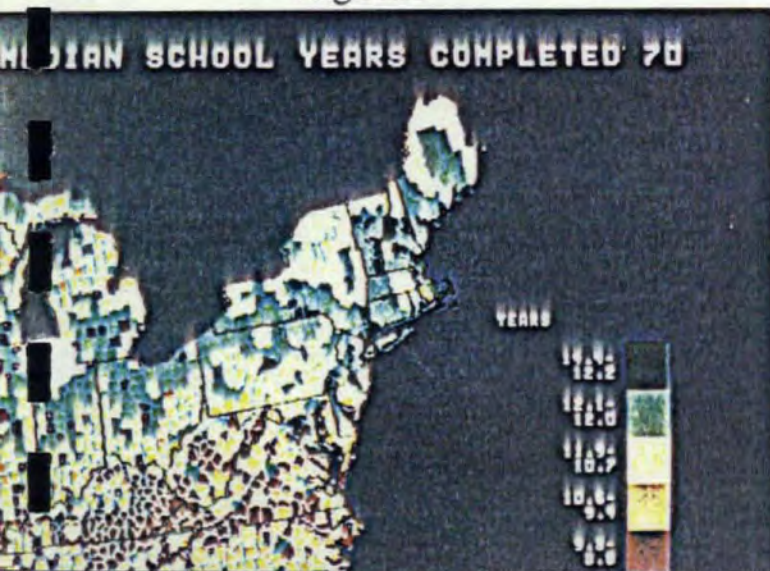- Varying colors
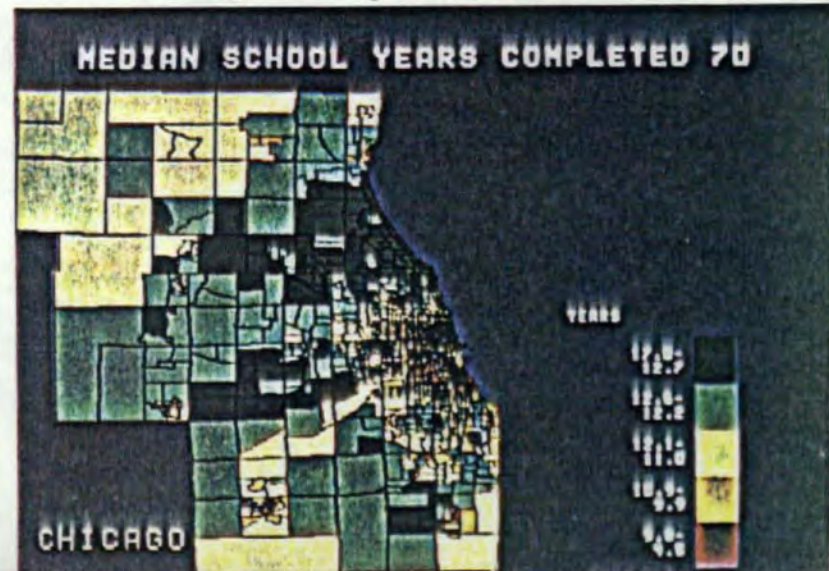- Comparing two variables
- Histogram

National
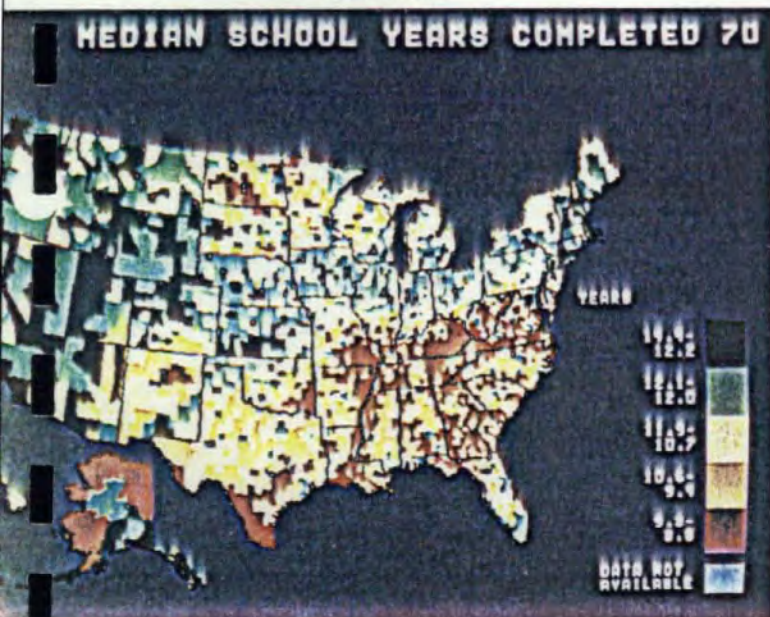
State

Regional

Standard Metropolitan Statistical Area

SMALL AREA DATA

- COMMUNITY

- COUNTY

- CONSTITUENCY

SMALL AREA DATA

- The key to a good information system is good
  data.

- Slide indicates what we mean by "Small Area
  Data" i.e. community, county, constituency.

- In order to be relevant, a data system must
  "reach people where they live".

WHY ?

* GENERATION AND MONITORING OF DREE
  PROGRAMS AND POLICIES

* ABILITY TO INFLUENCE OTHER GOVERNMENT
  DEPARTMENTS THROUGH UNIQUE AND
  POWERFUL DATA BASE

* PROVIDE MINISTER, MPs, AND SENIOR
  MANAGEMENT WITH BEST INFORMATION
  AVAILABLE

* SOLVE PROBLEMS QUICKLY

WHY?

- There are four main reasons for a small area
  data system.

- If we are to influence central agencies and
  departments with much larger budgets, we must
  have them depend upon DREE for small area
  information.

- We are aware that many times information is
  available, but it is not in a form that decision-
  makers can use, or it is not immediately accessible.

BUT WHY DREE ?

DREE's MANDATE

PRIORITY OF MR. DeBANÉ

HØRIZONTAL APPROACH; CUTS ACROSS SECTORS

INFLUENCE OTHER GOVERNMENT DEPARTMENTS

REACH PEOPLE WHERE THEY LIVE

UNIQUE RESOURCE

MOST EXTENSIVE SINGLE SOURCE OF SMALL AREA DATA
IN CANADIAN GOVERNMENT

FRONTIER OF TECHNOLOGICAL DEVELOPMENT
- COMPUTER GRAPHICS
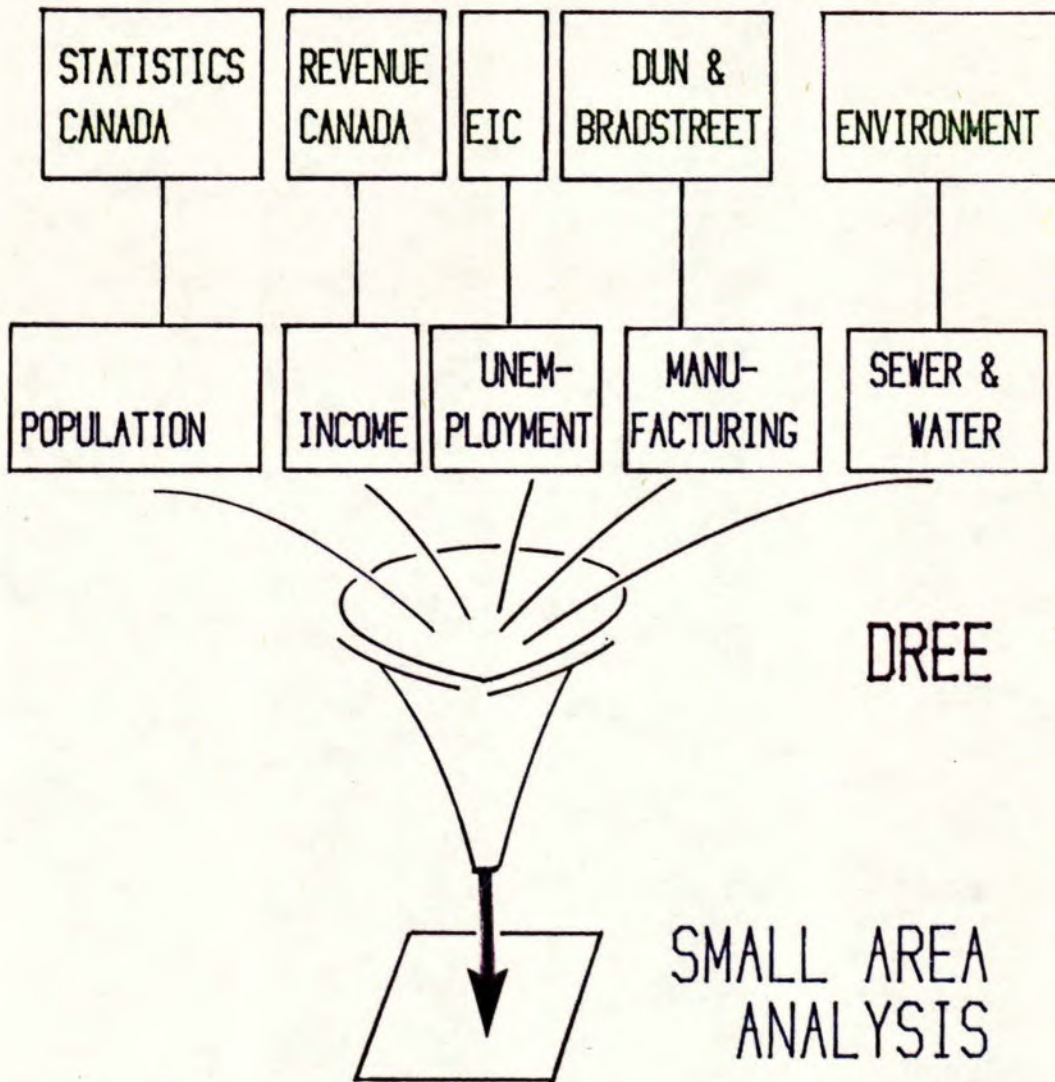- ADMINISTRATIVE DATA

KIN4

BUT WHY DREE?

- It could be argued that some agency besides DREE, for instance Statistics Canada, should be developing a small area information system.

- The fact that it is being done in DREE is because of our competitive advantage (i.e. a unique resource) and because of our mandate.

- Because of our recognized expertise, Statistics Canada have recently asked DREE to draft a policy for the Canadian government on small area statistics.

- Statistics Canada has difficulty in dealing with small area data from a wide range of sources, because of the sectorial nature of its data collection procedures.

PRESENT CAPACITY

PRESENT CAPACITY

- First we will outline the main elements of our present data system.

- We will then indicate what we are planning for the future.

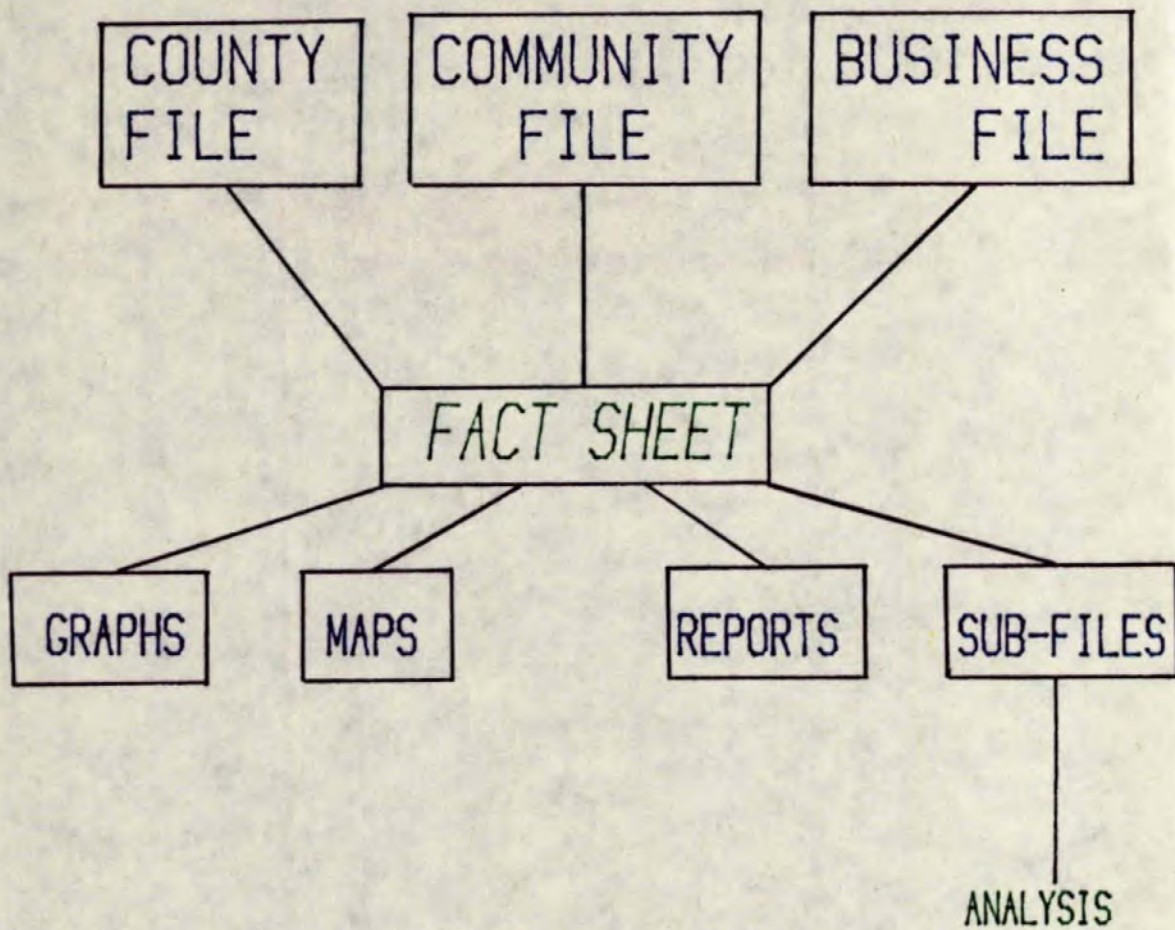# HORIZONTAL APPROACH

STATISTICS CANADA	REVENUE CANADA	EIC	DUN & BRADSTREET	ENVIRONMENT

POPULATION	INCOME	UNEM-PLOYMENT	MANU-FACTURING	SEWER & WATER

DREE

SMALL AREA ANALYSIS

KING

HORIZONTAL APPROACH

- Similar to the horizontal approach used by DREE
  in economic development, a horizontal approach
  is also used in the data collection.

- Data is obtained from a wide variety of sources
  or sectors and converted by DREE to a single small
  area.

- DREE's unique skill has been in the development
  of computer techniques to merge and convert data
  to a single geographic level.

- As such, DREE supports a large number of geocoding
  systems; even Statistics Canada calls on DREE for
  assistance in this area of research.

- DREE is the leader in Canada in this type of
  technology.

- DREE does not collect original data (e.g. surveys),
  but manipulates already existing data.

FACT SHEET PROJECT

```
┌──────────┐   ┌───────────┐   ┌──────────┐
│ COUNTY   │   │ COMMUNITY │   │ BUSINESS │
│ FILE     │   │    FILE   │   │     FILE │
└──────────┘   └───────────┘   └──────────┘
         \          │          /
          \         │         /
           ┌──────────────────┐
           │   FACT SHEET     │
           └──────────────────┘
         /      │        │       \
        /       │        │        \
┌────────┐ ┌────────┐ ┌─────────┐ ┌───────────┐
│ GRAPHS │ │  MAPS  │ │ REPORTS │ │ SUB-FILES │
└────────┘ └────────┘ └─────────┘ └───────────┘
                                        │
                                        │
                                    ANALYSIS
```

FACT SHEET PROJECT

- Introduction to our current small area data system.

- Fact Sheets for communities, counties and businesses.

- Very popular in DREE and other government departments.

- We are about to market these Fact Sheets to the private sector through a computer company on a cost-recovery basis.

- The output from this system is in a number of different forms.

- In three months we plan to have bilingual Fact Sheets available.

COMMUNITY MASTER FILE

- all communities of 1000 or larger
- *and many smaller places*
- uses 1976 census boundaries
- covers 82% of Canada's population
- 1133 DREE "communities"
- contains about 700 variables
- major variable classes include:

-demographic	-police & crime
-fire protection	-housing
-health	-education
-culture	-recreation
-communications	-transportation
-income	-sewer & water
-retail services	-climate
-employment	-other

DC7

COMMUNITY MASTER FILE

- As a quick example to show the types of data
  to be found on the Community file.

RESEARCH PROCESS

DATA

↓

SYNTHESIS

↓
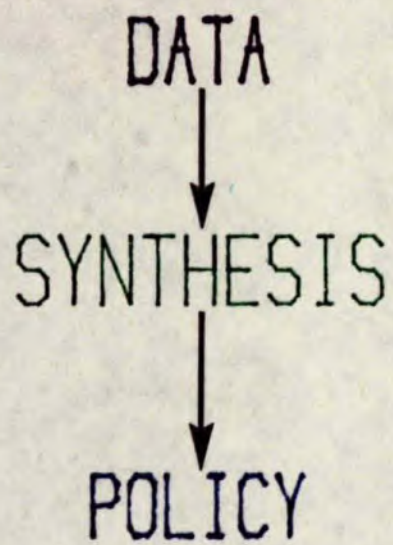
POLICY

RESEARCH PROCESS

- Policy development is the end-product of a research process which includes data collection and synthesis (analysis).

- The final policy is only as good as the information upon which it is based.

REGIONAL DEVELOPMENT ATLAS

THEMES

DEMOGRAPHIC	7 MAPS
EMPLOYMENT	12
INCOME	11
ECONOMIC STRUCTURE	8
SOCIAL STRUCTURE	8
DREE PROGRAMS	4

REGIONAL DEVELOPMENT ATLAS

- We would like to show a "real-world" situation of how the research process works.

- We have selected the Regional Development Atlas as an example.

- The following examples are only illustrative of a very small number of variables and maps used in this research process.

- Atlas will have a number of basic themes to illustrate various aspects of regional disparity.

- Atlas will contain about 50 maps.

- We are unsure at this time about what mechanism we will use to release the Atlas.
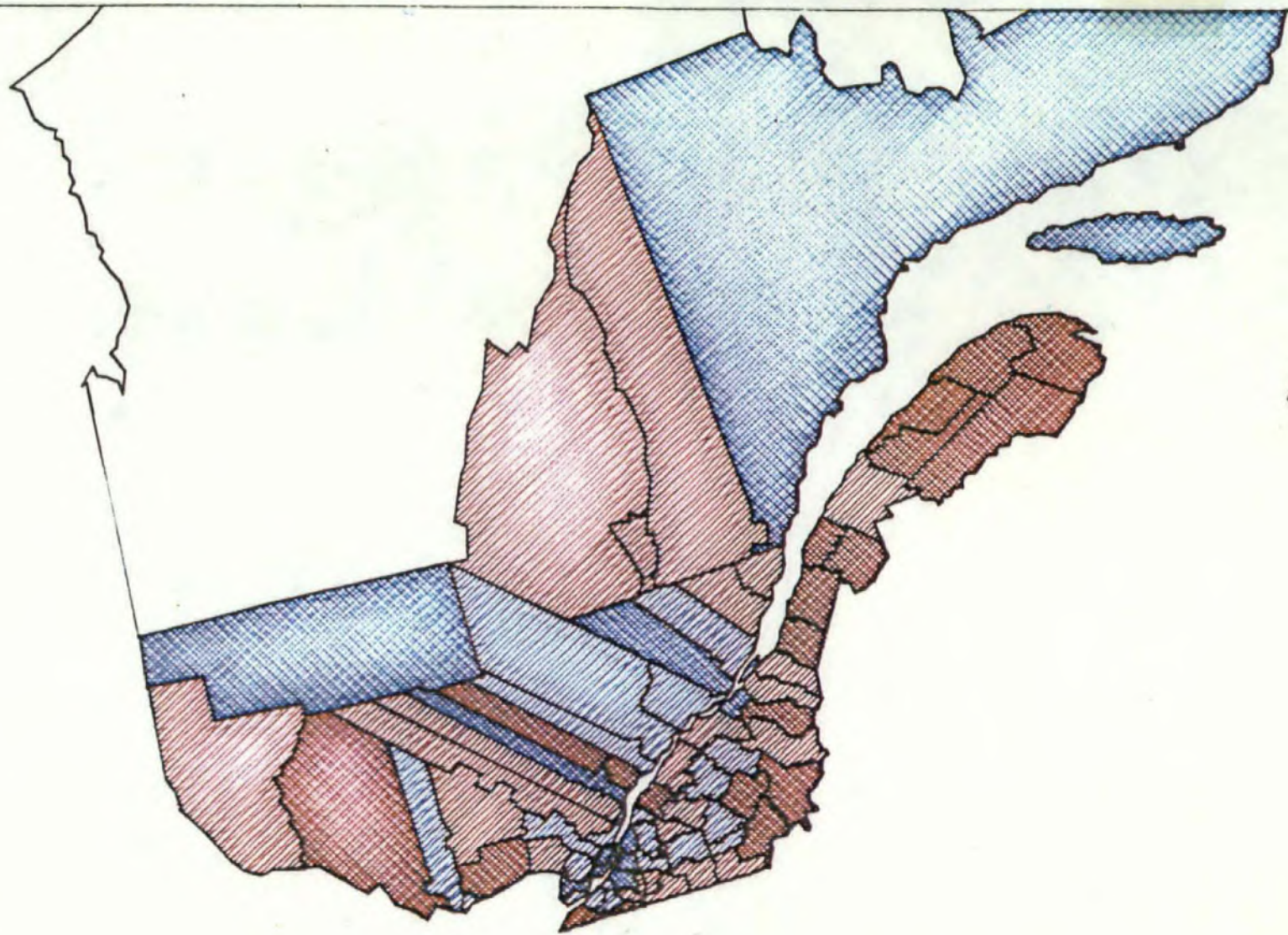
2.66667

D.R.E.E.

INCOME PER CAPITA, 1978

INCOME PER CAPITA (QUEBEC)

- Basic data shows those areas of Quebec which have below-average income (red areas).

- Dark red areas represent those areas in the worst quartile or bottom 25%.

- Data is mapped by county for 1978; county is the smallest geographic level available for the whole province and 1978 is the latest available data.
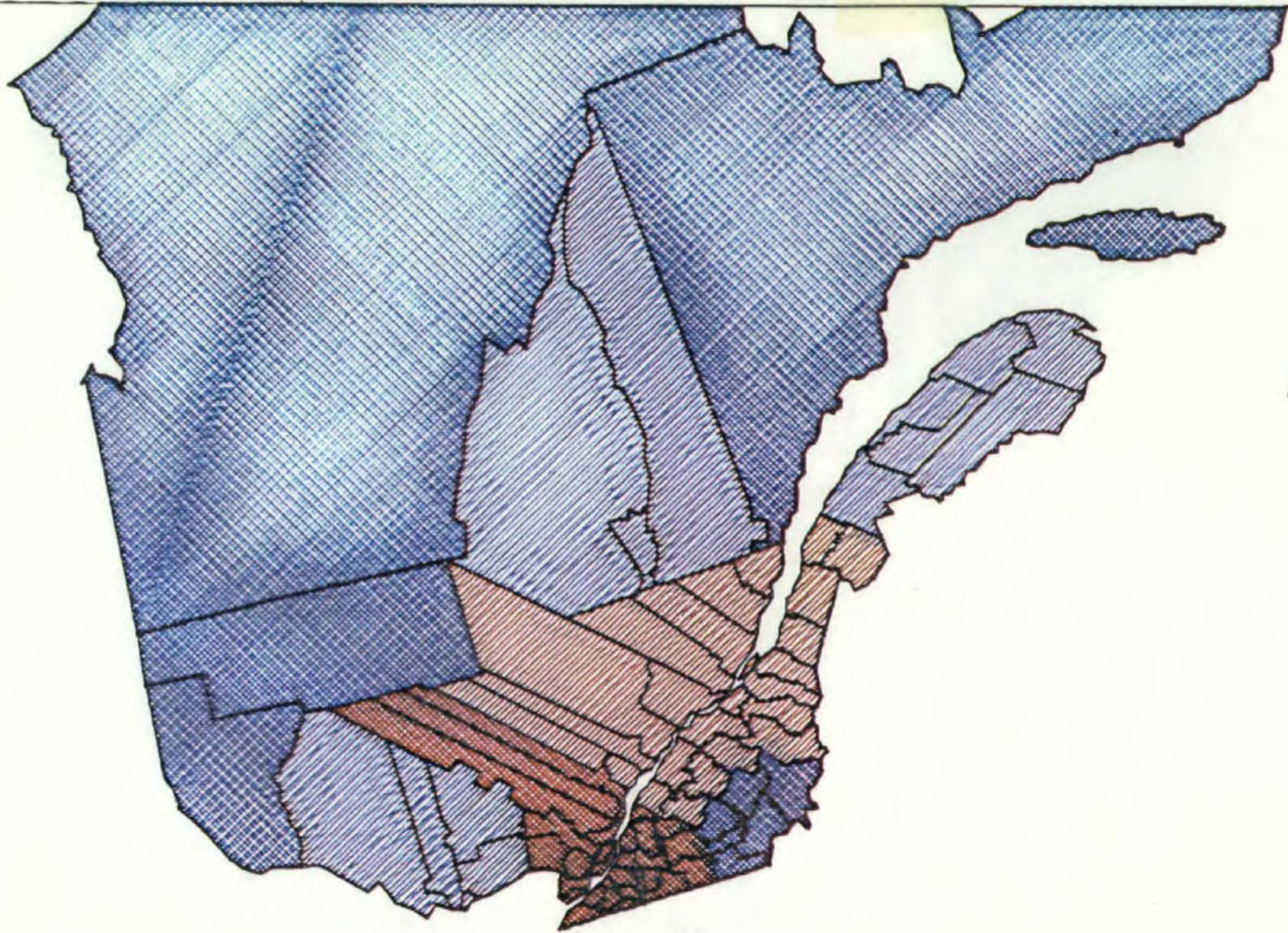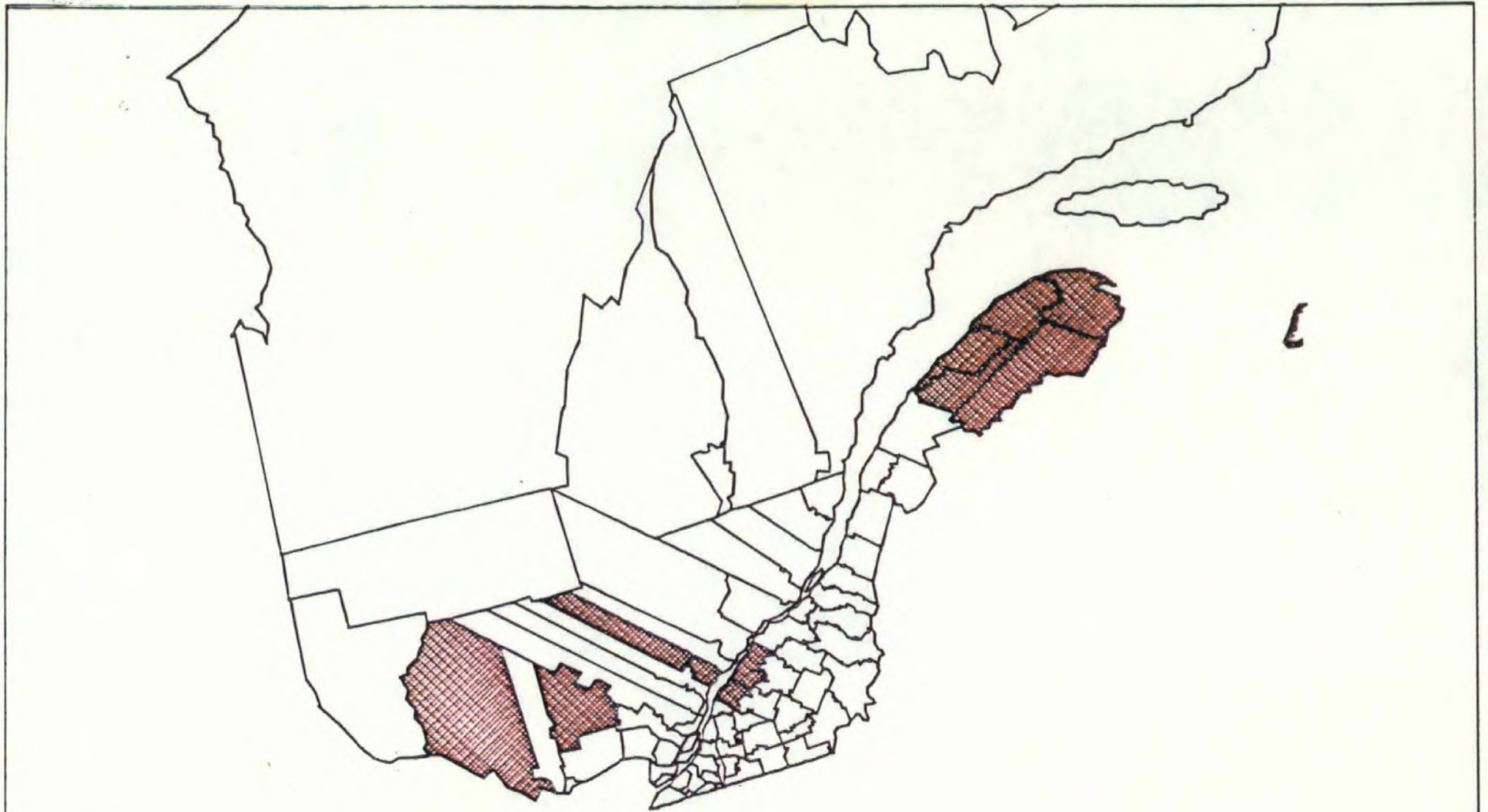
2.66667

D.R.E.E.

EMPLOYMENT GROWTH, 1976 - 1979

EMPLOYMENT GROWTH 1976-1979

- Again, red is the worst areas.

- Data is mapped by Labour Force Areas which is
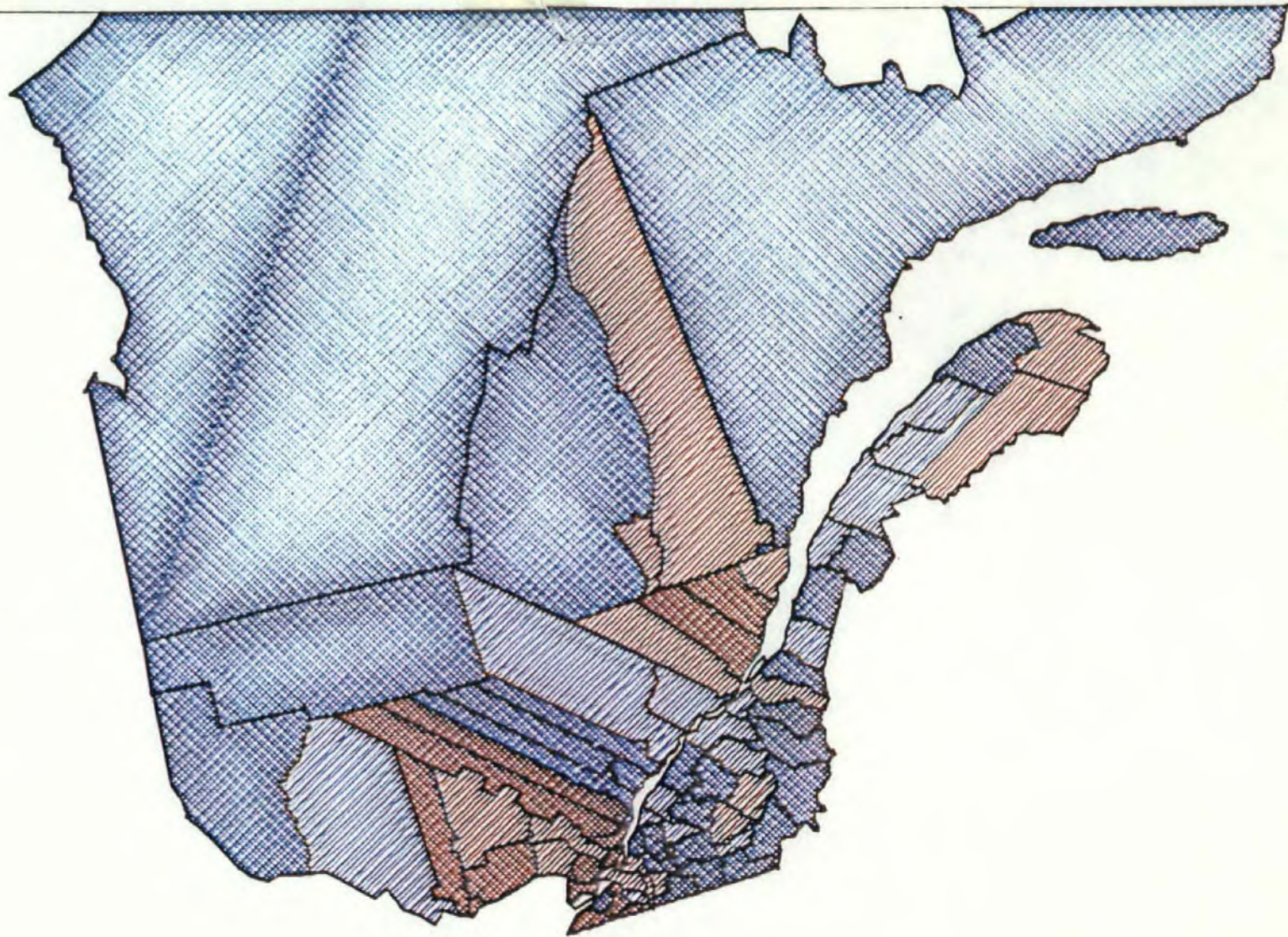 the smallest geographic level available.

2.00007

A.R.E.E.

INCOME/CAP. AV. 76-78 AND U. RATE AV. 76-79, WORST QUARTILE

INCOME AND UNEMPLOYMENT OVERLAID

- An example of how the different variables may be
  analyzed.

2.66657

D.R.E.E.
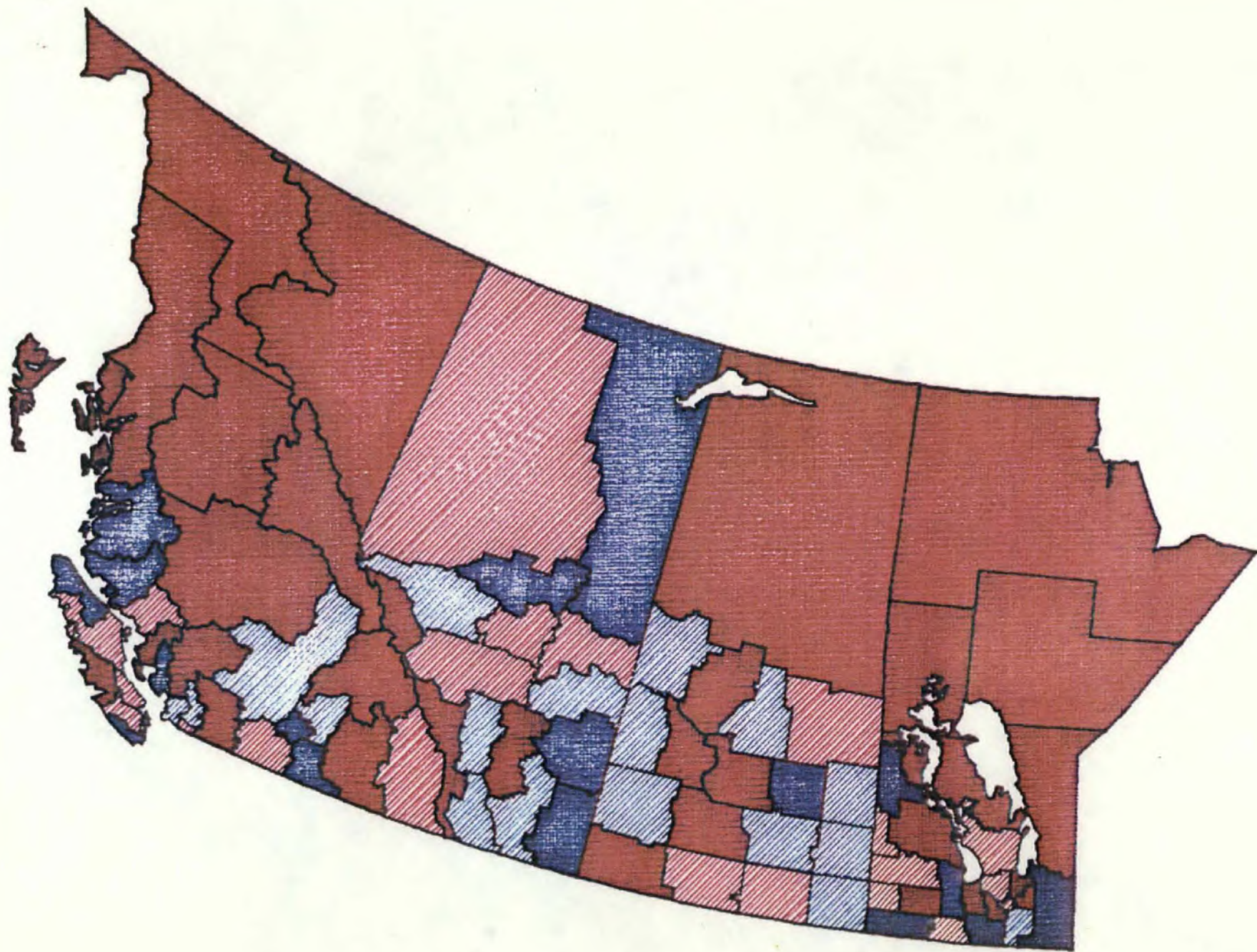
EXPECTED INCENTIVE PER CAPITA, 1969 -1980

INCENTIVES PER CAPITA

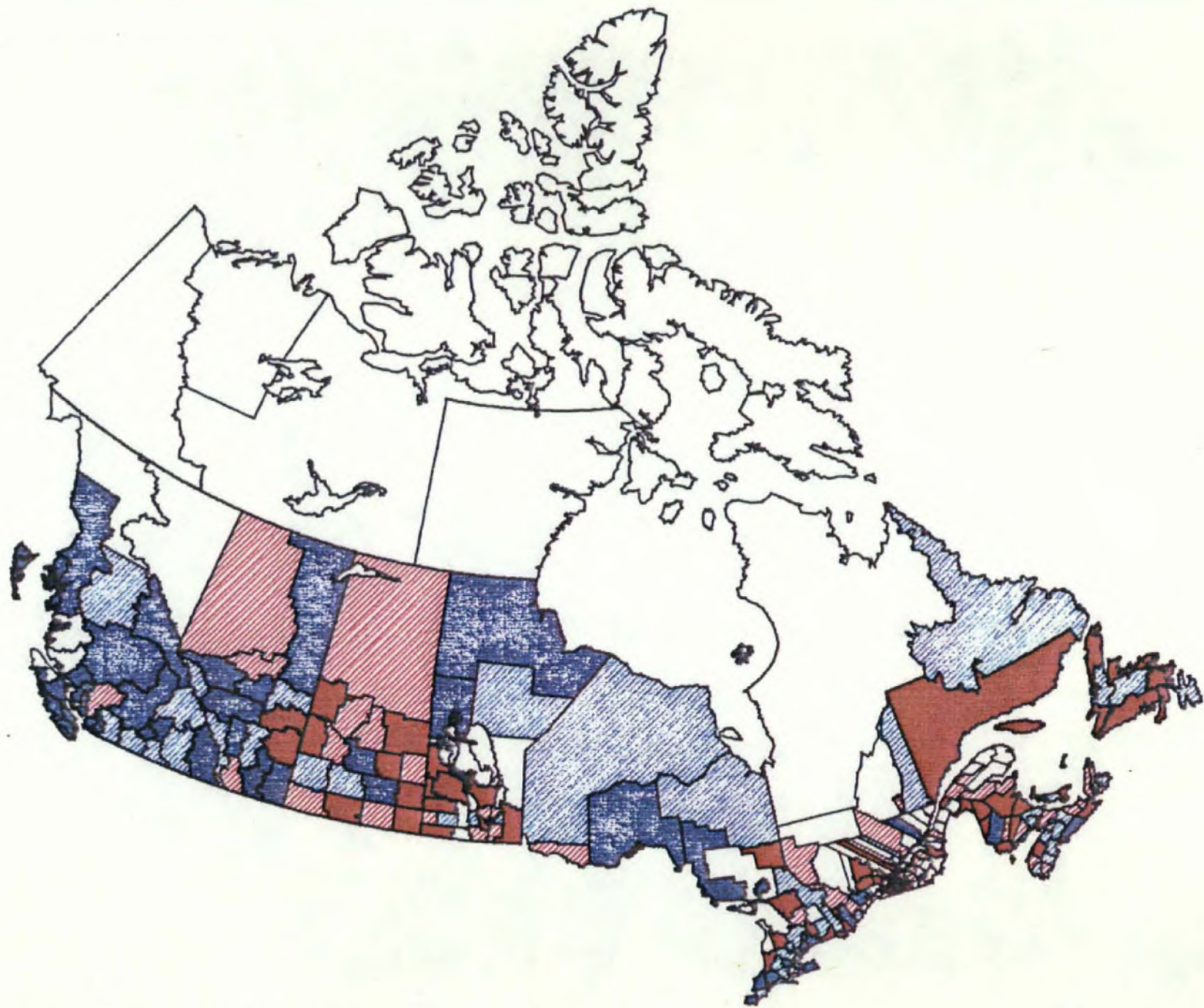- Shows how current DREE programming was included
  in analysis.

ANT MORTALITY 1978

INFANT MORTALITY

- Infant Mortality map demonstrates the problems of
  infant mortality in northern areas in Western Canada.

FEDERAL TAX PAID PER CAPITA, 1978

D.R.E.E.   WED, MAR 18, 1981, 4:05 PM

FEDERAL TAX PER CAPITA

- Example of some new concepts we propose to
  introduce in the Atlas.

- Map indicates in dark blue, those areas of
  Canada which contribute most to support the
  Canadian system of government.

FUTURE DIRECTIONS

DATA DEVELOPMENT

TECHNOLOGICAL DEVELOPMENT

SYSTEMS DEVELOPMENT

FUTURE DIRECTIONS

- We plan to move ahead in three main areas.

DATA DEVELOPMENT

NEW DATA

- GOVERNMENT EXPENDITURES
- NORTHERN AREAS
- INDUSTRIAL STRUCTURE

SMALLER AREA DATA

- UNEMPLOYMENT
- FAMILY INCOME
- BANKRUPTCY

## MORE ACCURATE AND TIMELY DATA

- INCOME
- MANUFACTURING

DATA DEVELOPMENT

- DREE is pursuing three main goals - new data, smaller area data, more accurate and timely data.

- Some examples under each goal are illustrated in the following maps.

- Since this is for the future, the data on the maps are only crude estimates or fake data; - it is used only to demonstrate what we would like to see.

LEGEND

< 100
100 - 250
250 - 500
> 500

D.R.E.E.   THU, MAY 21, 1981, 1:56 PM

EXPENDITURE PER CAPITA, 1980 (NOT ACTUAL DATA)

NEW DATA

GOVERNMENT EXPENDITURES

- Map shows SSC purchases of goods and services
  per capita by county in New Brunswick.
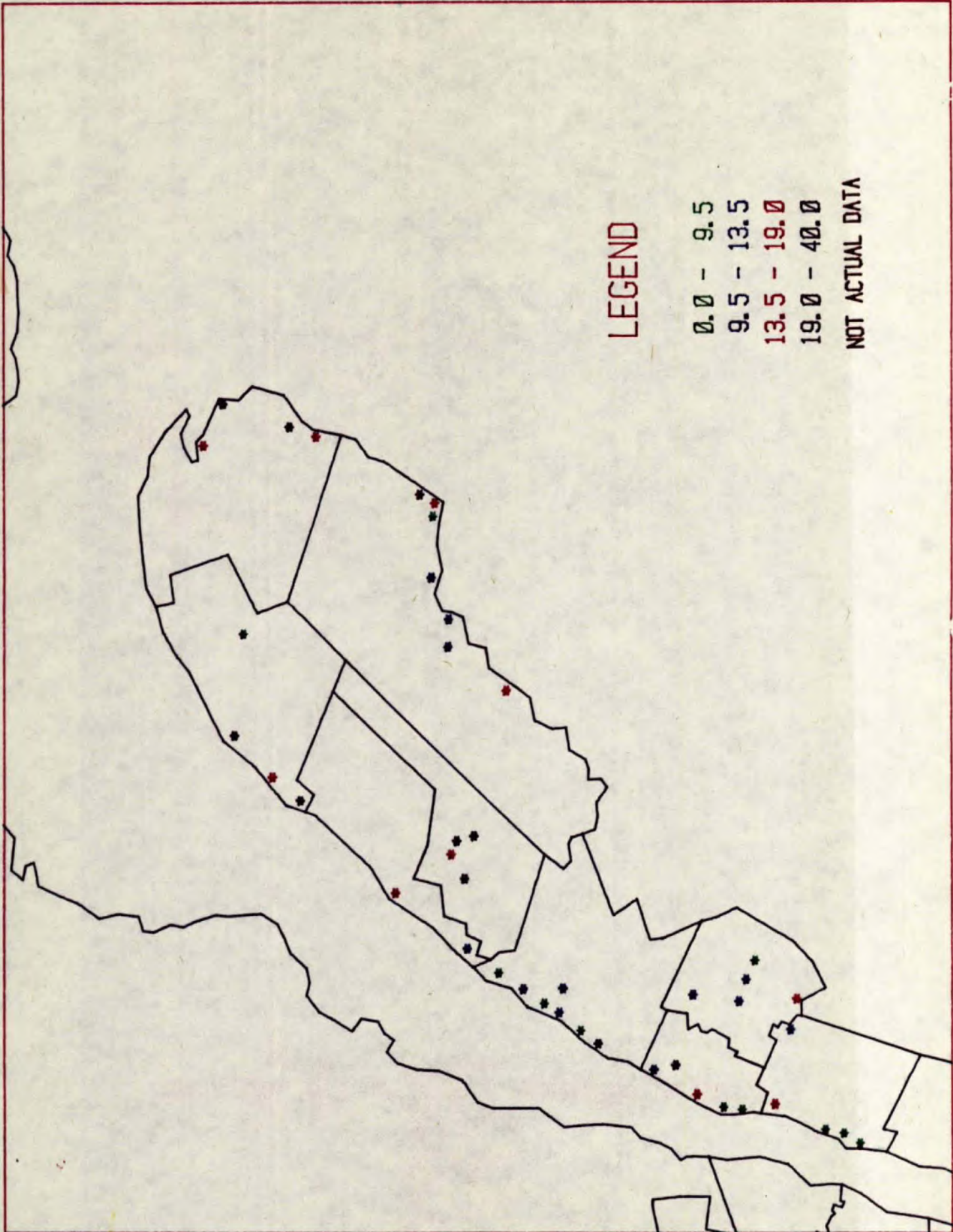
LEGEND

0.0 – 9.5
9.5 – 13.5
13.5 – 19.0
19.0 – 40.0

NOT ACTUAL DATA

UNEMPLOYMENT RATE, DECEMBER 1990

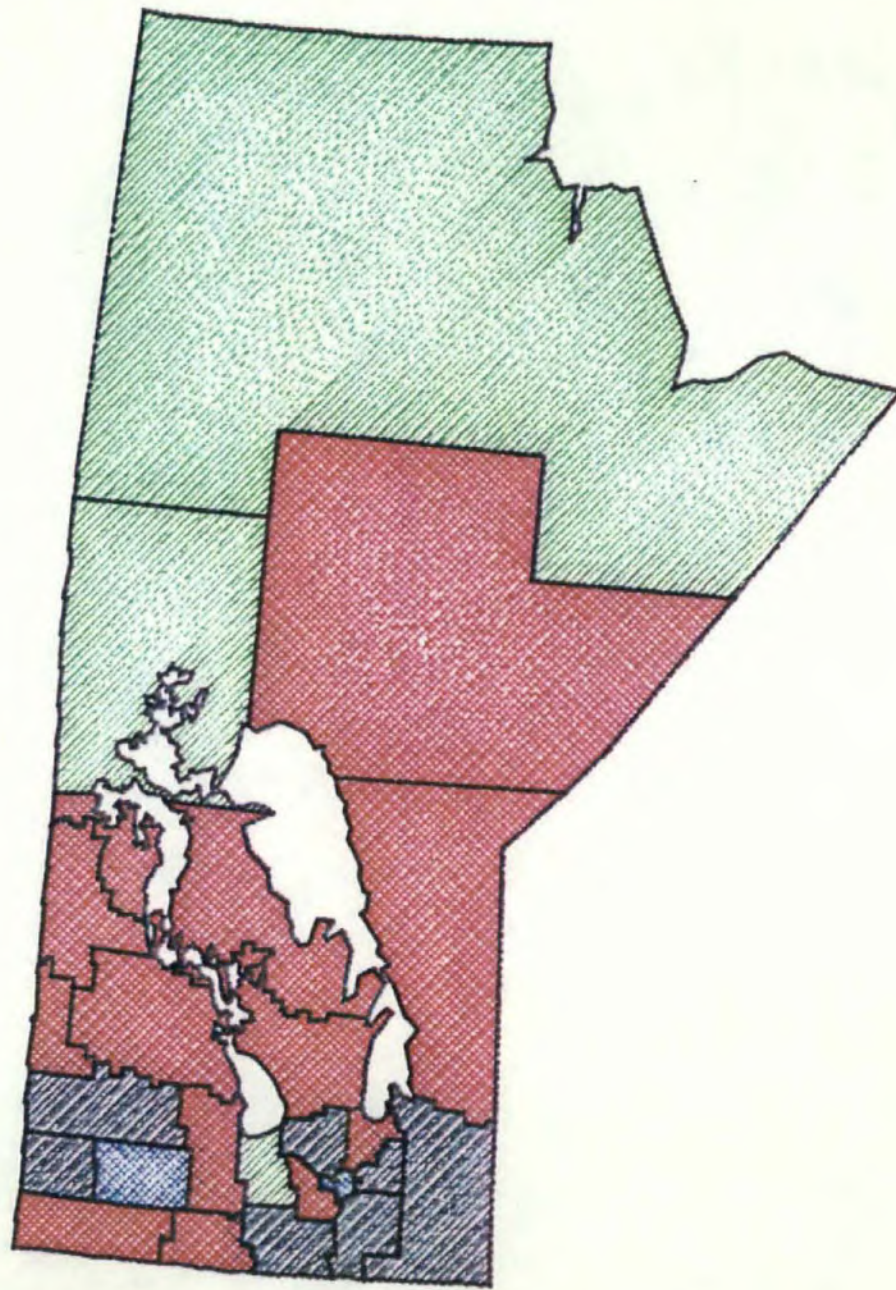U.R.E.E.   TUE, MAR 17, 1981, 3:34 PM

SMALLER AREA DATA

UNEMPLOYMENT RATE

- Map shows monthly unemployment by individual
  community.

- We plan to provide unemployment data for
  communities down to populations of 500 people.

LEGEND

< 8,000
8,000 - 10,500
10,500 - 12,500
> 12,500

D.R.E.E.   MON, APR 6, 1981, 11:48 AM

RAGE FAMILY INCOME, 1980 (NOT ACTUAL DATA)

BETTER DATA

FAMILY INCOME

- Presently, family income estimates are available
  only at the provincial level.

- As shown on the map, we plan to produce estimates
  at the county level.

TECHNOLOGICAL DEVELOPMENT

ADMINISTRATIVE DATA FILES

- INCOME TAX
- FAMILY ALLOWANCE
- UNEMPLOYMENT INSURANCE
- OLD AGE SECURITY
- GOVERNMENT EXPENDITURES
- PROVINCIAL HEALTH RECORDS

COMPUTER MAPPING

- COMMUNITY
- COUNTY
- LABOUR FORCE AREAS
- FEDERAL CONSTITUENCY
- ADMINISTRATIVE AREAS

(QUEBEC ONLY)

MDX14

TECHNOLOGICAL DEVELOPMENT

- Development of administrative files as data sources will continue.

- DREE can presently map data by community and county.

- In six months, we will also be able to map data by labour force area, federal constituency, ecumene, and administrative area.

SYSTEMS DEVELOPMENT

INCREASED DATA EFFICIENCY

- MORE MECHANIZATION OF DATA PROCESSING

BETTER DISTRIBUTION

- USE OF "TOUCH-SENSITIVE"

  TELEVISION MONITORS

- AVAILABLE TO DECISION-MAKERS

  IN A "MENU" FORMAT

SYSTEMS DEVELOPMENT

- Productivity of staff will be increased by
  more mechanization.

- We plan to integrate word processing, computer
  graphics and data analysis into one computer
  system.

- Computer files will allow more people access
  to data.

- We plan to purchase television monitors that
  will respond to the touch of a human finger
  on the screen.

- This means that the decision-maker can simply
  point to the types of information that is
  required.

- The data will be in a "menu" format so that the
  decision-maker can select the type, level, and
  time period of the data required.

SAMPLE 'MENU'

TYPE OF DATA

* demographic
* social
* manufacturing
* income
* employment

VARIABLES

* employed
* participation rate
* labour force
* unemployment rate

TIME PERIOD

* average 1976-80
* 1980
* most current

OUTPUT

* table
* graph
* map

GEOGRAPHIC LEVEL

* labour force area
* county
* community

LOCATION

* Canada
* province
* region

SAMPLE "MENU"

- Television monitor will present a menu of the
  types of information available.

- User will simply touch the screen to select
  the type of data or a finer category of data.

- Process will continue until the user has selected
  the desired data, output, location, etc.

SHORT-TERM GOALS
(2 YEARS)

DATA DEVELOPMENT

- INCOME
- UNEMPLOYMENT
- INDUSTRIAL STRUCTURE
- SMALL-AREA DATA
- NORTHERN AREAS

TECHNOLOGICAL DEVELOPMENT

- ALL MAP BASES
- REVENUE CANADA AND UIC FILES

SYSTEMS DEVELOPMENT

- COLOUR TELEVISION MAPS
- SLIDE CAMERA

SHORT-TERM GOALS
(2 years)

- Data development will be concentrated in a limited number of areas.

- Technological development will include only two administrative files.

- System development will attempt to provide colour television maps and automatic graphic display on 35mm slides.

LONG-TERM GOALS
(5 YEARS)

DATA DEVELOPMENT

- ALL FEDERAL EXPENDITURES
- FULLY INTEGRATED DATA BASE

TECHNOLOGICAL DEVELOPMENT

- "INSTA-DATA" FOR DECISION-MAKERS
- VIDEOTAPE TECHNOLOGY

SYSTEMS DEVELOPMENT

- HOST COMPUTER
- EXECUTIVE "TOUCH-SENSITIVE" TERMINAL
- VIDEOTAPE CAPABILITY

LONG-TERM GOALS
(5 years)

- Disaggregation of all federal government expenditure to small area.

- Provide an information system that decision-makers are able to use themselves.

- Provide presentations and analysis in videotape form for easy distribution and transfer.

- Acquire a separate computer to process data.

- Acquire executive "touch-sensitive" television terminals.

PRIORITIES

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PRIORITIES

- The slide reproduces the call letter issued by
  the Minister and Deputy Minister to Planning and
  Coordination.

- As shown in the presentation, in order to tilt and
  tailor programs of other departments, we must be
  able to prove that we understand the issues and
  have something valuable to offer. The small-area
  data system will provide a strong bargaining point.

- We propose to disaggregate the expenditures of other
  federal departments, agencies and Crown Corporations
  in the same way as DREE programs, to analyze the
  impact of all federal spending.

- The small area data system is primarily directed toward
  the support of analysis, research and assessment
  in DREE.

- As shown, there will be a number of inter-departmental
  projects, in particular, projects with Revenue Canada
  and E.I.C. to develop administrative data files.

- We will be responding in the near future to Statistics
  Canada's invitation to write a small-area statistical
  policy for the federal government.

- Computer-generated maps and graphs as well as videotape
  is regarded as another form of publication.

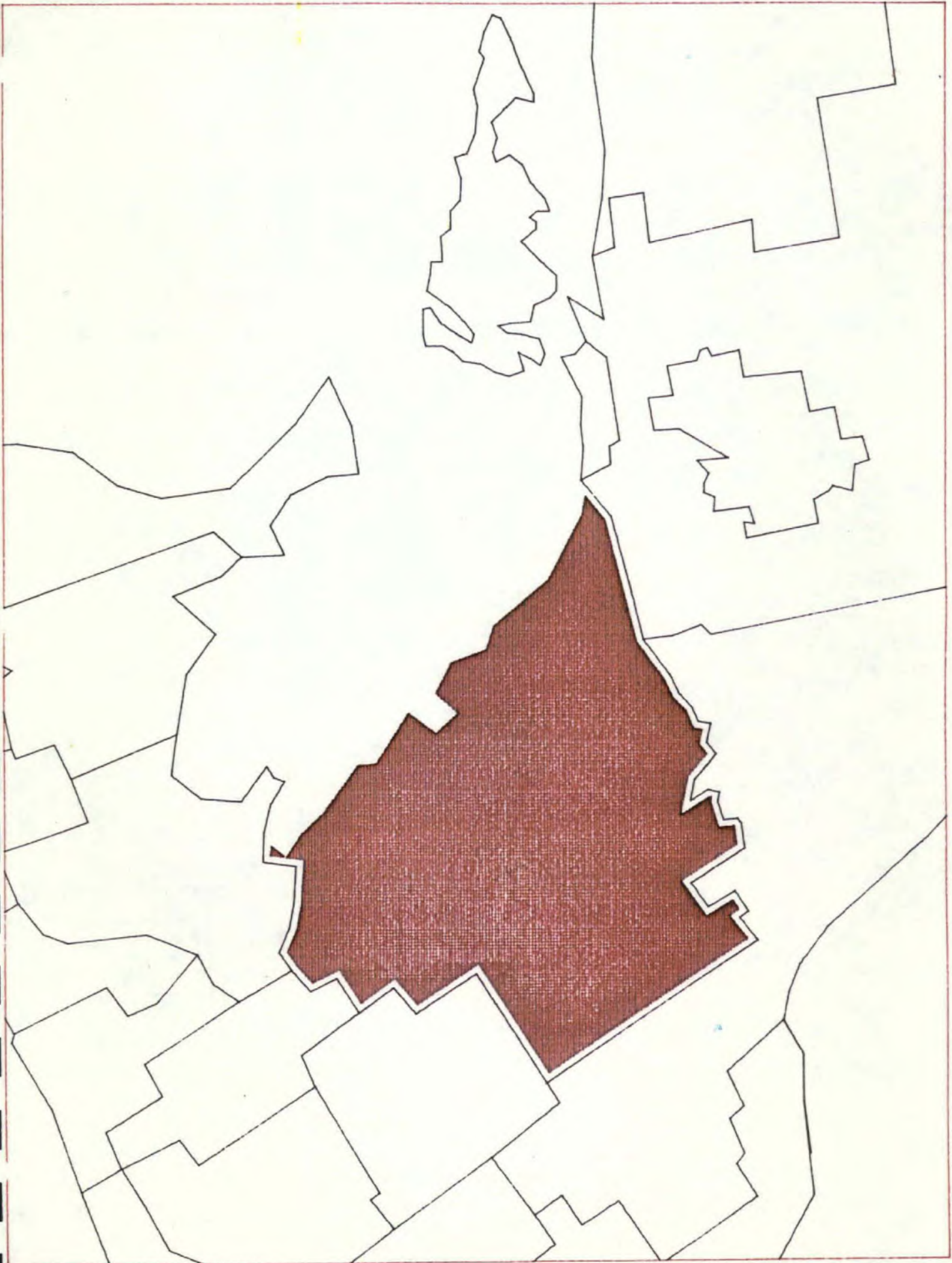# CONSTITUENCY DATA SYSTEM

WIN17
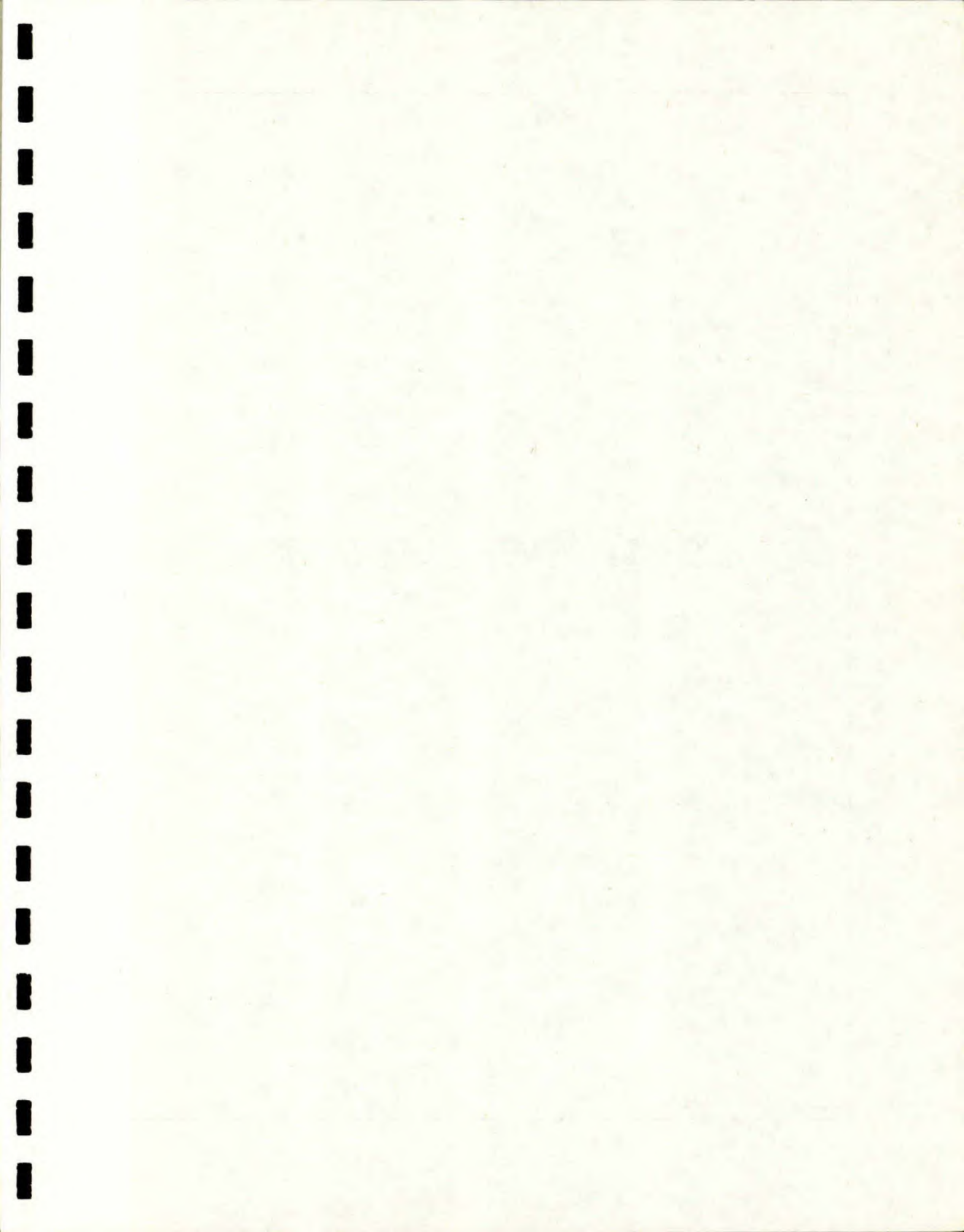
CONSTITUENCY DATA SYSTEM

- Difficult to develop because the constituency
  is not a conventional statistical area.

- Constituencies change boundaries every ten
  years.
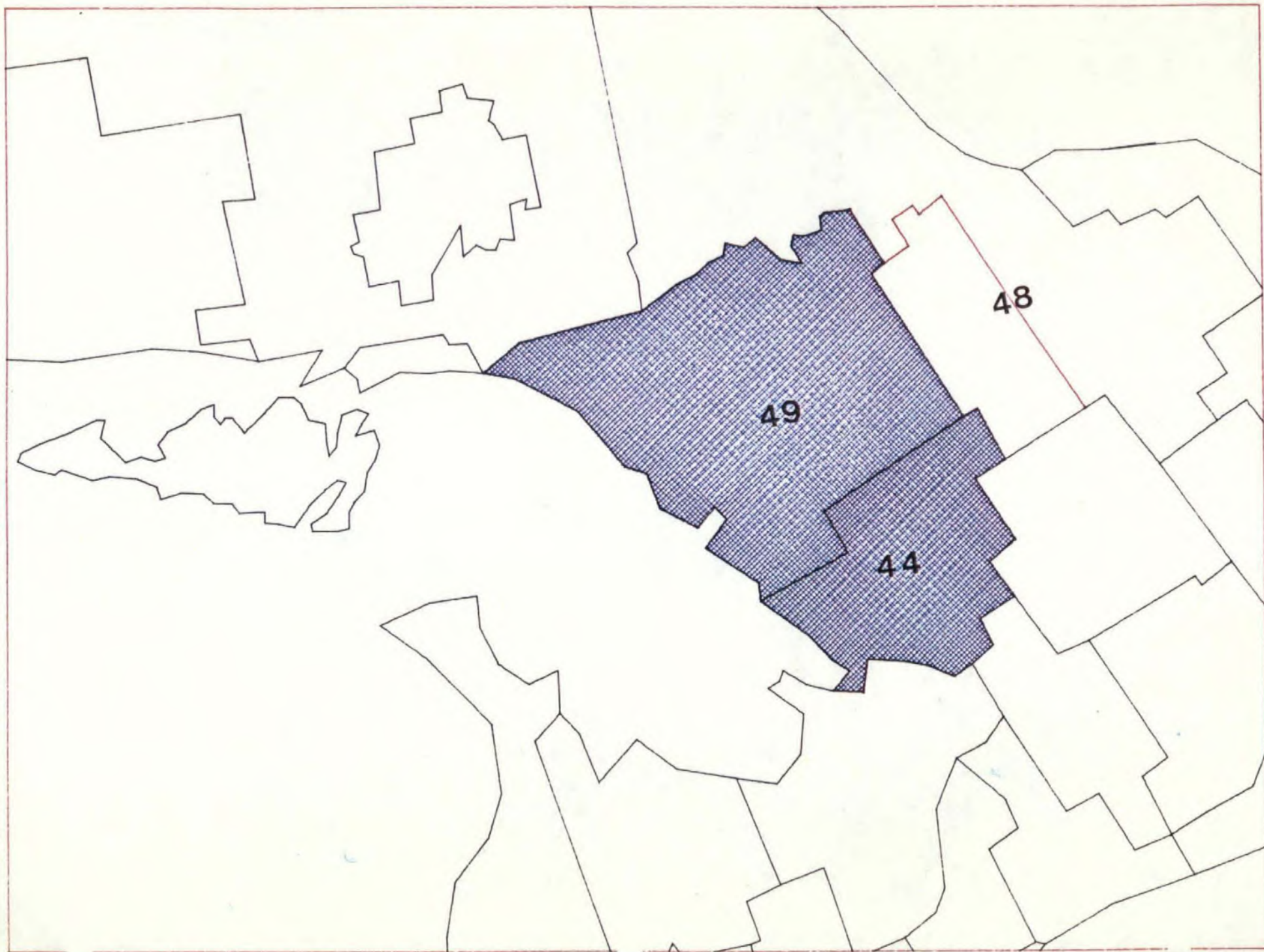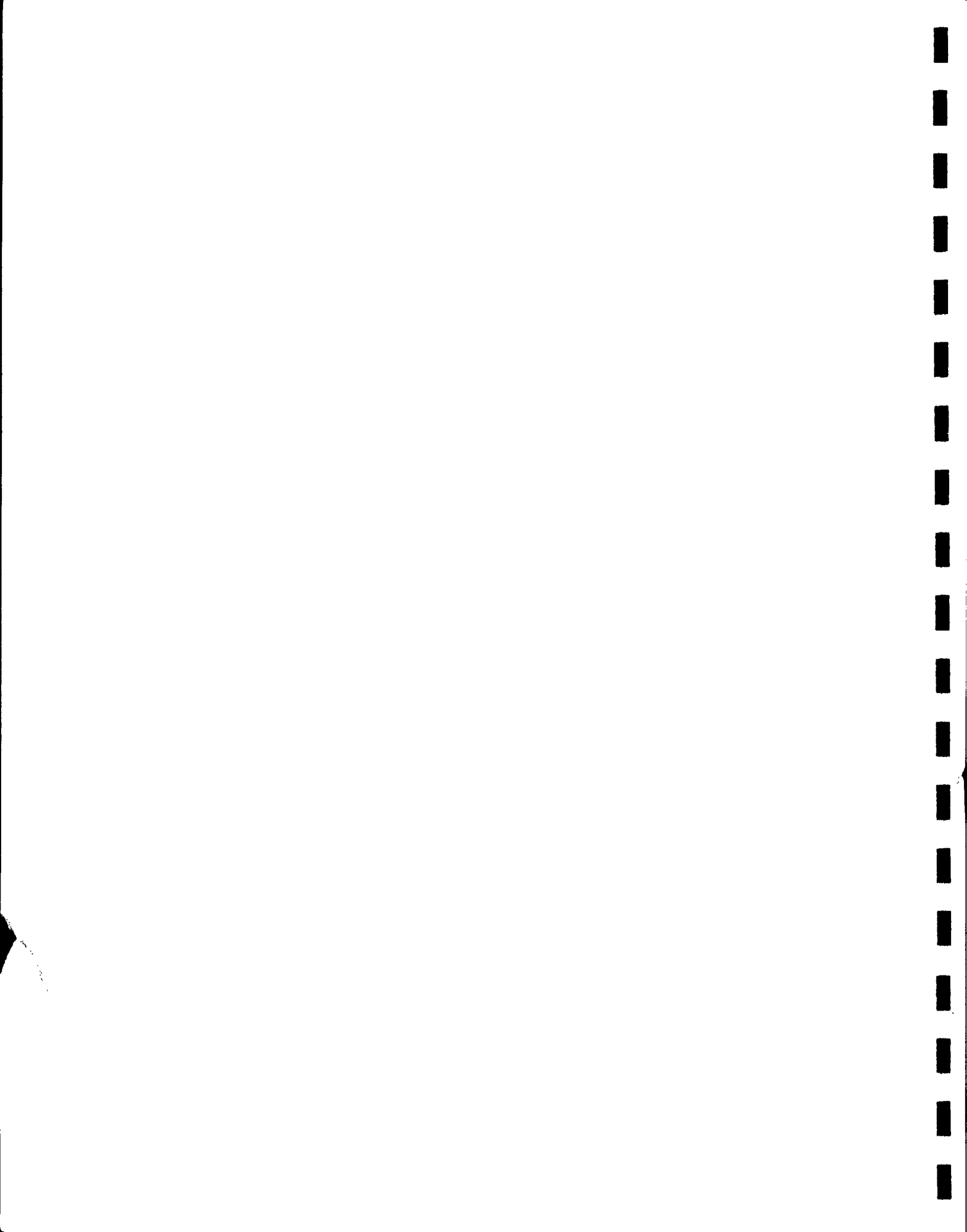
PARRY SOUND - MUSKOKA CONSTITUENCY

- We have selected Parry Sound - Muskoka,
  Mr. Darling's constituency, to illustrate
  some of the problems with boundaries.

- Map illustrates the boundaries of Parry Sound -
  Muskoka and surrounding counties in Ontario.
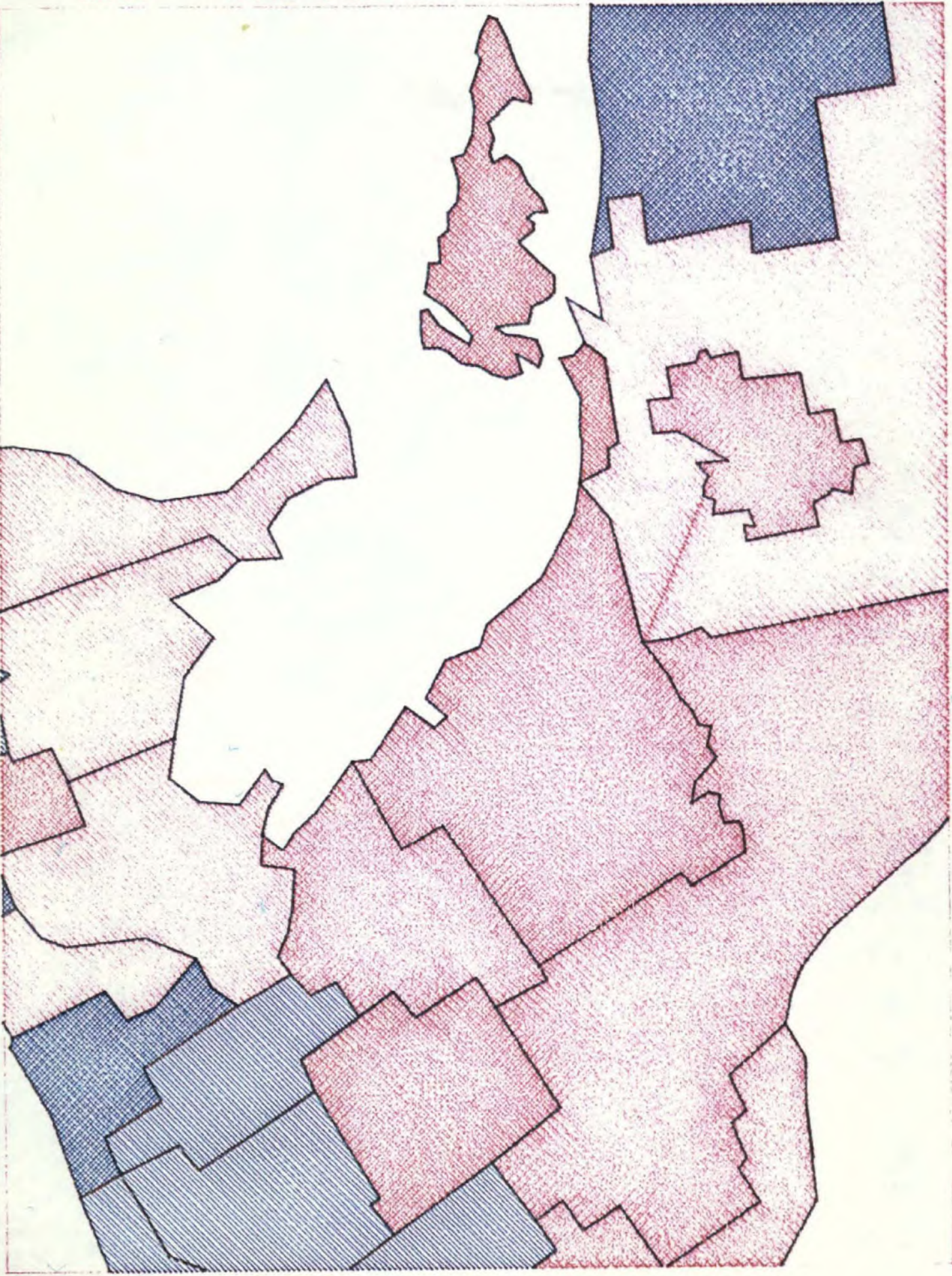
48

49

44

RY SOUND – MUSKOKA

PARRY SOUND - MUSKOKA

-   This map shows that the constituency includes
    all of County 44 (Muskoka), all of County 49
    (Parry Sound) and part of County 48 (Nipissing).

-   Very often data is available only at the county
    level; if a constituency crosses county boundaries
    this data cannot be properly assigned to the
   correct constituency.

MANUFACTURING VALUE ADDED

- Although the Census of Manufactures does
  not provide data for areas smaller than the
  county, you can see that for this map the
  entire county is the same colour.

- For other constituencies, however, this is
  not the case, and composite data could not
  be provided.

- In other instances, like Toronto or Île-de-Montréal,
  there are many constituencies in a single county;
  in such cases all constituencies would receive
 the same value.
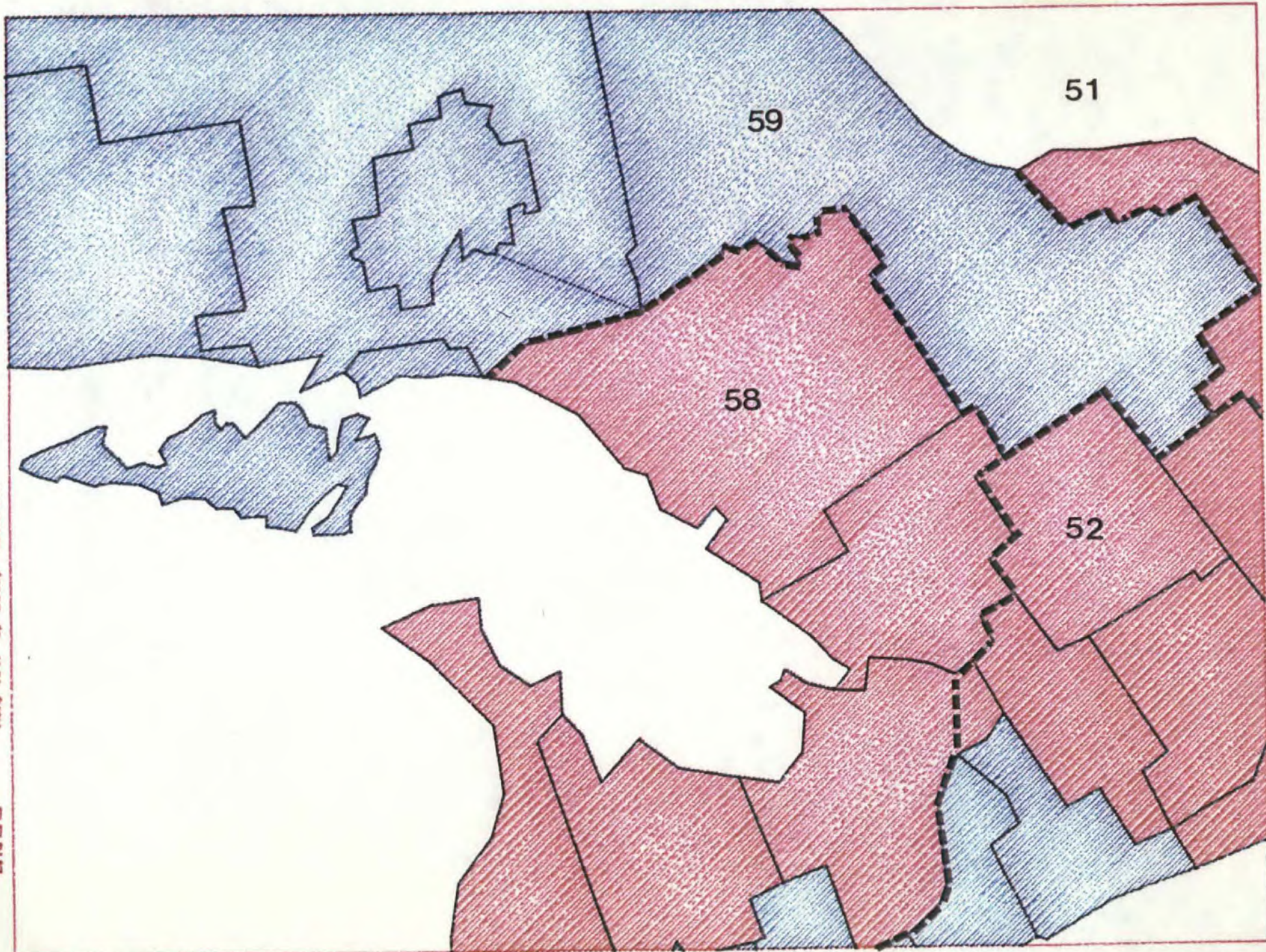
EMPLOYMENT GROWTH, 1976 - 80

EMPLOYMENT GROWTH

- Current employment and unemployment figures
  come from Statistics Canada's monthly Labour
  Force Survey.

- Sub-provincially, the data is reported by
  Labour Force Area.

- Parry Sound - Muskoka is only part of Labour
  Force Areas 50 and 59.

- In fact, Area 58 includes six counties and
  Area 59 includes seven counties.

- In this case the Labour Force Area even
  crosses a county boundary.
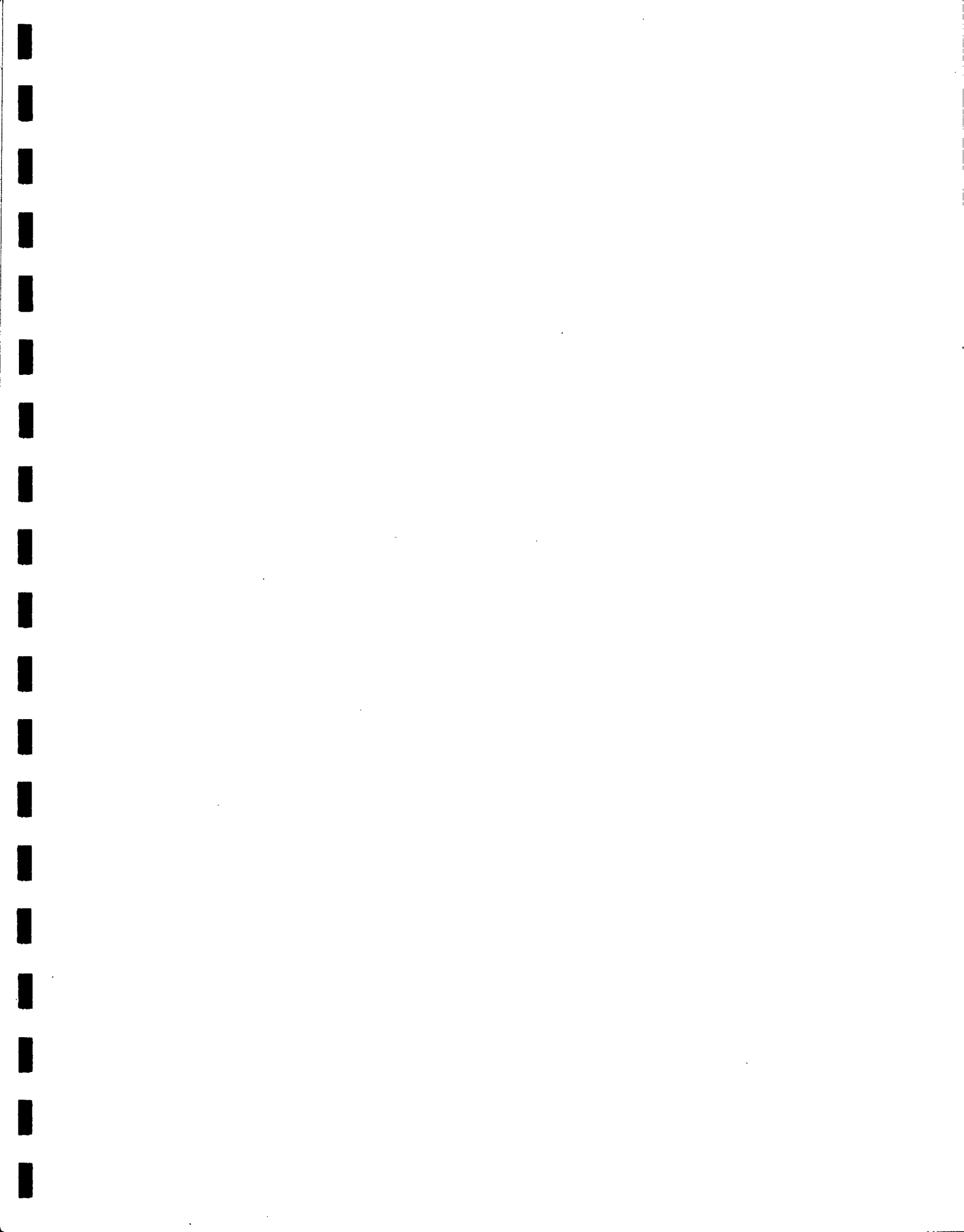
FARE PER CAPITA, 1977-79
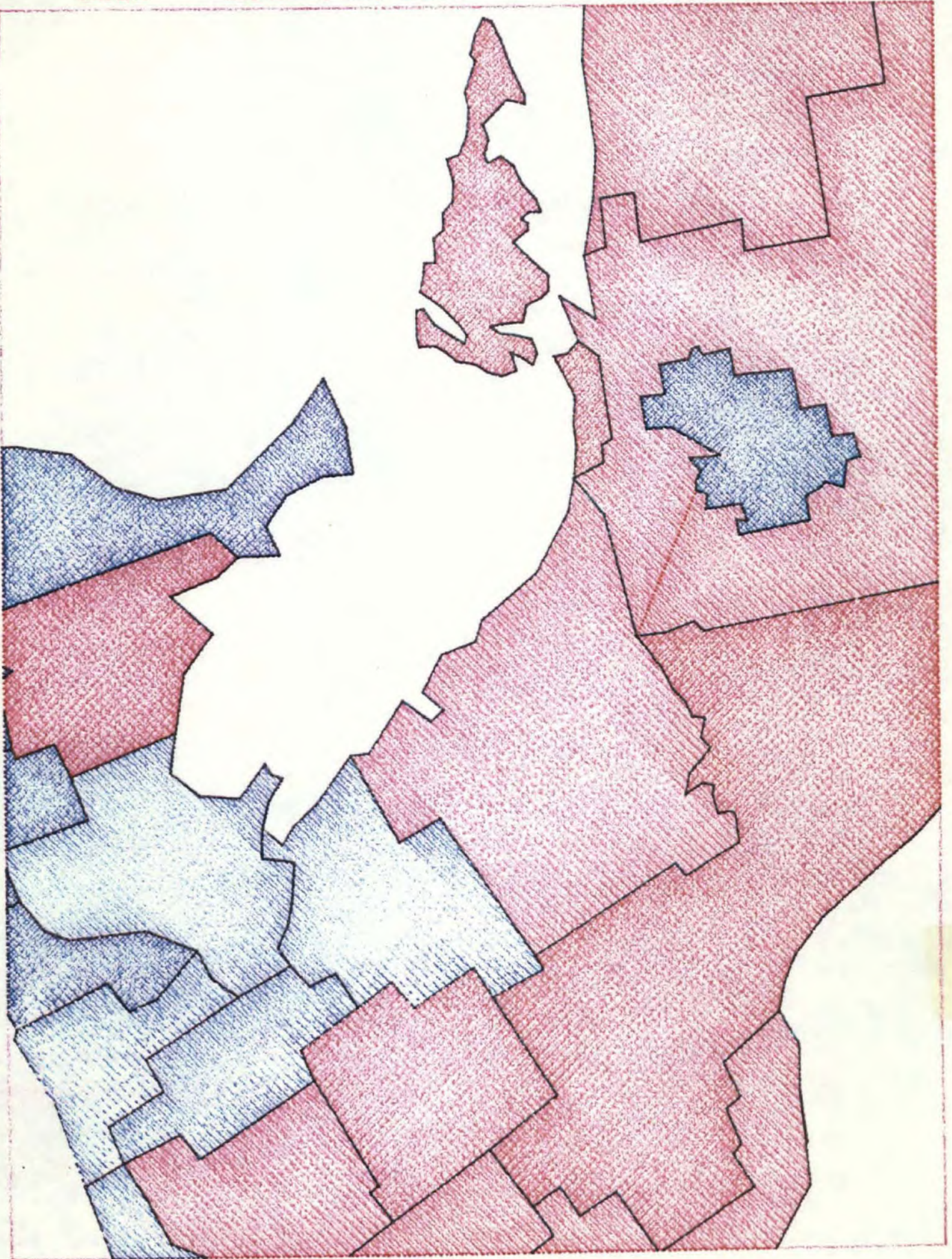
WELFARE PER CAPITA

- Welfare data has been obtained from the Province of Ontario for counties.

- Potentially, this data could be very useful in the study of regional disparity.

- Unfortunately, the data is available only for a couple of provinces and therefore cannot be used in determining national programs.

LEGEND

0.0 - 15.5
15.5 - 23.0
23.0 - 30.9
    > 30.9

IN-MIGRATION

- Map shows the rate of in-migration between 1971 and 1976, by communities.

- Data is very detailed for communities and can be aggregated up to the constituency level.

- We plan to use the 1981 Census data in this manner.

- All data which is postal coded can be aggregated up to the constituency level.