AURORA

TOWN OF AURORA

BASE MAPPING AND

LAND USE INFORMATION

PROJECT

1983

Grace H. Bonner

Mayor

Town of Aurora

P.O. Box 86

Aurora, North Carolina

PROJECT CONTRIBUTORS

Bruce Behringer
Community Development Director
Town of Aurora

John Schofield
Computer Consultant
Manassas, Virginia

Mack Simpson
Regional Development Institute
East Carolina University
Greenville, North Carolina

John Crew
Land Use Planning Coordinator
N.C. Department of Natural Resources and Community Development
Washington, North Carolina

TABLE OF CONTENTS

INTRODUCTION

The Town of Aurora has received a grant from the Department
of N.R.C.D. through the North Carolina Office of Coastal Management.
The project is entitled Base Mapping and Land Use Information System
for the Town of Aurora. The overall goal of the project is to create
a base map of the Town of Aurora and its one mile planning area and
develop an information system as a fundamental management tool to
guide the implementation of the Aurora Land Use Plan.

Two specific objectives are stated for the project:

1. To provide baseline information concerning the actual land
   use of the area in the Town and one mile planning zone for
   each of the zoning categories. This information can then
   be used by the Town Planning Commission and Town Board of
   Commissioners in making future land use and zoning decisions.

2. To quantify and more completely describe the area located in
   Areas of Environmental Concern in order to minimize future
   impacts on the area's natural systems.

This project is the culmination of a number of CAMA supported Town
planning efforts. A Land Use Plan was completed in 1976 and updated
again in 1981. A Community Facilities and Capital Improvements budget
and study was created. The Town Code of Ordinances were organized,
reviewed and printed for the first time. All Town planning ordinances
were reviewed and amended and a simple community education brochure
was developed. The Base Mapping and Land Use Information System are
designed to provide better data for decision making within the confines
of the plans and policies developed previously by the Town.

The Town of Aurora's project was selected by the Office of Coastal Management as a demonstration to show other small coastal communities how an information system can be developed at relatively low cost. This "How-To Manual" is an effort to describe the process and results of this project. It must be stated that each community is unique; each community will face individualized problems in carrying through such an effort.

Three specific objectives were identified for the project:

1. To develop baseline data on all parcels of land within the Town of Aurora and one mile planning zone limits. The format for presentation of this data is computer print-out on all data collected and an analysis of certain specific planning data needs identified by the Town. The Town, with 700 residents, is similar to other small towns in that it has no computer , a very limited budget and has a staff of only two persons. The computer work for this project was done in conjunction with a private consultant and the Regional Development Institute of the East Carolina University.

2. To develop an ongoing system for updating this data. Agreements had to be concluded with the Beaufort County Tax Office and Register of Deeds to cue the Town when information on parcels is updated. A system whereby the Town would collect the data from the county and update the computer print-outs was also necessary to develop.

3. Drawing of a base map of the Town. This included approximate mapping of all parcel boundaries within the

Town and one mile planning area. Since this information
was not available previously, estimations of property
lines based upon deeds was necessary.

This report on the demonstration project included five sections:

1. Chronology of the Project.

2. Description of Computerization of Information.

3. Process of Base Mapping.

4. Problems Encountered in Project.

5. Summary and Conclusions.

Also, some sample product materials are appended to this report.

The Town wishes to recognize and thank the following organizations
for their cooperative and helpful advice and assistance during this
project: Beaufort County Tax Office, Beaufort County Register of Deeds,
Regional Development Institute of the East Carolina University,
Texasgulf, Inc., North Carolina Phosphate Company, North Carolina
Department of Natural Resources and Community Development, both the
Office of Coastal Management and the Division of Community Assistance,
and the members of the Aurora Town Planning Board.

CHRONOLOGY OF THE PROJECT

Careful records of the process of this project were kept because
of its demonstrative nature. This description is found below. It
summarizes events and activities which took place over a ten month
time period.

The Land Use Information System Demonstration Project officially
began July 1, 1982 and was completed February, 1983. The project was
funded through a contract with the North Carolina Department of Natural

Resources and Community Development, Office of Coastal Management in

the amount of $7,100. The Town of Aurora had to allocate $900 as a

cash match and document $900 in in-kind services.

Major activities in the completion of this project are listed

below. They follow in a chronological order. Many of the activities

overlap in their initiation and completion.

1. Grant application. The CAMA local planning and management

    funds grant cycle began with a public hearing on March 15,

    1982. Each year the administrative rules for the selection

    of grantees is reviewed in a public hearing format. Grant

    applications were due to NRCD by March 26, 1982. After

    consultation with the OCM representative in the Washington

    field office, the Town Board approved the submission of the

    Base Mapping and Land Use Information System Project

    application. As part of the land use planning update

    process the Town determined that it needed more baseline

    information about parcel ownership in the Town. It was also

    determined that information concerning ownership of lands

    within environmental areas of concern was lacking. With the

    assistance of the OCM field officer, the CAMA grant

    application was developed with more specific planning

    objectives elaborated. The Town was informed on June 16,

    1982 that its application for planning grant assistance had

    been included in the OCM 1982-1983 Federal Grant Application.

    The Town was further invited to expand the scope of the

    project to be demonstrative in nature; this meant the

    preparation of a "How-To Manual" in conjunction with OCM as

a model for other small coastal communities. The final signing of a contract between the Town and OCM was completed in September. A copy of the OCM application is appended.

2. <u>Determination of Data Variables.</u> As part of the expanded description of the project in the application, the Town identified fourteen potential variables for its data collection instrument. It estimated that data would need to be collected on 550 parcels in the Town and one mile planning area. The variables selected fell into three general categories. First, ownership information and tax value which could be collected from the Beaufort County Tax Office cards. Second, descriptive information concerning the parcel from Town records such as zoning, availability of public services, and compliance with Town ordinance standards. Third, more detailed information concerning the location of the parcel and its size was required. This was to be collected from deed references from the Beaufort County Register of Deeds Office. The OCM field representative was most helpful in helping to formulate operational definitions for each of the variables. This included the collapsing of categories of responses for each variable that would be meaningful in planning and land use terms. (An example was the exclusion of categories of areas of environmental concern which would not generally apply to land found in the Town of Aurora or its one mile planning area). A description of each of the twenty-six data variables is found on page 32.

3. Contract with Consultant for Computer Programming System.

   Because of the volume of the information about the parcels of
   land in the Town and one mile planning zone that needed to be
   collected, stored and analyzed, it was decided that some computer
   capability was necessary for this project. A computer consultant
   was contracted. He had previous experience in both city planning/
   community development work and land use computerized inventories.
   The role of the consultant was to develop the appropriate computer
   statements that would provide important analytical information to
   the Town on all 727 parcels. His second role was to advise the
   Town as to the most flexible, practical, and cost effective method
   for contracting for computer time. Finally, the computer consultant
   was to assist in the development of the "How-To Manual" in
   describing the background of computerized information systems.
   The consultant was contracted in July and assisted in the develop-
   ment of the data collection instrument.

4. Identification of Applicable Tax Parcels. The Beaufort County
   Tax Office has identified each of the tax parcels in the Town of
   Aurora and throughout Beaufort County in two ways. First, Beaufort
   County is divided into large tracts of land through the process of
   aerial photographs flown in 1976. Each of these photographs then
   is subdivided with identifying tax numbers placed on the aerial
   photographs in the location of the parcel. The task of identifying
   tax parcels was relatively simple. All of the seven tax photos for
   the Town of Aurora were included. Parts of six tax photos surround-
   ing the Town were also identified as containing the land within

the Town's one mile planning jurisdiction. This task required consultation by the Beaufort County Tax Office.

5. Procurement and Transfer of Tax Identification Numbers on Aerial Photographs. In order to accurately transfer tax parcel numbers onto a map, it was decided that the Town should procure copies from the photometric service of the same photos used by the Beaufort County Tax Office. A large expenditure, $405, had to be made in order to purchase copies of these photos. After receiving these photos Town staff copied the parcel number location onto the Town photos from the Beaufort County Tax Office photos. Prior to this the specific location of the Town limits and the one mile planning zone limits were identified on the photos. Only those parcel numbers which were located within these limits were identified on the photos; and only for those parcels located on the photo was data collected on for this survey. It was later found that although some tax parcel numbers were located on the photo outside of the one mile planning zone line, some of the property was actually in the area. Therefore a "second round" of research had to be initiated to effectively identify these parcels. All research was coordinated with the tax office to alleviate scheduling difficulties due to their updating and listing of new taxes.

6. Complete Tax Office Data Collection. The collection of the data from the Tax Office on all applicable parcels was completed in two steps. First, a data collection sheet and key sheet were developed to include those variables which could be collected from the Tax Office. These included the tax map photo and parcel number, a code to identify whether the parcel was in Town limits, in the one mile planning zone, or both, the ownership of the parcel, lot

-7-

dimensions or acreage, and the land and building values. One additional item of information that was available on certain parcels was the deed reference (book, page number, and date) for when the deed to the parcel was last registered. This information was tabulated on data collection sheets developed with the assistance of the OCM field representative, the computer consultant, and the planner-in-charge. The second step was the actual collection of the data from the Tax Office parcel cards. This task took four days and was completed by Town staff members. A sample code sheet and data collection instrument is appended.

7. Supplement Deed Reference and Dimension Data. Of the 721 data collection sheets that were developed from the tax records, 501 parcels had complete dimension (length x width of lot or total acreage) information while 396 parcels had deed reference information only. A critical problem in the project was faced because of the lack of this information. Since the project was designed not only to collect information on each parcel but also to create a base map of all properties within the Town and one mile planning area, some dimensional information was necessary on each parcel. It was evident after the initial days of deed research that some estimation of parcel boundary lines would be necessary. However, after 10 days of title searching, additional deed reference and dimensional information was collected on 198 parcels in the Town and 151 parcels in the planning zone. In total therefore the Town has collected this information on 97% of the parcels targetted.

As a practical matter the importance of the missing
dimensional data was minimized when drawing property boundaries.
Missing dimensions in many cases were determined as mutual boundaries
were defined. Although dependence upon this "puzzle-approach"
may not be totally accurate, in practical terms it solved many
missing boundary line dimension problems.

8. Complete Town Information Collection. Data on certain variables
was collected by referring to the information already available in
the Town. These variables included: land classification (from
1981 Land Use Plan Update), zoning, non conformance to Town Code
of Ordinances, history of zoning and permit changes, location
within areas of environmental concern, access to Town facilities
(water, sewage and streets). Most of this information was
collected by referencing each parcel with existing maps (i.e.,
checking location of parcel within zoning districts,etc.). Other
information was derived from Town records (i.e., Town water and
sewage usage). All information was coded on parcel information
sheets by Town personnel. This task took 3 days.

9. Complete Field Survey Information Collection. Information on
two variables required a field survey by Town staff. These
variables were parcel use and availability of parcel for sale.
Town staff completed this task in one day by driving past
targetted parcels and making field notes.

10. Agreement with Regional Development Institute for Computer Time
and Assistance. With the intervention and assistance of the
contracted computer consultant, the Town of Aurora requested

assistance from the Regional Development Institute at East
Carolina University as a broker for computer time through the
University system. This request was approved in October and
a project identification number was established by RDI for the
Aurora project at that time. Use of key punching facilities at
the ECU computer building was arranged.

11. Enter Information on Computer Code Sheets. The next step which
needed to be completed was to enter all data collected on the
twenty-three variables onto a computer coding sheet. These were
simple Fortran statement sheets provided by the computer consultant.
Data from the parcel information sheets developed by the Town was
transferred to these code sheets. Although this step appeared
time consuming it helped to reduce the number of key punching
errors made when entering the information on computer cards.

12. Key Punch Data Deck. All parcel information was typed on computer
cards at the East Carolina University computer center. Two computer
cards were used for each parcel. Although Town staff had no direct
experience in key punching, a practical how-to-do-it training was
provided by the computer consultant. This step took three full
person workdays to complete.

13. Trial Run of the Computer Program. In addition to the parcel
information which was typed by Town staff onto computer cards, the
computer consultant key punched the command cards for the trial run
of the program. This trial run was first attempted on October 16,
1982. Since not all of the data deck had been punched by that time
additional trial runs had to be made by the computer when additional

information was submitted.

14. Review Trial Run Results and Make Corrections and Additions.

As was to be expected, Town staff needed to correct approximately 230 of the 1442 computer cards in the data deck because of key punching errors. A second reason for correcting that large number of cards was that additional information was being collected from the Register of Deeds Office which defined deed references and lot size information. Finally, many lot dimensions were estimated during late December when the staff began the mapping process. Each of these new pieces of information had to be re-entered on new computer cards to ensure the accuracy of the computer data print-out.

15. Map Parcels. Twenty-six hours were spent by Town staff mapping each of the parcels in the Town and one mile planning zone. A more detailed report on this mapping process can be found in Section III.

16. Write Final Report. A final report and this "How-To Manual" was written during January, 1983. The report had two purposes. First, it served as a documentation of the work performed under the CAMA grant and acted as a final report to the granting agency. Second, it detailed the process of the activities conducted in the completion of the project. This report, when viewed with the final planametric map and computer run, constitutes the "How-To Manual" for this project.

DESCRIPTION OF COMPUTERIZATION OF INFORMATION

Computers can do several things very well. They can store and retrieve vast amounts of data and, in turn, process this data into useable information. Computers can perform intricate mathematical and ordering operations in incredible time sequences. However, at either end of these functions remains the human functions of determining what needs to be done and how to utilize the results. Without these human elements, a computer remains only a machine. Without a computer, the efficiency and productivity of humans remains unfulfilled.

A basic distinction needs to be made. A computer receives data and transforms it into information. Since the beginning of the CAMA planning process in 1974, a large amount of data has been collected in many local government jurisdictions. However, much of this data remains untransformed. This particular project is an effort by a small, rural community to transform certain basic data concerning land use into useable information to assist in making more informed decisions about its future.

The developments in computer technology since 1975 have made it practical and cost effective for a small local government, such as Aurora, to design and implement a land use, or for that matter, any type of management information system. This system was constructed to recognize several important facts about the Town of Aurora:

1. There was no one on the Town staff that had a background in data processing;

2. The Town did not have a computer and did not want to purchase or lease a machine;

-12-

3. The limited budget resources could not accept a large
   expenditure for computer time; and

4. There were very limited resources for maintaining and
   improving the system.

Additionally, the Coastal Resources Commission was interested in a system that could be readily transferrable to other local governments with similar budgetary and staff constraints.

With these facts in mind, the project was divided into four basic components. The first component involved preparing the list of data variables that would be used to construct the system. The initial variable list had thirty variables providing a structure tying parcel ownership data to land classification, land use, environmental and zoning data. Revisions reduced the number and complexity of variables into a more manageable list, but still retained the basic structure. The second component involved the collection of the data. This was the most expensive and time consuming process. The Town staff collected certain basic ownership data from the Beaufort County Tax Office, but had to acquire aerial photographs of the Town and its extraterritorial area and transfer parcel size and other data from the tax maps in order to collect the base data. Other transfers of mapped information, such as zoning districts, land classification, land use and areas of environmental concern, were required to complete the data collection phase. All of this data was then transferred into a form more readily useable for key punching. The third component involved the actual development of the computer program for the data analysis and report preparation. A fourth component involved the actual transfer of the new data onto computer cards for storage and use by the computer.

To work within the criteria established by the Town, two unique

problems had to be addressed. Since the Town did not want to purchase

or lease its own computer and the Town budget could not accept large

computer time expenses, the system had to work in somewhat unusual

circumstances. Coupled with the requirement for simple maintenance and

updating procedures and an untrained staff, the system configuration had

to be flexible. All of these criteria ruled out the more obvious solutions

of time-sharing with a business or industrial data processing department

or contracting with a commercial data processor. The solution developed

for this information system insures that the local criteria are met and that

the system is easily expandable to other Town needs and to other units of

government in the area.

The Design of the Information System

The Triangle Universities Computation Center (TUCC), located in the

Research Triangle Park, is a joint venture of the University of North

Carolina, North Carolina State University, and Duke University to develop

and operate a major computer center for scientific and educational

purposes. The General Administration of the University, representing all

the state-supported colleges and universities, acquired an interest in

TUCC to develop computer centers at each campus without unnecessary

duplication. Operating through its Educational Computing Service, UNC-GA

has developed and acquired an extensive network of program support through

this arrangement. Experience with this service has shown it to be very

cost effective and able to keep pace with technological improvements in

computers and software. To gain access to this service, the Regional

Development Institute at East Carolina University was contacted to determine whether it would be willing to act as a "vendor" of TUCC computer services through the University's ECS access. This was felt to be very cost effective for all parties concerned. The Institute readily agreed because this type of project fits well into its overall plan for new services to its region.

The next arrangement was to develop a software program powerful enough to operate the Aurora system, flexible enough to meet changing information needs, and yet easy enough for an untrained staff to operate. Significant advances in software technology have allowed first time users, such as Aurora, to adopt highly sophisticated computer technology into its operations. One such advance has been the development of "canned" packages for use in the social and natural sciences. Originally, these packages were developed to perform powerful statistical operations for research applications, but now have been advanced into flexible data management, report generation, and graphic programs as well. The two most commonly used packages are SPSS (Statistical Package for the Social Sciences) and SAS (Statistical Analysis System), developed at North Carolina State University. Both have extensive manual documentation and support and have the advantage of having numerous users in both academic and industrial settings in all parts of the State. SAS was chosen for this project because of the consultant's preferences, but SPSS would have accomplished the same task.

The use of SAS does require a period of training and study. However, it does not require a background in data processing to understand and use. Training sessions of several days would be adequate to introduce a beginner to the fundamentals of using SAS in developing and changing and use of

information data sets. Those training sessions could be arranged through
the Regional Development Institute, any of the universities, the Educational
Computing Service or the SAS Institute, Incorporated in Cary. Participation
in training sessions would allow an administrator, clerk, or planner to
utilize the information system to meet their particular needs without
continuous reliance on a computer programmer. However, the successful use
of SAS requires a thorough knowledge of what the user's information needs
are, how to organize the data set to achieve the desired information, and
a basic level of knowledge about the operations of the computer system
used for data analysis.

A computer, and the software that runs it, will convert information
from punched cards or electrically stored impulses on tape or disks into
other electrical impulses that can be manipulated in a way to combine or
recombine data variables into a sequence providing information requested
by the user. The logic of the computer and the software requires a well
conceived data plan in order to accurately respond to these information
requests. A well conceived data plan requires the following elements:

1. A well-defined idea of what the information system (and
    consequently, the computer) is expected to provide. The
    system can provide an incredible amount of information
    based on the requests of the user. But it cannot evaluate
    the quality of its output - that is up to the user. The
    quality of the output depends on the quality of the data
    and on the "quality" of the request. The user must under-
    stand how to define a request for information and, more
    importantly, understand the relationship between data
    elements.

2. The system designed from the data plan must be flexible enough to expand with the needs of the user. In this system, Aurora, once it gains familiarity, can transfer the punched cards onto disk storage and acquire the use of a terminal to communicate with its information system interactively. The system can incorporate additional elements not originally included or be expanded into new areas, such as finance or payroll.

3. Another aspect of expandability includes the technological advances made in microcomputers. Although this system utilizes one of the largest computers commercially available, once Aurora gains competency in utilizing computers to answer questions not previously answerable, the transition to a microcomputing system affordable to the Town is a very small step. The data plan should recognize the potential for improvements not only to the system but for the users of the system as well.

4. A means to evaluate the effectiveness of the system in providing the required information. In developing this system for Aurora, it is difficult to evaluate how the system will meet its expectations because there is no real local experience or understanding of how to use computers for information. It is important that Aurora continually examine its information system and make adjustments as necessary to temper expectations with reality. In this case, the cost of maintaining the

accuracy of the system will not be too high but in order

to evaluate the system, it must become a part of the local

decision making process. If it is to work, it must be

used. In larger jurisdictions the cost of system maintenance

and updated data may become more important.

The key data element in this information system is the individual parcel

of land. This requires that all data collected is at its smallest possible

level. It allows data to be aggregated upwards to the broadest possible

level, in this case, the Town or extraterritorial level. It also allows

parcels to be compared with other parcels or to be consolidated with similar

parcels by meeting special or unique criteria. However, it also requires that

the data on parcels be available. As will be discussed later, this can become

a real problem when the data must come from so many different sources.

Each of the four system components is described below.

1. <u>Prepare the Data Variables</u>

After the purpose of the system had been defined, the list of

information elements to be used in the system was developed. As

with each step in the system, this step required attention to detail

and a great deal of planning. The initial list represented an

optimum number of elements responding to the need of "that would be

nice to know". Information must be recognized as a commodity and,

as such, it has a certain cost. Many of the "nice to know"

information elements had such a high cost or an uncertain cost

that they became impractical to stay in the system plan. The

remaining elements were selected because they could be readily

collected at an acceptable cost and were easily updated. They

represent what is desired in Aurora and may not be what another community would deem desirable. Of each of the four components, this is the most individualized to meet the particular needs of the system. The use of SAS allows a user to transfer this information into another jurisdiction and easily make whatever changes are required.

A full description of the final data variables can be found in Section 4 of this report. A coding key sheet describing the categories of responses possible for each variable is appended.

Each data element has meaning within the system, however, some mean more than others. As Aurora gains experience in using this system, some of the selected variables will lose their relevance, while others not initially included, will become relevant. In this system the use of SAS encourages the Town to experiment within its information system without incurring large data processing costs. As was mentioned earlier, another local government might select a substantially different set of elements and still obtain an effective system.

2. Data Collection

This component required the most time and individual effort. Some of the data elements deemed most important proved the most difficult to collect. The quality of real property files varies considerably from county to county due to the nature of the structure of this information system and will directly influence the quality of the system. In this particular case, lot dimensions and ownership addresses were not always available.

The project director and a secretary collected all relevant
information for almost 1,000 parcels of land in and around Aurora
in several months of part-time effort. A similar effort in a
larger city within the area resulted in the collection of over
4,000 parcels in a three week period. However, the latter case
took place with excellent files to work from.

Of all components, the collection of data is the most
expensive and time consuming. It is also the component requiring
the most attention to detail. Problems occurring in this step
will also occur in the maintenance of the data base. Documentation
of this problem will help in making the system function as well as
possible. A well thought out system is the product of a detailed
understanding of the particular data collection problems one will
face and how these problems will be resolved.

A local government must be prepared to adequately fund this
component, as well as be prepared for a number of unforeseen
delays. Without this commitment the entire system will not meet
expectations either in the beginning or at any point in its use.
The dollar cost to Aurora for data collection was about $4,700.

3. Development of the Program

The Statistical Analysis System is designed to provide the
user with a relatively easy use to data management and statistical
software package. It is relatively easy to use in the sense that
one need not be a computer programmer in order to write a local
government information system. It does require an investment of
time and effort to learn not only SAS but also to understand the

computer environment in which one will operate. In this case,

the user would need to understand the TUCC environment, as well

as the procedures of the ECU Computer Center.

The entire program for this information contains the following

statements:

```
 1.  // Aurora Job Ecs . xxx . xxx . xxxx . xxx
 2.  PW = xxxx
 3.  // EXEC SAS
 4.  // SYSIN DD *
 5.  Data Landuse;
 6.  Input Date 1-6 Mapnum $ 8-10 Parcelnu 12-14
      Townumbr 16 Owner $ 18-42
 7.  Lotlen 44-47 Lotwidth 49-52 Acres 54-59
      Shape 61 Deed 63-68 #2
 8.  DateDeed 1-6 Valand 8-12 Valbldg 14-18 Landclas 20 Zoning 22
 9.  NONCON1 24 NONCON2 26 NONCON3 28 ZONCHANG 30 SPECUSE 32
10.  SPUSETYP 34 AEC 36 WATER 38 SEWER 40 ACCESS 42 USE1 44-45 USE2
      47-48
11.  USE3 50-51 HOUSECON 53 Sale 55 SqFoot 57-60;
12.  LotSize=LotLen*LotWidth/43560;
13.  TotValue=Valand+Valbldg;
14.  If Lotlen=0000 Then Lotlen=.;
15.  If Lotwidth=0000 Then LotWidth=.;
16.  Cards;
      Data Deck
17.  Proc Sort;
18.  By Mapnum Parcelnu;
19.  Proc Print N;
20.  Data Two;
21.  Set Landuse;
22.  Proc Sort;
23.  By Water;
24.  Proc Print N;
25.  Var Owner Mapnum Parcelnu Water;
26.  Title Aurora Water System;
27.  Data Three;
28.  Set Landuse;
29.  If Use1=51;
30.  Proc Print N;
31.  Var Owner Mapnum Parcelnu Zoning;
32.  Title1 Aurora Land Use System;
33.  Title2 Vacant Parcels And Zoning Districts;
34.  Data Four;
35.  Set Landuse;
36.  Proc Sort;
37.  By Sewer;
38.  Proc Print N;
```

```
39.  Var Owner Mapnum Parcelnu Sewer;
40.  Title Aurora Sewer System;
41.  Data Five;
42.  Set Landuse;
43.  Proc Freq;
44.  Tables Usel*Zoning/Missing;
45.  Data Report;
46.  Set Landuse;
47.  By Usel;
48.  File Print Header=H Notitles;
49.  If First.Usel Then Do;
50.  TotValue=0;
51.  End;
52.  Put @ 4 Owner $ 25. @ 30 Mapnum $ 3. @ 40 Parcelnu 3.
53.  @ 50 Zoning 1. @ 60 Totvalue 6.;
54.  Total + Totvalue;
55.  If Last.Usel Then;
56.  Put @ 1 Total 10.2;
57.  Return;
58.  H.Put/ @20 Aurora Land Value By Land Use';
59.  Return;
60.  Data Six;
61.  Set Landuse;
62.  If Owner='N.C. Phosphate'or 'Agrico' or 'Texas Gulf' or
     'Texasgulf';
63.  Proc Print;
64.  By Owner Mapnum Parcelnu Totvalue Usel;
65.  /*
66.  //
```

In essence the Town requested the following information from

the computer:

DATA ONE – A print-out of all the coded information on each

parcel; this information was to be organized by

map number and then parcel number (e.g., starting

with AU1-001).

DATA TWO – A print-out of those parcels which have access to

the Aurora water system.

DATA
THREE   – A listing of all vacant parcels by owner, map number

and parcel number.

DATA
FOUR   – A print-out of all parcels which have access to

           the Aurora sewer system.

DATA
FIVE   – A table which displays the number and frequency

           (percentage) of parcels by use within each zoning

           classification (e.g., number of parcels used for

           residences in residential areas and commercial

           areas and rural areas, etc.). This will also

           provide land values (from tax office) by actual

           parcel use.

DATA SIX – This print-out will identify all phosphate holdings

           by location (map number and parcel number), current

           use and total value.

Cards 1-4 are called Job Control Cards. Their function is to
enter the computer system through a two phase security system
(// Aurora Job ECS . xxx . xxx . xxxx and PW = xxxx) and to instruct
the computer that the user wants to call up the SAS procedure.

SAS then becomes operational. The first step is to prepare the
raw data into a form that can be read by the computer. Whether the
data is punched on cards or inserted by a keyboard terminal, the
data is presented in an 80 space field, where each space represents
a letter, a number or a blank. A sample card is shown on the
next page.

Card 5 creates a SAS data set where the raw data will be manipulated based on user needs. Cards 6-11 actually define the location of the raw data on the card which is used by the map in executing specific instructions. For example, the variable DATE is located in positions 1-6 and is a numeric variable. The next variable, Mapnum, is an alphabetic variable, indicated by the $ found in positions 8-10. The #2 on card 7 indicates that the data definitions are to be carried forward to an additional card. The twelfth and thirteenth cards are special cards creating new variables from existing variables. In this case, a new variable LOTSIZE; is created by the computer multiplying LOTLEN by LOTWIDTH and dividing that number by the number of square feet in an acre. This represents a clear example of a computer performing mathematical operations that would consume a considerable amount of user time, if done

manually. TOTVALUE is created by adding VALAND and VALBLDG. Cards 14 and 15 are also special cards. In the data collection phase, a number of lot dimensions were not available and therefore rendering the new variable LOTSIZE meaningless. These special cards automatically negate any zero value in either LOTLEN or LOTWIDTH. This is done by recognizing a zero as a missing value and no mathematical computations are performed. This is important not only in computing specific lot areas, but also when one wants to gather column totals. Card 16 informs the computer that the raw data will follow.

The last two cards are a continuation of the Job Control Cards.

There are a number of other forms of data handling capabilities provided by SAS, including a number of sophisticated graphics and reporting procedures. These are enumerated in the various SAS manuals.

4. Data Transfer

This component involved transferring the field data onto the computer cards. Town personnel were trained to use a key punch machine. The entire process of punching data on the parcels was three days.

PROCESS OF BASE MAPPING

One of the important products of the Land Use Inventory Project was the completion of a base map of the Town of Aurora and its one mile planning area. This map shows the physical features of the area, that is its streets and waterways. It also shows each of the 721 tax parcels located within the Town boundaries and one mile planning area. This had never been completely mapped for the Town previously.

The completion of the map was very important from three standpoints. First, the Town did not know who owned what parcels of land within its area. In spite of receiving an annual print-out from the Beaufort County Tax Office on the taxes received for each of the parcels within the Town, there had been no way of identifying where each of these tax parcels was located. Second, because of physical boundaries, the tax parcels had never been located on a map and therefore the Town had no conception of how much land was owned by any particular owner. This is particularly important given the large land holdings of the phosphate and timber companies in the Aurora area. From a land use planning standpoint, it was impossible to project growth patterns within the Town and its planning jurisdiction without knowledge of the extensiveness of the holdings of these resource development corporations. Finally, the relationship between zoning, current land use, and parcel ownership had never been fully developed. For example, the Town could only approximate compliance to zoning restrictions without full knowledge of property boundaries. From another viewpoint, because the Town had no existing system of monitoring tax parcel transfers, changes in land use with regard to zoning restrictions could not adequately be followed.

The information was collected on each of the tax parcels from three sources. First, for a small number of parcels the dimensions of the

property were listed in the Beaufort County Tax Office. An approximate location of the parcel was noted on the tax map. Second, for those parcels which had incomplete dimensional data, the planner-in-charge reviewed the original deed to the property. In about 5% of the deed references there exists a surveyed map which was copied and located on a composite parcel map. For those parcels without surveyed maps, boundaries were approximated by reading the deed description and sketching property. There were three types of descriptions found. One located the boundaries for the parcel through identifying the contiguous property boundaries. For example, the north property line of "parcel x" is the same as the south property line of "parcel y". A second method was through a survey description with distinct metes and bounds and specific footages for each reading. The third method of description was through estimated usage of the parcel. A parcel was estimated for example to be bounded by creeks, canals, and streets where these appeared to be the usage boundaries.

Another source of information regarding boundaries of parcels was the assistance received from local individuals. Members of the Town of Aurora Planning Commission were helpful in identifying the location of older parcels as well as some of the geographic nameplaces which have changed over the course of years. Also assistance was received from the local phosphate industry in identifying the location of their parcels in the Town of Aurora and its one mile planning zone.

The use of aerial photographs of the Town and its one mile planning area assisted in generally locating property lines. In many cases lines were estimated to coincide with hedgerows, tree lines and ditches which could be seen in aerial photographs.

All of this information was collected by the planner-in-charge over a three month period of time. All of the parcels in Town were drawn to a scale of 1 inch = 100 feet on separate 'block maps'. Each of the parcels in a particular block were drawn on a separate sheet of paper with red lines used to identify estimated property boundaries and pencil lines used to identify those property lines for which the planner was more assured. In the one mile planning zone, because the parcels were much larger, property lines were simply drawn on these maps. For those areas which have been subdivided many times into smaller parcels, supplemental maps on a larger scale were drawn.

The aerial photographs and the in-Town 'block maps' were given to the Division of Community Assistance of the North Carolina Department of Natural Resources and Community Development, Washington Field Office. The draftsman in the office then prepared a planametric map identifying streets, creeks, canals and the railroad on a scale of 1 inch = 100 feet for the Town of Aurora. This map also included all of the property lines for the 419 parcels in the Town.

The second stage of the map preparation was to reduce the completed Town of Aurora map to a scale of 1 inch = 400 feet. The NRCD draftsman then added the 302 parcels in the outer ring of the one mile planning area. This was done on a 1 inch = 400 feet scale also. The completed map includes all of the parcel lines for the Town and one mile planning area completed on a sepia which then can be copied by the Town for various planning uses.

PROBLEMS ENCOUNTERED IN THE PROJECT

There were four major problems encountered in the design and implementation of the Land Use Inventory Project. These problems were both conceptual and practical in nature and influenced the amount and type of work which was necessary to complete the objectives of the project.

Stated below are the general expenditures made in carrying out the project. The amount of cash funds available was $7,100. To this the Town had to establish a $900 in-kind match. From a practical sense, this meant that approximately $9.75 could be used per parcel for the research, data collection, mapping and computerization.

Base Mapping and Land Use Information Project Budget

Salaries	
Planner-in-Charge and Clerical Assistant with Fringe Costs	4,450
Consulting Costs	
Computer Programer	1,000
Supplies	
Areal Photographs	405
Office Supplies	125
Base Mapping Supplies and related Expenses	120
Telephone	475
Travel	450
Computer Time and Other Expenses	75
	————
TOTAL EXPENSES	$7,100

One influence on the adequacy of funding dedicated to this project has to do with the level of accuracy which is demanded. Pareto's Law states that 20% effort will produce 80% of the information required; while it requires 80% effort to collect the final 20%. This is particularly true when researching deed references on parcels of land which have been heired or have transferred titles very very infrequently. If a Town demands total accuracy in its report and mapping, the funding level cited would not be adequate. However, if the computer run and planametric map is used by a Town for general purposes of identifying ownership and then researches any further detailed information necessary, the funds provided were adequate.

Two further points with regard to budget should be mentioned. The first has to do with the availability of a local person to act as the planner-in-charge. Contracting this part of the project to an out-of-town firm is possible; however, familiarity with local landmarks, the area's history, and persons residing in the area who know much about land transfers is essential. The development of this project as part of a long-term community development and improvement program by the Town of Aurora was of great assistance because of the legitimacy and non-threatening relationship that the program has developed with the Town's citizenry.

The funds allotted to the Town for the project could not have covered project costs if it had not been for the contributions made by the Regional Development Institute of the East Carolina University and the Division of Community Assistance of the North Carolina Department of Natural Resources and Community Development. It was through the first organization that low-cost computer time and access to key punching machinery became available. The alternative to this would be for the Town to lease space and time from

some private source, probably at a cost much higher than related in the above budget. NRCD assisted the Town by allowing its draftsman to complete the planametric map for the Town for the cost of materials only. Again, a much larger expense would have to be shown if this assistance was not donated at no direct cost to the Town.

A second major problem encountered had to do with the variables selected and the data collection standards. The table beginning on the next page outlines each variable, identifies an operational definition for that variable, its data source, and the process necessary to retrieve the data. The problems encountered are then listed with the resolution determined by the Town staff. Some variables, such as owner occupied versus rental property would have been so difficult to collect that they were dropped from the survey. The complete accuracy of other variables, such as lot dimensions and some of the non-conformance variables, may have been estimated on individual parcels. Therefore a disclaimer has been prepared to be attached to the final map and the computer run which will be made available to the public. It states that some information was estimated and requests public assistance in improving the accuracy of information for those parcels.

A third major problem encountered was how the Land Information Use System would be updated to ensure future accuracy of the data and map. After an extensive amount of time was put into collecting information on all 721 parcels, assistance was requested from the tax office to determine a method to identify those parcels which had transferred ownership since initial data was collected in July. This request took place in January, 1983.

TABLE 1

EXPLANATION OF DATA SET VARIABLES

VARIABLE	OPERATIONAL DEFINITION	DATA SOURCE	RETRIEVAL PROCESS	PROBLEMS ENCOUNTERED	RESOLUTION
(1) DATE	Date of Tax Office Data Entries	-----	-----	-----	-----
(2) PARCEL #	Six Character # From County Tax Maps	County Tax Office	Review White Index Cards For Entries	Duplicated Cards For Same Properties	Enter All Cards Including Lease/Hold But Not Voided Cards
(3) TOWN #	Property Location Within Town Limits And/Or One Mile Planning Area	County Tax Maps	Compare Tax Map Numbers With Town Limits and One Mile Zone Limits	With No Property Lines Drawn On Tax Maps, Designation Into Categories Difficult	Initial Designation Guessed From Location Of # on Tax Map; Clearer Definition And Redesignation Made After Properties Mapped.
(4) OWNERSHIP	Name Of Property Owner	County Tax Office	Review White & Yellow Property Cards	Properties in Transfer; review Showed Properties Changed Ownership In Months During Survey	Establish Date For New Information
(a) MAILING ADDRESS OF OWNER/ (b) MAILING ADDRESS OF STRUCTURE	Owner Occupied Versus Rental Property	-----	-----	No Mailing Address Of Property Available Since All Of Aurora is on Post Office Boxes.	Dropped From Survey
(5) LOT DIMENSIONS	Number of Square Feet or Acres In Property	Tax Office Cards; Deeds	Copy All Tax Office Estimates on Lot Size; Review Deed References When Necessary	Some Lot Dimensions Inaccurately Guessed; Other Cards Have No Dimensions; Others Had No Deed References (See Review Sheet A).	-----

TABLE 1 - (CONTINUED)

VARIABLE	OPERATIONAL DEFINITION	DATA SOURCE	RETRIEVAL PROCESS	PROBLEMS ENCOUNTERED	RESOLUTION
(6) IRREGULAR LOT DIMENSIONS	Any Property Not Formed By Square or Rectangle	Lot Dimensions	Review Question #5 Data	Adequacy Of Lot Dimension Information	
(7) DEED REFERENCE	Deed Which Provides Most Accurate Description of Property	County Register of Deeds Office	Research in Deeds Books; Research & Copy All Map Book or Plat Cabinet References	(1)Reference Noted Only in Parcels Where Stated on Tax Card or When Deed Researched. (2)Adequacy of Descriptions: —Distances circumscribed by adjoining property lines (No Numbers). —Points Designated By Natural Landmarks Eliminated Over Time. —Distances Measured In Other Than Feet or Acres. (3)Reference Noted With Descriptions in Earlier Deeds Before or After Parcel Subdivision or Additions. (4)Reference Noted With Road Names or Numbers Since Changed.	
(8) DATE	Date of Last Deed or Deeds With Recent Accurate Description of Parcel	County Register of Deeds Office	Same As Question #7		
(9) TAX VALUE LAND	Final Computed Value Entered on Yellow Tax Card in Tax Office	County Tax Office	Review & Note Values	Duplicate Tax Cards With New Reviewed Values Calculated	Determine Age of Cards; Enter Newest Value
(10)BUILDINGS					
(11)TOTAL TAX VALUE	Land + Buildings	Same as Above	-----	-----	-----

TABLE 1 — (CONTINUED)

VARIABLE	OPERATIONAL DEFINITION	DATA SOURCE	RETRIEVAL PROCESS	PROBLEMS ENCOUNTERED	RESOLUTION
(12) LAND CLASSIFICATION	Code Assigned to Parcel as Noted in Land Use Plan Update, 1981	Aerial Photographs With Tax Office Parcel Numbers Located; Classification Designations Approximated on to Aerials.	(1)Locate Parcel By Number. (2)Compare Location to Land Classification Map. (3)Assign Appropriate Code.	(1)Uncertain Location of Parcels and Property Lines. (2)Lack of Accuracy on Land Classification Map.	Estimate Location And Appropriate Land Classification.
(13) ZONING	Code Assigned to Parcel as Noted on Official Aurora Zoning Map, 1977 as Amended	Same as #12	Same as #12 but Using Zoning Map	Same as #12	Same as #12
(14) NON-CONFORMANCE	(1)Current Use of Property Not Permitted Under Zoning Regulations; Use Allowed Thru Grandfather Clause. (2)Lot too Small (Square Footage) For Current Use. (3)Parcel Located in Whole or Part in Flood Hazard Area (Zone A, Map H-01, May, 1974). (4)Property Fails to Meet Minimum Property Standards for Structural Conditions, Basic Equipment and Facilities, Ventilation Safety and Sanitary Maintenance.	(1)Zoning Map & Schedule of Permitted Uses By District - Town Ordinances. (2)Lot Dimensions From Question #5 Compared to Minimum Lot Size in Ordinance Book. (3)Flood Hazard Area Map (Zone A, Map H-01, May, 1974). Federal Insurance Agency. (4)Town Code of Ordinances, Part 9, Chapter 2, Article H.	(1)Comparison of Current Use to Schedule. (2) (3)Locate Parcel on Aerial Map and Compare With Flood Insurance Map. (4)Visual Inspection of Parcel With Structures.	(2)Inaccuracy of Lot Sizes. (4)Difficulty of Evaluation Without Formal Inspection.	(4)Only those parcels with distinct problems were noted.

TABLE 1 – (CONTINUED)

VARIABLE	OPERATIONAL DEFINITION	DATA SOURCE	RETRIEVAL PROCESS	PROBLEMS ENCOUNTERED	RESOLUTION
(15) ZONING CHANGES	Formal Zoning Amendments Approved Since 1977 by Town Board	Zoning Map and Town Board Minutes	Review Map and Minutes With Property Description Noted	-----	----
(16) SPECIAL USE PERMIT	Formal Permit Issued By Town to Parcel Owner	Town Permit File	Review File With Property Descrip- tion Noted.	---	----
(17) TYPE (OF SPECIAL USE PERMIT)	Type of Permit Granted in Accordance With Code of Ordinances, Part 9, Chapter 4, Article G.	Town Permit File	Review File	-----	----
(18) AREAS OF ENVIRONMENTAL CONCERN	Parcels Contained in Part or Whole in AEC's as Defined in Aurora Land Use Plan as Defined By Coastal Resources Commission.	Town Planning Map Defining Areas of Environmental Concern Coastal Wetlands at Estuarine Shore- lines			
(19) TOWN WATER	0 - No Town Water 1 - Town Water Line Runs Along Property Line of Parcel 2 - Town Water Line Available But Not Necessarily At Property Line (Distance Not To Exceed ___ Feet Along Existing or Dedicated Thoroughfare.	Town of Aurora Water Line Map Prepared by Rivers & Associates 1965, 1977 and Rose, Pridgen and Freemon 1978.	Compare Parcel Lines With Utility Map	Parcels Located "Off Of" Highway/ Street	If Parcel Located in Land Classified As Developed in Question #12, Respond YES; if Parcel Located in Land Classified Any Other Than Developed, Respond NO.

TABLE 1 - (CONTINUED)

VARIABLE	OPERATIONAL DEFINITION	DATA SOURCE	RETRIEVAL PROCESS	PROBLEMS ENCOUNTERED	RESOLUTION
(20) TOWN SEWAGE	0 – No Town Sewage Available 1 – Town Sewer Line Runs Along A Property Line of Parcel 2 – Town Sewer Line Available But Not Necessarily At Property Line (Distance Not To Exceed The Maximum Length of Projection of Existing Lines Based Upon Recorded Inverts on Maps	Town of Aurora Sewer Line Map Prepared By Rivers and Associates 1965, 1977 and Rose, Pridgen and Freemon, 1978	Compare Parcel Lines With Utility Map	Parcels Located "Off of" Highway/ Street	If Parcel Located in Land Classified As Developed in Question #12, Respond YES; If Parcel Located in Land Classified Any Other Than Developed, Respond NO.
(21) STREET ACCESS	Presence of an Existing or Dedicated Street or State Road Within or Adjacent to Property Line.	Town Street Map and State Road Map	Compare Parcel With Street and Road Maps	Parcels Located on Undedicated Lanes.	If right of way for lanes seems assumed (i.e., more than one residence located on lane), answer UNPAVED; if only access is by Farm Road Through Another Owner's Parcel, answer NO.
(22) PARCEL USE	10 – Residential = Structure Located On Parcel Used For Residence. 11 – Trailer = Trailer Located on Parcel Used For Residence. 12 – Multi-Family = Structure Located on Parcel Used for Residence for More Than One Family. 13 – Storage/Garage = Structure Located on Parcel Used For	Site Visit To Parcel In Car	Windshield Tour	Abandoned or Vacant Structures	Listed Under Previous Use

TABLE 1 - (CONTINUED)

VARIABLE	OPERATIONAL DEFINITION	DATA SOURCE	RETRIEVAL PROCESS	PROBLEMS ENCOUNTERED	RESOLUTION
(22) PARCEL USE (CONT.)	Storage or Garage and Associated With Residential Use. 20 - Commercial = Structure Located on Parcel Used For Commercial Purposes. 21 - Commercial Vacant = Structure Located on Parcel Previously Used for Commercial Purpose but Now Vacant. 30 - Industrial = Structure Located on Parcel Used in Industrial Production. 40 - Agricultural = Parcel in Part or Whole Used in Agricultural Production; includes any Farm Buildings or Equipment Storage. 50 - Vacant (See Below) 51 - Cleared = Parcel Clear of All Structures but Not in Agricultural Production or Heavily Timbered. 52 - Forested = Parcel covered Primarily by Timber. 60 - Public = Parcel Owned by Governmental Agency and Used for Public Purpose. 61 - Church = Structure on Parcel Used as Church. 62 - Fraternal Organization = Structure on Parcel Used for Semi-Public Purpose.				

TABLE 1 - (CONTINUED)

VARIABLE	OPERATIONAL DEFINITION	DATA SOURCE	RETRIEVAL PROCESS	PROBLEMS ENCOUNTERED	RESOLUTION
(23) STANDARD STRUCTURE ON PARCEL	Location of a Structure on Property	Building Value on Tax Card	Site Visit	Subjectivity of Evaluation of "Standard" Structure	-----
(24) AVAILABILITY FOR SALE	YES = Sign of Availability Noted on Property. NO = All Others.	Site Visit And Visit To Realtors	Site Visit	-----	-----

As a preliminary test Town staff reviewed the Abstract and Transfer books
at the Beaufort County Tax Office in late January, 1983. Though not
totally complete, most 1982 property transfers were listed. This informa-
tion was used to correct ownership on the original Town data collection
instrument. A difficulty arose in using the same format for the properties
in the one mile planning zone since these were listed in the Richland
Township Abstract and Transfer books. In order to update information on
the parcels in the one mile planning zone Town staff had to review the
property identification index cards at the Tax Office to determine a change
in ownership. It was recommended by the Tax Office Supervisor that the
updating process take place in July because all transfer information from
the previous year would be completed by that time.

One final problem should be mentioned. The computer consultant was
contracted in August, 1982 to develop the programming statements and
computer manual for this project. His assistance was required in assuring
that the programming statements produced the information necessary for
Town planning purposes. Because of the difficulty in extracting information
on many parcels from old deeds which had to be researched, the target dead-
line of September 30 was not met by Town staff to give the completed data
deck to the consultant. In November the consultant moved away from the area
and corrections to programming statements had to be made via long distance
telephone conversations. This problem was further accentuated by the fact
that all changes in computer cards and the data deck had to be completed in
Greenville, forty-two miles from Aurora. A large amount of funds shown in
the budget (p.29)dedicated to travel is a direct result of the number of
visits that were necessary to make to Greenville to update data cards and

to correct errors in the computer run. The ideal solution to this problem of course would be for the Town to procure its own computer equipment. This would have reduced travel costs, but insufficient funds were provided through the grant or available in the Town for this purpose.

On the whole, the four problems encountered in the project did not seriously compromise the ability of the Town to meet the objectives stated earlier in this report. The exceptional level of cooperation by the Regional Development Institute, NRCD, local large landholders, and Town Planning Commission members facilitated the completion of the project.

SUMMARY AND CONCLUSIONS

The success of the Base Mapping and Land Use Information Project
in the long term will be contingent upon a continuous updating process.
Though parcel changes are infrequent (less than 1% transferred
during 1982)old information in this case is useless information.
Keeping up with the changes will not be time-consuming; the 1982
transfer update obtained through the Beaufort County Tax Office
consumed less than one full working day.

Another aspect of keeping information current has to do with a
strict monitoring of local changes - zoning amendments, changes in
parcel use, public services expansions (water, sewer and streets)
and others. Obviously the level of awareness or regimented approach
to updating data is correlated to the usefulness of the end results
to the Town Board of Commissioners.

The utility of the project as a CAMA demonstration has two specific
aspects. First, any small coastal community can take the computer
program that was written for the project, adapt it to local community
data needs, and thoroughly improve its local planning capacity, trace
long and short term trends and apply data to critical planning decisions.
Second, the replicability of the mapping element is questionable
because of the unique situations found in each community. Some of
these influential characteristics include the sophistication of the
county tax maps, timeliness of the County system for updating transfers
and land subdivisions, the availibility of local talent to research
or guess at parcel boundaries and the total size of the municipal

area and number of parcels involved.

In summary, this project even during its researching phase has proven useful for short term planning data needs such as billings to property owners for street paving costs and the identification of parcel owners for a Town-wide property clean-up campaign. The project will force the Town to reconsider information used in developing the 1976 and 1981 Land Use Plans. This will have long-term impacts on reviewing development standards and patterns, future annexation and public utility expansion decisions and the internal sense of efficacy that good hard information can provide to a Twon in confidently pursuing its future.

KEY SHEET

1. DATE: ___ ___ - ___ ___ - _8_ _2_

2. PARCEL NUMBER FROM TAX MAP: ___ ___ ___ - ___ ___ ___ ___
                                              MAP   NUMBER

3. TOWN NUMBER: ___ (Either 0 - In Town
                                 1 - One Mile Area
                                 2 - Both in Town and One Mile Area
                                 3 - Both in One Mile Area and Out of Area)

4. OWNERSHIP: _____

   MAILING ADDRESS OF OWNER: _____

   _____

   MAILING ADDRESS OF STRUCTURE: _____

   _____

5. LOT DIMENSIONS:

   ___ ___ ___ ___ Ft. X ___ ___ ___ ___ Ft. = ___ ___ ___ ___ ___ ___ ___
        LENGTH   WIDTH   TOTAL LOTSIZE

6. IRREGULAR: ___ (0 - NO
                     1 - YES)
                     9 - UNKNOWN

7. DEED REFERENCE: ___ ___ ___ - ___ ___ ___ ___
                    BOOK   PAGE

8. DATE: ___ ___ - ___ ___ - ___ ___

9. TAX VALUE: LAND: $___ ___ ___ ___ ___

10.   BUILDINGS: $___ ___ ___ ___ ___

11. TOTAL TAX VALUE: $___ ___ ___ ___ ___

12. LAND CLASSIFICATION: 1 = Developed
                                 2 = Transition
                                 3 = Rural
                                 4 = Rural-Agriculture
                                 5 = Conservation
                                 6 = Combination of Any of Above
                                 9 = Unknown

13. ZONING: 1 = Residential
                                 2 = Downtown
                                   3 = Community Business
                                   4 = Community Facilities
                                   5 = Rural
                                   6 = Conservation
                                   7 = Combination of Any of Above
                                   9 = Unknown

14. NON CONFORMANCE

0 = None
1 = Zoning Use
2 = Lot size
3 = Structural - Flood Prone Area
4 = Structural - Minimum Housing Standards ,
5 = Structural - Other
θ = Not Applicable

15. ZONING CHANGES

0 = No
1 = Yes
2 = Pending
3 = More Than One Change

15. SPECIAL USE PERMIT

0 = No
1 = Yes
2 = Pending

16. TYPE OF PERMIT

0 = None
1 = Earth Products
2 = Food Processing
3 = Textile Manufacture
4 = Clothing Manufacture
5 = Petroleum Storage
6 = Business and Professional Office
7 = Multiple Family Dwelling
8 = Boat Launching, Storage and Docking

18. AREAS OF ENVIRONMENTAL CONCERN

0 = No
1 = Yes

19. TOWN WATER

0 = None
1 = Available to Property Line
2 = Available but not to Property Line

20. TOWN SEWAGE

0 = None
1 = Available to Property Line
2 = Available but not to Property Line

21. STREET ACCESS

0 = None
1 = Paved
2 = Unpaved
3 = Dedicated

22. PARCEL USE (three variables)

CURRENT PRIMARY USE
CURRENT SECONDARY USE
PREVIOUS USE

10 = Residential
11 = Trailer
12 = Multiple Family Dwelling
13 = Residential Storage or Garage
20 = Commercial
30 = Industrial
40 = Agricultural

22. PARCEL USE (continued)   50 = Vacant
                                    51 = Cleared Land
                                    52 = Forested
                                    60 = Public Use
                                    61 = Church
                                    62 = Fraternal Organization

23. STANDARD STRUCTURE ON PARCEL   0 = No
                                    1 = Yes
                                    9 = Not Applicable

24. AVAILABILITY FOR SALE   0 = No
                                    1 = Yes
                                    9 = Unknown

25. SQUARE FOOTAGE OF RESIDENTIAL
     STRUCTURE ON PARCEL

Town of Aurora

Base Mapping and Land Use Information Project

1983

1. ___ ___ - ___ ___ - _8_ _2_   14. ___, ___, ___

2. ___ ___ ___ - ___ ___ ___ ___   15. ___

3. ___   16. ___

4. OWNERSHIP: _____

   _____

   _____

5. ___ ___ ___ ___ X ___ ___ ___ ___ = ___ ___ ___ ___ ___ ___

6. ___   17. ___

7. ___ ___ ___ - ___ ___ ___   18. ___

8. ___ ___ - ___ ___ - ___ ___   19. ___

9. $___ ___ ___ ___ ___   20. ___

10. $___ ___ ___ ___ ___   21. ___

11. $___ ___ ___ ___ ___   22. ___ ___, ___ ___, ___ ___

12. ___   23. ___

13. ___   24. ___

LAND USE INVENTORY PROJECT

KEY SHEET FOR UNUSUAL PARCEL NUMBERS FROM COMPUTER PRINT-OUT

Parcel Number on Print-Out	Parcel Number on Town Map	Parcel Number on Print-Out	Parcel Number on Town Map
AU1- 27X	AU1-127A	L18-00X	L18-100A
- 32X	-132L/H	-02X	-102A
- 32Y	-132A	-10X	-100A
- 42L	-142L/H	-26L	-26L/H
- 421	-042	-3LH	-03L/H
- 43X	-143A	-72X	-072A
AU2- 59X	AU2-59A	-75X	-075A
-592	-59A1	-84X	-084A
-70L	-70L/H	L19-02X	L19-102A
-701	-70L/H	-02X	-102B
AU3-02L	AU3-02L/H	-02X	-102C
-02L	-02L/H	-02X	-102D
-10X	-10A	-02X	-102E
-10Y	-10B	-02X	-102F
AU4-15X	AU4-15A	-64X	-64A
-16Y	-16A	-71X	-71A
AU5-03X	AU5-03A	-78X	-78A
-40X	-40A	-89X	-89A
-50X	-50A	-92X	-92A
-62X	-62A	-92Y	-92B
AU6-09X	AU6-09A	M15-67L	M15-67L/H
AU7-02X	AU7-02A	M16-03X	M16-03A
-02Y	-02B	-12X	-12A
		-48X	-48A
		-52X	-52A
		-72X	-72A
		-73X	-73A
		-73Y	-73B