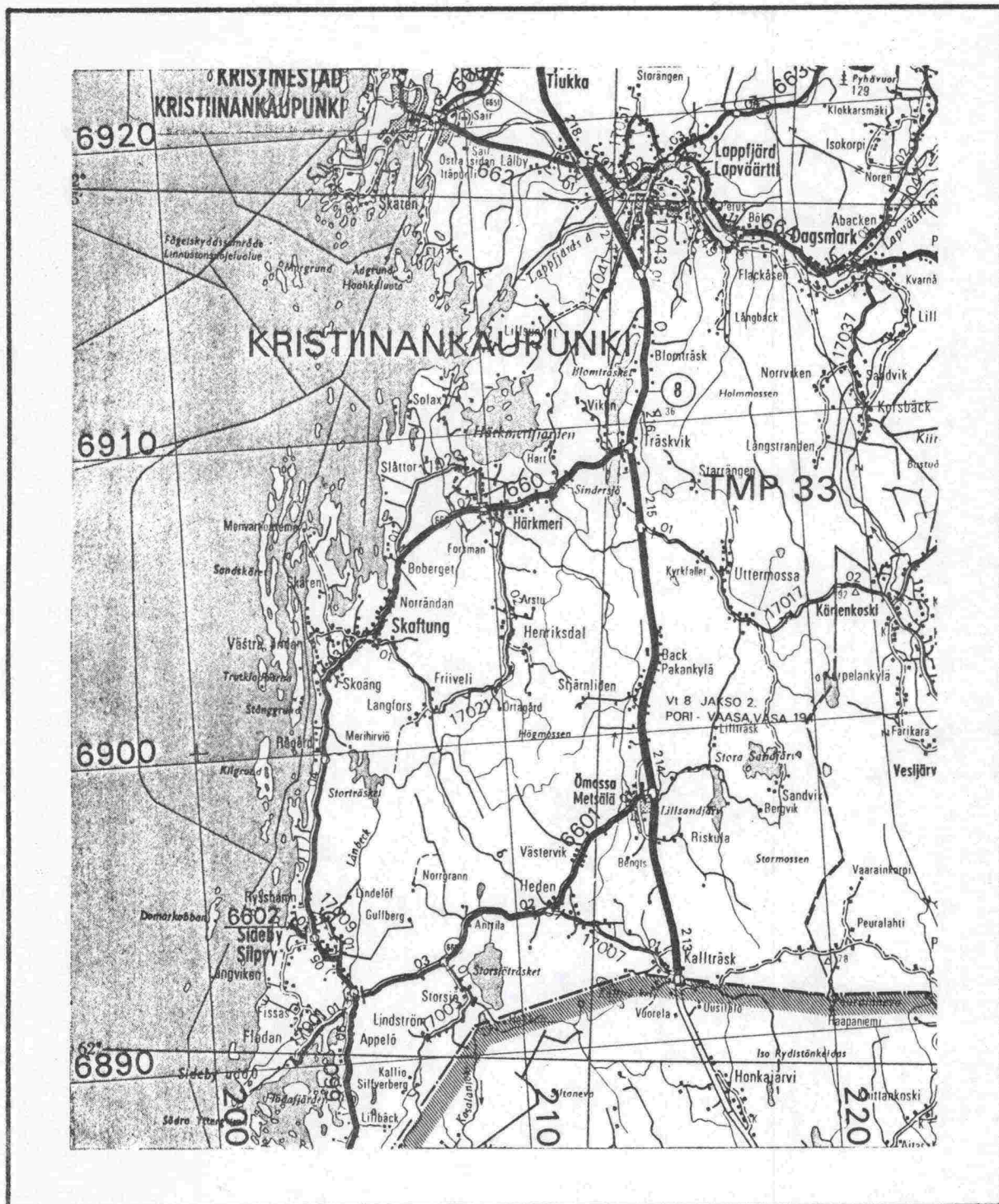


ROAD DATA BANK

GENERAL DESCRIPTION



ROADS AND WATERWAYS ADMINISTRATION.

RESEARCH DIVISION OF THE ECONOMICS DEPARTMENT

08

TIE-



ROAD DATA BANK

GENERAL DESCRIPTION

**ROADS AND WATERWAYS ADMINISTRATION
RESEARCH DIVISION OF THE ECONOMICS DEPARTMENT**

25.10.1984

What is the Road Data Bank

The Road Data Bank contains information on traffic and public roads. Public roads include Class I and II main roads, other highways and local roads maintained by the Roads and Waterways Administration (RWA). The network of public roads in Finland covers 75 663 km. In addition, the network of public roads includes 595 km of trafficable path roads, and 319 km of special winter roads, all maintained by the RWA.

The Road Data Bank is an information system that was created primarily for the internal use of the RWA. It serves as the basis for planning and follow-up of road construction and maintenance projects. The Road Data Bank also serves as a register of public roads as provided by the Roads Decree supplying the society with information on roads.

The present Road Data Bank is a computer-based information system.

What Is In the Road Data Bank

The Appendix lists the types of information contained in the Road Data Bank. The data is updated annually to show the situation at the beginning of the year. Traffic data give the average daily traffic volumes for the previous calendar year.

The data contained in separate traffic accident and bridge registers can be combined with the Road Data Bank.

The location of individual data on the road network is determined by means of an address code system based on the numerical code given to each road.

The numerical codes are classified as follows:

-	Main roads Class I	1 - 39
-	Main roads Class II	40 - 99
-	Other highways	100 - 9999
-	Local roads	11000 - 19999
-	Path roads	50000 - 51999

The numerical codes for winter roads range from 60000 to 61999. Major streets complementary to the network of public roads have codes numbered from 40000 to 49999

Each road is divided into road sections having an average length of 5 km (the maximum length being 10 km). Detailed information is given an address in the Road Data Bank using the numerical road code, road section code, and the distance measured from the beginning of the road section (in meters).

The application of numerical road codes is shown in Figure 1 and 2.

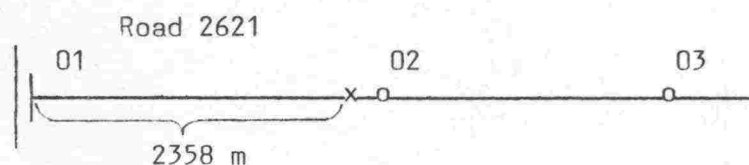


Figure 1: The road code address of point x is 2621 01 2358.

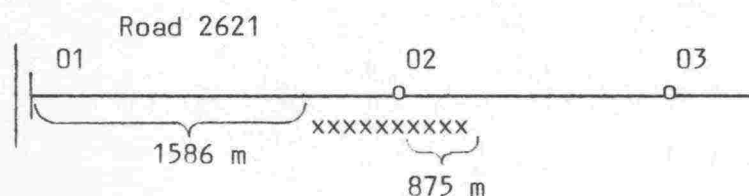


Figure 2: The road code address of section xxxx is 2621 01 1586 - 02 875.

The borders of administrative districts are also included in the Road Data Bank making district surveys possible. In addition, the coordinates of intersections in the road network have been read into the register using 1:200 000 road map and the national system of survey coordinates. The location of intersections is correct to 100 meters.

The address code system of the Road Data Bank is represented in form of a Road Code Map (see the cover). An updated edition of the map is issued annually. It is printed on a 1:200 000 road map showing each of the 13 Road Districts of the RWA.

How the Road Data Bank Is Used

Using the Road Data Bank the RWA is able to survey

- the extension of the road network
- the prevailing technical and traffic conditions on the network
- the development of the network and its service level.

This information serves as the basis for planning of road construction and maintenance. Future development of the network can be assessed by using traffic volume forecasts together with the data in the Road Data Bank.

Ways for using of the Road Data Bank can be divided as follows (see Figure 5, page 7):

- Reviewing (survey of the situation at a given point)
- Tabulation (situation at a given area and/or road class)
- Screening (list of road points located by means of certain critical values and summarized into tables)
- Hard copy graphics (descriptions of road conditions drawn by automatic plotter on map sheets, statistical tables, etc.)
- Research material (samples selected for statistical studies)
- Special programs (models for service levels and maintenance requirements of the road network, distance matrices, transport planning).

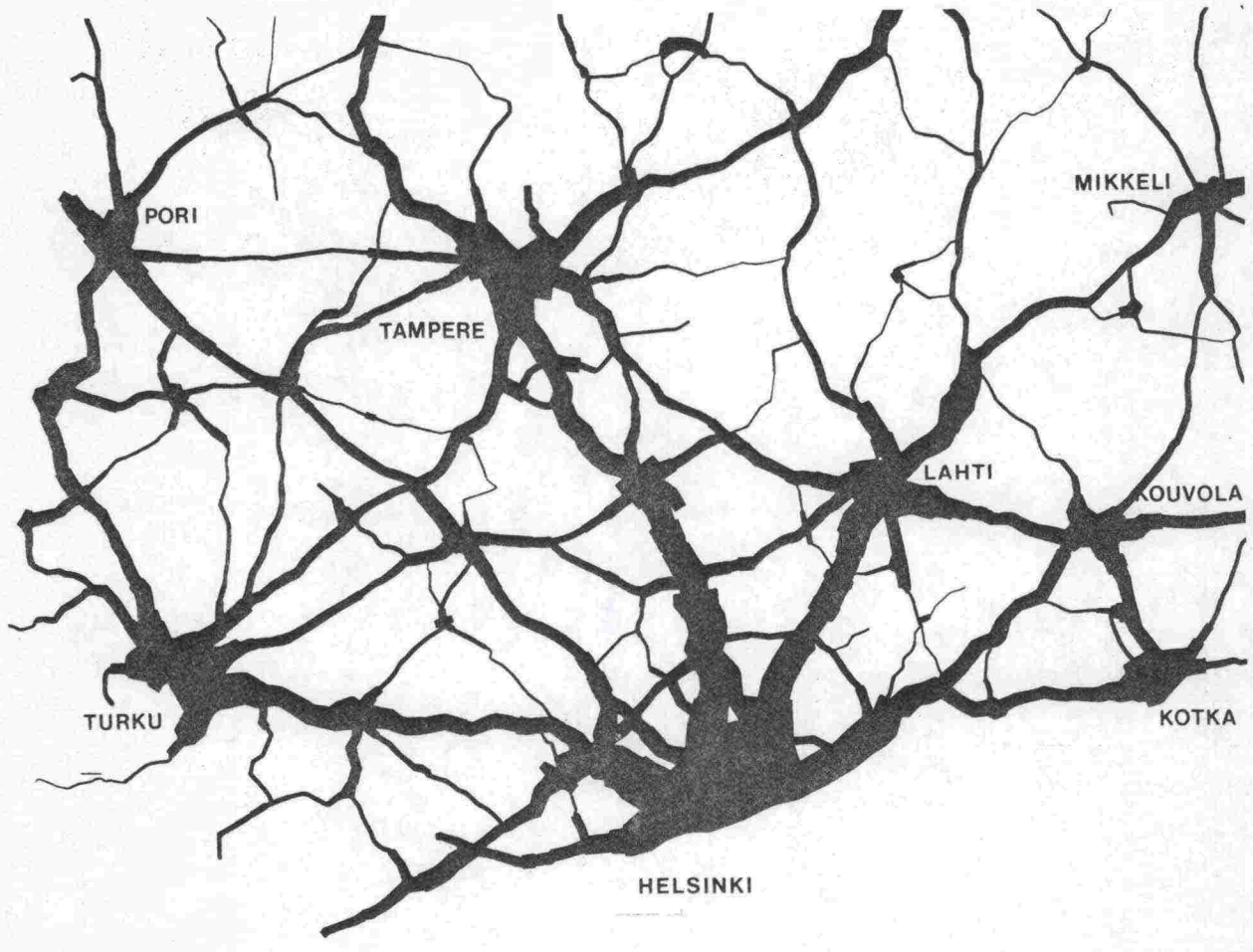


Figure 3: A traffic volume chart produced using the Road Data Bank (ADT on the main road network).

Essential to the use of the Road Data Bank is the fact that all the data are based on uniform definitions and classifications, and the quality of the information can be monitored. This makes possible nationwide surveys with compatible results. The use of computer technology makes handling of large amounts of information both quicker and easier. This means that subjective opinions can be replaced by objective information.

How the Road Data Bank is Operated

Each Road District (there are 13) has its own Road Data Bank Group whose task is to maintain the Data Bank and utilize it for the needs of that District. The Road Masters (there are altogether 171 Road Master Districts in the whole country) aid in keeping data up to date. The computer runs for the Road Data Bank are carried out at the ADP Office of each District.

In the RWA, the Road Data Bank Section of the Research Division subordinate to the Economics Department is responsible for the supervision, coordination, and development of the entire Data Bank system. Within the RWA, computer operations have been concentrated in the Data Processing Division but the Research Division also has its own computer terminals, which are linked to the Road Data Bank. Figure 4 shows the functions of different units and how they work together.

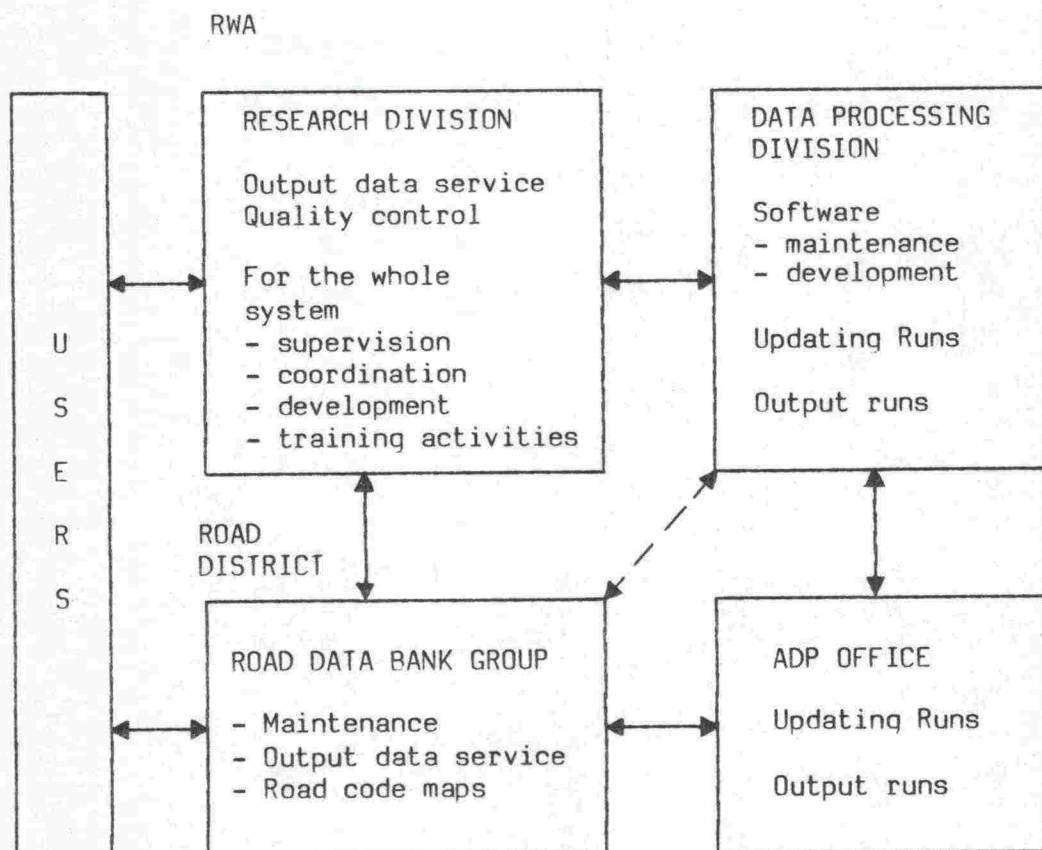


Figure 4: Road Data Bank functions of the road Districts and RWA.

The traffic data in the Road Data Bank is obtained from an annual traffic census made at the intersections of public roads. The rotation period is 5 years, that is, one-fifth of the census stations is counted every year, and the uncounted stations are estimated on the basis of the counts carried out. This means that there is always updated information available on the traffic volumes by vehicle group and road section. There are also special district units for the traffic census supervised by the Traffic Census Section of the Research Division which is subordinate to the Economics Department.

Traffic accident data are also collected by the Road Districts. There is a special file for them which is on the responsibility of the Traffic Division of the Operations Department. Traffic accident data is based on accidents reported to the police. The Road Masters then locate this data on the road network using the numerical road codes. Traffic accident data can be combined with the data of the Road Data Bank for a period of several years.

There are also separate District organizations for bridge data gathering, which work under the direction of the Bridge Construction Division of the Construction Department. There is a separate register for individual bridge data, but this data can be also entered in the Road Data Bank.

Figure 5 shows the different parts of the Road Data Bank, their interrelationships, and the utilization of the system.

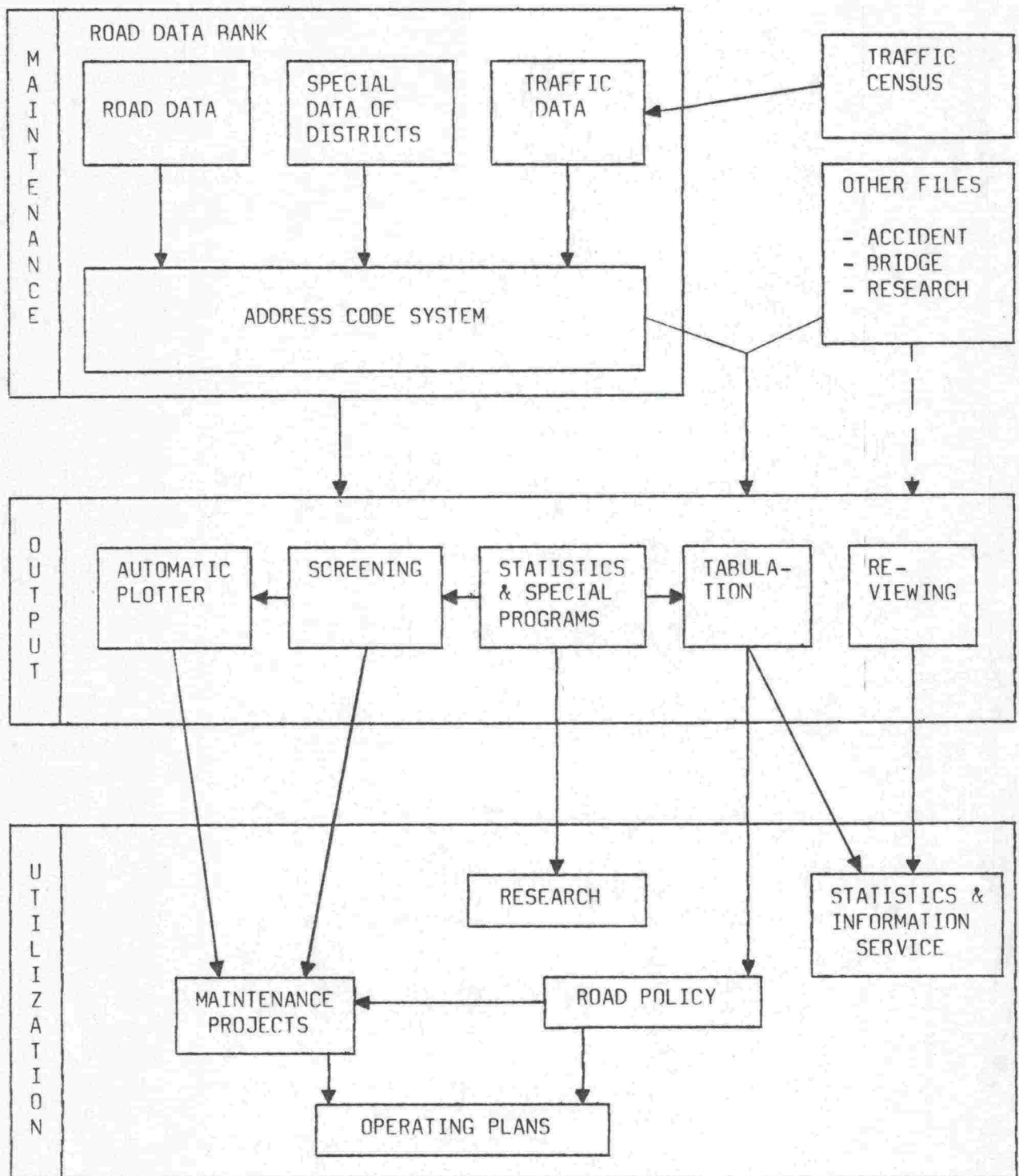


Figure 5: The structure and use of the Road Data Bank.

The Road Data Bank Group of each District follows up the changes occurring in the data during the calendar year, and makes the inventories of these changes. Changes in the data are entered into the District's own Data Bank in an updating run at the end of the year. The National Road Data Bank is created by combining all of the updated District Data Banks in the Data Processing Division of the RWA.

Utilization of in the Road Data Bank takes place with the help of the Road Data Bank organization. The Data Bank Group of each District maintains a microfilm file of the contents of the Road Data Bank, which is used as a running data service. In addition, the Group produces made-to-order reports at the ADP Office of the District. The RWA has a corresponding microfilm file covering the entire country in its Research Division. The Research Division also produces users' reports with the Data Processing Division. Graphics are done only in the RWA.

Each District has its own computer, which is also used for the Road Data Bank runs. When processing the data the RWA uses partly the services of the Government Computer Center, and partly its own computers.

In the future, the Road Data Bank will be functioned totally by the computers in the RWA. At the same time, the intention is to acquire for different users of the Data Bank their own computer terminals, which they can use to reach the Road Data Bank directly.

INFORMATION CONTAINED IN THE ROAD DATA BANK AS PER 1 JANUARY 1984

The following lists the type of information in the Road Data Bank, arranged by main characteristics. The number preceding the data indicates the data code. The list also shows the grading and classification of the data.

1. Road data

101 Name of road or road section

2. Road section data

106 Length of road section

- meters

107 Hilliness

- m/km

108 Average curvature

- grade/km

109 Sight distance

- sight distances of 150, 300 and 460 m as a percentage of the length of road section

110 Bearing capacity

- year of measurement, temperature adjustment factor, coefficient of Spring bearing capacity, mean value of depressions, standard deviation of the mean, value of spring bearing capacity

3. Permanent Data

126 Province

128 Municipality

129 Road Master District

130 Functional road class

- present day and that corresponding to the 1990 network

- 131 Road keeper
 - RWA/State Railways/other (community)
- 133 Maintenance measure taken and date of maintenance (opening to traffic)
 - construction
 - improvement of alignment
 - improvement of structure
 - conversion of municipal road into national highway and vice versa
 - conversion of private road into public road
- 135 Number of traffic lanes
- 136 Width of traffic lanes
 - width (accuracy of 0.1 m)
- 137 Pavement of traffic lane
 - type of pavement: asphalt (6 subgroups), light pavement (3 groups), surfacing of gravel road, gravel
 - year of paving

4. Data By Stretch

- 162 Frost damage limit
 - year and extent (tons)
- 164 Width of shoulder
 - width (accuracy of 0.1 m)
 - each side of traffic lane
- 166 Bicycle path and pedestrian walkaway (each side of traffic lane)
 - type: bicycle path, pedestrian walkaway, both
 - intersection of bicycle path and pedestrian walkaway with traffic lane and each other
 - width (accuracy of 0.1 m)
 - road class and road keeper
- 167 Illumination
 - starting and ending point

- 168 Speed limit
- type of limit: differential limit by road, by point, local speed limit, regional limit, gradation of speed limit
 - speed limit km/h (permanent limits)
- 170 Classification of surface structure (only roads constructed according to the present standards)
- classification (1-8) according to the axle load application of the design
- 171 Typical cross section
- classification according to standards
 - only roads constructed according to standards
- 172 Motorways or expressways
- starting and ending point
- 173 Width of pavement
- width (accuracy of 0.1 m)
- 174 Repair of pavement by tracking patches

5. Data by Point

- 191 Division point of road section
- description of division point by type and location
- 192 Railway level crossing
- safety equipment (without safety equipment, flashing lights and/or sound signal, boom barrier, gate)
- 200 Coordinates
- location of division points and intersections in the national survey coordinates (nominal accuracy of 100 m)
- 500 Intersection and crossing
- number and name of intersection
 - classification
 - level intersection
 - different channelizations
 - Y-junction

- traffic circle
- grade-separate intersection
- also indicated
 - three-way or four-way intersection
 - access road numbers
- 501 Intersections of private roads (only main roads since inventory incomplete)
- 502 Access road and ramp
 - length (m) by road class (highway, local road)
- 503 Access road and ramp
 - length (m) by pavement type
- 505 Traffic census station
 - station number and counted traffic direction
 - traffic volumes by vehicle type (ADT and SDT)
- 506 Census of light traffic
 - total volumes or light traffic across and directional
- 601 Bridge
 - bridge number (according to the bridge file) and name
 - type of bridge
 - waterway bridge
 - crossing bridge - overcrossing
 - flyover
 - underpass
 - weight limit
- 602 Undercrossing
 - number and name of undercrossing
 - type of undercrossing
 - underpass
 - crossing bridge - underpass
 - flyover
 - support for preselection sign
 - cables for electric railway
 - other undercrossing

- height clearance
- by-pass and eventual route
- 603 Bridge for light traffic
 - underpass
 - overpass
- 801 Ferry
 - number of ferry station
 - length of the channel by municipality and Road Master District.