

CARROLL COUNTY
WATER SUPPLY PLAN
1999

PLAN FORMULATION DOCUMENT
AND
FINAL PLAN DOCUMENT

Prepared By:

Carroll County Water Supply Planning Council
and the
Northern Kentucky Area Development District

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CHAPTER 1

DESCRIPTION OF THE PLANNING UNIT

I. INTRODUCTION

This socio-economic overview of the county provides a snapshot of the many factors which may influence the provision of water in terms of the source, supply, demand, protection, and distribution. Carroll County, the planning unit, is located in the north-central part of the state bordered by the Ohio River and Gallatin, Owen, Henry and Trimble Counties (Map 1). Carroll County was the 87th county formed in Kentucky, created from part of Gallatin in 1838 and named in honor of Charles Carroll, one of the signers of the Declaration of Independence.

The county seat is Carrollton, located at the confluence of the Ohio and Kentucky Rivers. Other incorporated areas include Ghent, Prestonville, Sanders, and Worthville.

The alluvial aquifer located along the Ohio River is one of the county's most important resources. The aquifer provides drinking water for residents as well as water for industrial processes for local manufacturers. The alluvium is capable of producing yields as great as 500 gallons of water per minute.

II. PHYSIOGRAPHY

Carroll County is in the Bluegrass region of Kentucky, specifically the outer bluegrass which is rolling to undulating, but it is steep in the western part of Carroll County and is highly dissected. The outer Bluegrass is underlain by thin layers of even-bedded limestone and thin layers of shale of the Maysville, or Fairview formation.

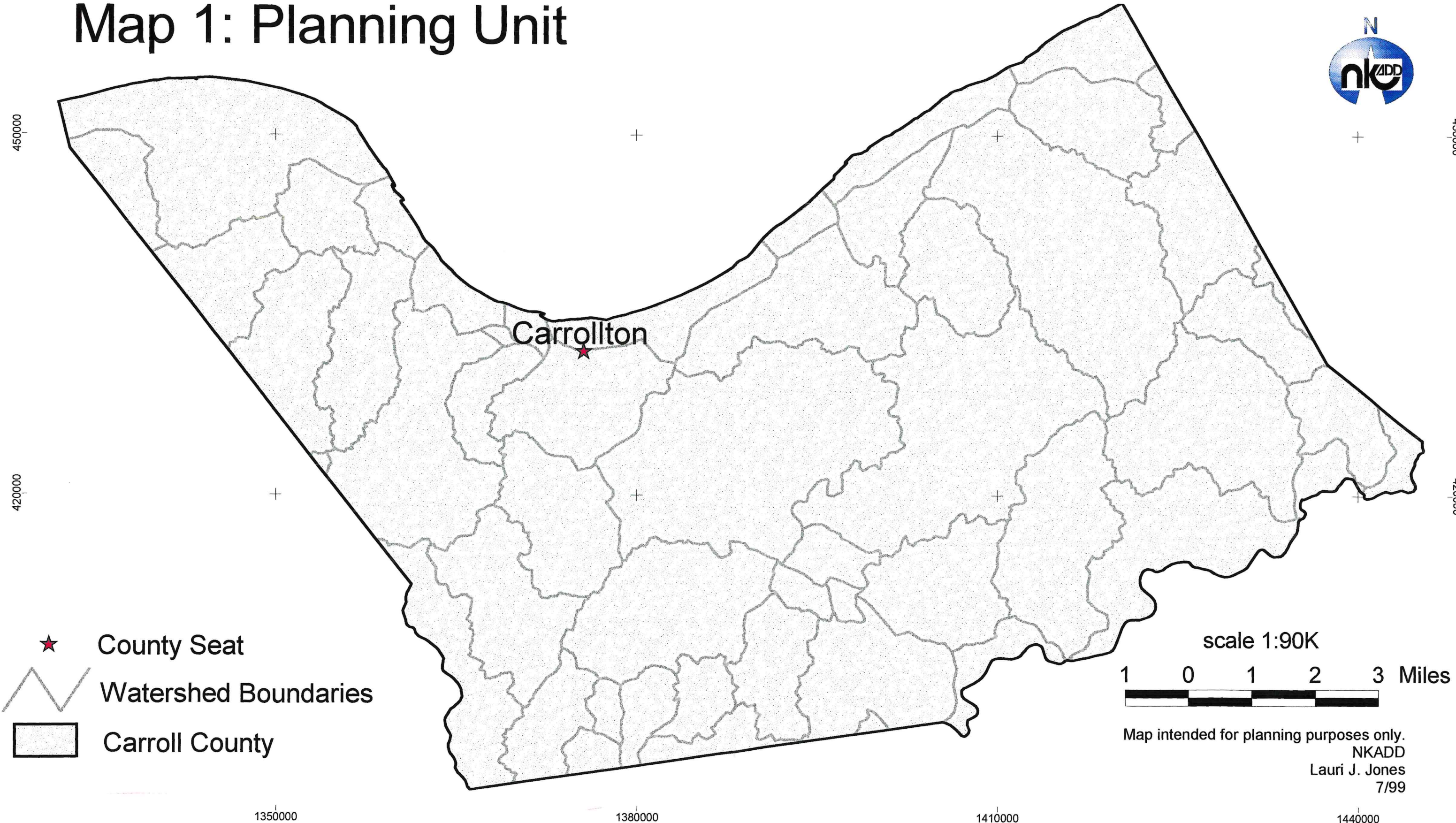
The Eden soil association dominates the southeast portion of the county. It is characterized by moderately steep and strongly sloping soils that have a clayey subsoil. Toward the Ohio River, the gently sloping soils of the Wheeling-Huntington-Alluvial predominate. These are nearly level to steep soils that have a loamy subsoil usually found on stream terraces and flood plains (Soil Conservation Service).

III. DEMOGRAPHIC AND SOCIO-ECONOMIC PROFILE

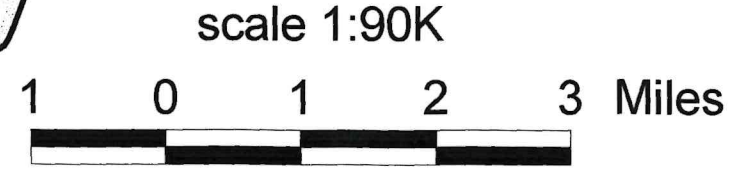
The 1990 population of Carroll County was 9,292 and the 1998 population is estimated at 9,603, an increase of 3.3 percent. Population growth will remain relatively flat with a projected increase to 9,850 by 2020 (Urban Research Institute, University of Louisville) (Figure 1.1). While population growth is increasing slowly, total employment in the county is increasing much more quickly (+23% between 1990 and 1997).

1994 per capita income for the county was \$16,935 (ranked 32nd in the state). According to 1995

Map 1: Planning Unit

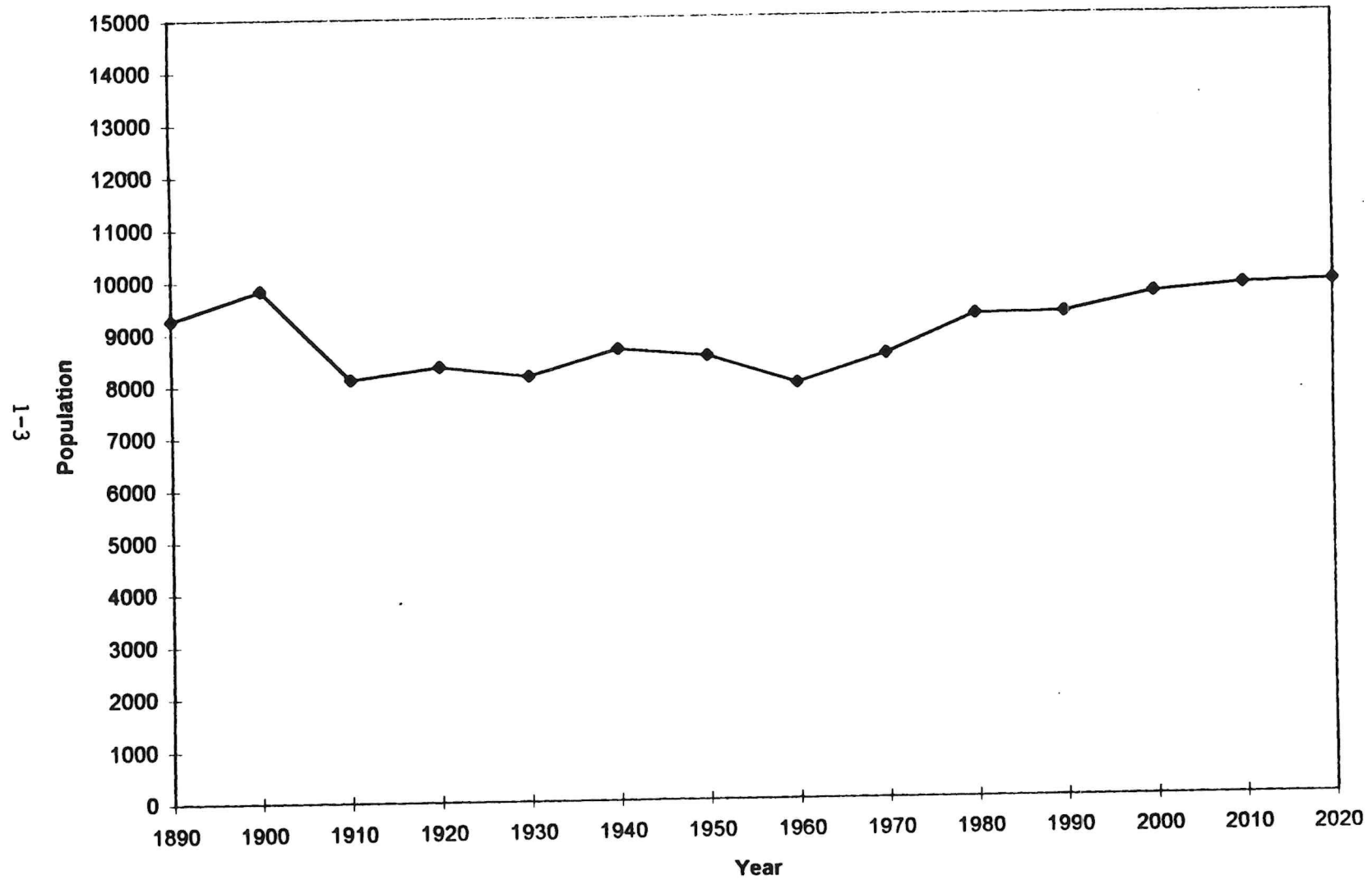


- ★ County Seat
- Watershed Boundaries
- Carroll County



Map intended for planning purposes only.
NKADD
Lauri J. Jones
7/99

Figure 1.1
Carroll County Population Growth: 1890 - 2020



Census Bureau estimates, 19.9 percent of residents had incomes below the poverty level, down from 22.0 percent in 1989.

In 1998, approximately 5,420 people were employed in the county with 44 percent of those working in the manufacturing sector (Kentucky Cabinet for Human Resources, Department for Employment Services).

CHAPTER 2 PLANNING COUNCIL

I. FORMATION OF THE PLANNING UNIT

The Carroll County Water Supply Planning Council was officially formed on April 19, 1994 after several months of planning and informational and organizational meetings. The planning unit is Carroll County.

Carroll County has experienced considerable industrial growth and development and continues to actively work towards attracting new industry to the area. However, with the County's reliance on groundwater, a water supply plan is essential to address concerns about current and future demand for water.

The Water Supply Planning Council and its associated Industrial Advisory Group, composed of representatives of local industry, also authorized a concurrent study which to complement the water supply plan. This study, completed by the United States Geological Survey (U.S.G.S.) in early 1999, includes a computer model of the aquifer and a detailed analysis of the local hydrology. This model will provide valuable information for the public water suppliers within Carroll County with regard to supply availability and adequacy.

This information greatly benefits the flourishing industrial sector within Carroll County. The model provides existing industry with information to assist long-term planning efforts for plant expansions. This study also provides the Carroll County Development Corporation with valuable information when recruiting additional industry. The model will also benefit the Kentucky Division of Water when evaluating applications for new withdrawal permits from the groundwater supply.

The cost to complete the groundwater model was \$260,000, with a local contribution of \$130,000.

II. PLANNING COUNCIL AND PLANNING REPRESENTATIVE

Planning Council

The following is a list of members of the Carroll County Water Supply Planning Council and their affiliations:

*Gene McMurry	County Judge/Executive
*Rick Alexander <i>Jack Ogden</i>	City of Sanders
*Ruby Keck	City of Worthville
*Rick Flynn	City of Ghent
*Mervin Kindoll Sr.	City of Prestonville

*Gerald Ballinger- Council Chair	City of Carrollton/Carrollton Utilities
*Jim Smith	Carroll County Water District #1
*Robert Perry- Vicki Edwards	West Carroll Water District
*Arthur Anderson	Green Acres Mobile Home Park
*Bill Mitchell Joe Groves	Carroll County Community Development Corporation
*Sam Scott	Agriculture and Soil Conservation Service
*Don Eckler	Carroll County Health Department
*Duane Cielinski	Dow Corning Corporation/ Industrial Advisory Committee

Minutes of planning council meetings can be found in Appendix A.

Industrial Advisory Committee

The following are members of the associated Industrial Advisory Committee.

- *Duane Cielinski, Dow Corning
- *Caryl Pfeiffer, Kentucky Utilities
- *Dorine Wheeler, Dayton-Walther
- *Valarie Hudson, Gallatin Steel
- *Elizabeth Gillespie, Elf-Atochem
- *Steve Shaver, North American Stainless
- *Bob Hartsaw, Ameriform
- *Randy Hensley, Teledyne Packaging

Planning Representative

The Northern Kentucky Area Development District was selected as the planning representative at the April 19, 1994 meeting of the Carroll County Water Supply Planning Council. Primary NKADD staff members responsible for the project are Richard Bragg and Heidi Van Keuren.

NKADD was selected from several parties, in part, because of their prior experience with the Boone County Water Supply Plan, as well as assistance with the application for grant monies to fund the project.

III. NOTIFICATIONS

401 KAR 4:220 requires extensive notifications regarding the water supply planning process including mayors, county judge-executives, and water suppliers in adjacent counties, area water watch groups, and the public. Samples of public notices, notification letters, and a list of recipients can be found in Appendix B.

CHAPTER 3

PLANNING OBJECTIVES AND PLANNING CONFLICTS

I. PLANNING OBJECTIVES

Description of Process

A public hearing was held on June 2, 1994 to consider the goals and objectives as stated in subsection 5.4 of the water supply planning regulations and to obtain the input of citizens. The meeting was advertised in the Carroll County News-Democrat. Representatives from several agencies and firms were also invited to attend.

The statement of goals and objectives as stated in subsection 5.4 were amended as outlined below.

Goals and Objectives

Goals and objectives for the planning process are as follows:

1. The water supply plan will use conservation to the maximum extent possible to fully protect existing users and allow adequate supply for growth.
2. The water supply plan should provide a continuous groundwater supply under all conditions which fairly represents the needs of all users.
3. The water supply plan will be compatible with existing plans and, if required, will offer recommendations to alter these plans.
4. The water supply plan will protect and enhance the overall quality of the environment.
5. Cost effectiveness will be utilized to develop the water supply plan.
6. The water supply plan will be developed to meet the social and political needs of Carroll County.
7. The water supply plan will include the development of a groundwater model to provide a quantitative assessment of the aquifer and to facilitate the goals and objectives.

A copy of the workplan can be found in Appendix C.

II. INFORMATION REVIEW

The most useful and current document is the Hydrogeology and Simulation of Ground-Water Flow in the Ohio River Alluvial Aquifer Near Carrollton, Kentucky (USGS Water-Resources Investigations Report 98-4215, 1999). There are also some older plans including the River Basin Water Quality Management Plan: Kentucky River and the River Basin Water Quality Management Plan: Ohio River. The older plans do have some historical information about water use.

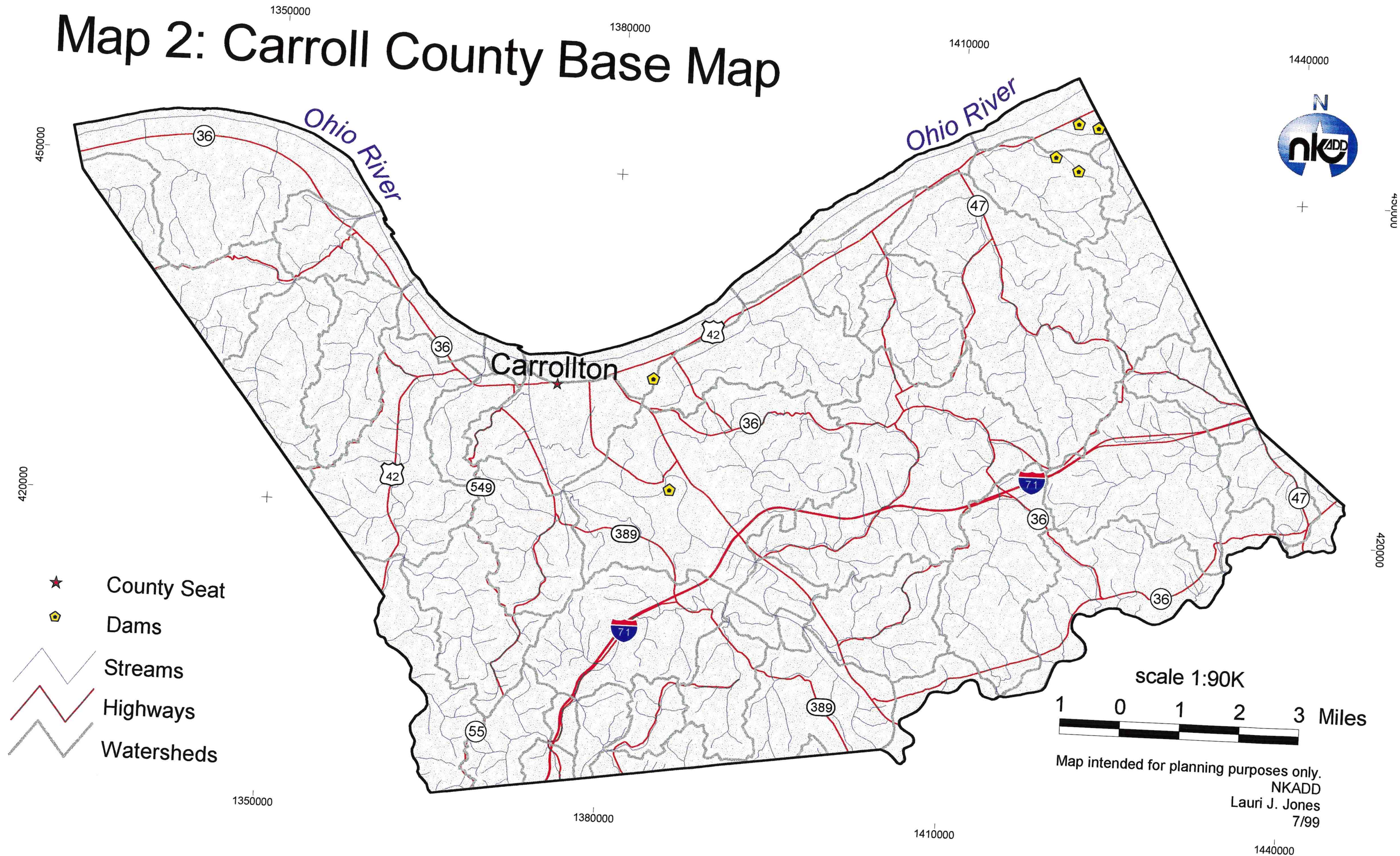
No information was received as a result of the notification process.

III. WATER SUPPLY PLANNING ISSUES AND CONFLICTS

The U.S.G.S. study helps to address the management of the Carrollton aquifer. The groundwater model provides a common tool for decision-making and the rational management of this resource.

No water conflicts have been identified.

Map 2: Carroll County Base Map



CHAPTER 5

WATER USE AND WATER USE FORECAST

A. Water Use Assessment

According to the 1990 Census of Population and Housing, 88.9 percent of the county's housing units are served by a public water system. 4.4 percent of housing units rely on wells and 6.7 percent utilize water haulers. Community public water suppliers in the county include: Carrollton Utilities, Carroll County Water District No. 1, Green Acres Mobile Home Court, Trimble County Water District, Henry County Water District and Milton Water Company. There is one distributor (defined by DOW as purchasing more than 50 percent of its water), West Carroll Water District.

There are also several non-community water suppliers which are predominately industries and utilities. These non-community water suppliers primarily use water for their processes and a very limited amount for potable water for employees and include: Kentucky Utilities Ghent Generating Station, Dow Corning Corporation, and Ameriform.

The following pages contain an informational profile of the county's suppliers and distributors.

**Community Water Supplier
CARROLLTON UTILITIES**

Address: P.O. Box 269
Carrollton, KY 41008

Phone: (502)732-7055

Contact: Gerald Ballinger

Raw Water Source: Groundwater (3 wells)

Population Served: 4,200

Number of Service Connections: 1,785

Treatment Plant:

Location: 6th and Sycamore Streets

Design Capacity: 2.0 mgd

24 Hour Rated Capacity: 1.5 mgd

Condition: Excellent, Constructed in 1992

Type of Treatment: Lime Softening Process, Chlorination, Fluoridation

Treated Water Storage:

Location	Type	Capacity (gallons)
General Butler State Park	Tank at Grade	700,000
General Butler State Park	Tank at Grade	300,000
Water Treatment Plant	Clearwell	290,000

Leak Detection Methods: Annual leak inspection with Aqua Scope.

Conservation Measures: None.

Planned Improvements: None anticipated at this time.

Future Growth: No appreciable increase. The service area is surrounded by natural borders such as the Ohio River or water district boundaries. Undeveloped property within the service area is minimal.

**Community Water Supplier
CARROLL COUNTY WATER DISTRICT NO. 1**

Mailing Address: 205 Main Cross Street, P.O. Box 350
Ghent, KY 41045

Phone: (502)347-9500

Contact: Jim Smith

Raw Water Source: Wells (4 in Ghent and 2 in Gallatin County)

Population Served: 6,150

Number of Customers:

Carroll County: 1,313

Owen County: 292

Gallatin County: 258

Treatment Plants:

Plant 1

Location: Ghent, KY

Design Capacity: 650,000 gpd

24 Hour Rated Capacity: 520,000 gpd

Condition: Excellent

Type of Treatment: Disinfection only, chlorination, and fluoridation

Plant 2

Location: Gallatin County

Design Capacity: 720,000 gpd

24 Hour Rated Capacity: 576,000 gpd

Condition: Excellent

Type of Treatment: Disinfection only, chlorination, and fluoridation

Treated Water Storage:

Location	Type	Capacity (gallons)
Plant	Ground	80,000
Dividing Ridge Road	Standpipe	200,000

Location	Type	Capacity (gallons)
Jackson Ridge Road	Standpipe	120,000
Ghent	Ground	50,000
M & T Road	Ground	50,000
Worthville	Ground	50,000
Sanders	Ground	50,000
Montgomery Road	Elevated	150,000

Leak Detection Methods: Visual, sequencing valve closures while monitoring appropriate locations with leak detector.

Conservation Measures: Try to minimize leaks. Optimize operation to minimize electricity costs and leaks due to pressure fluctuations.

Planned Improvements: Line extensions.

Future Growth: Growth is anticipated with planned line extensions and additional growth related to the development of the NASCAR race track.

**Community Water Distributor
WEST CARROLL WATER DISTRICT**

Mailing Address: P.O. Box 45
Carrollton, KY 41008

Phone: (502)732-7055

Contact Person: Gerald Ballinger

Sources of Treated Water: Carrollton Utilities (117,087 gpd)
Henry County Water District (32,913 gpd)
Trimble County Water District (43,890 gpd)
Milton Water Company (2,730 gpd)

Population Served: 2,100

Number of Customers:

Carroll County: 304
Trimble County: 512

Treated Water Storage:

Location	Type	Capacity (gal)
Culls Ridge	Standpipe	47,000
Kings Ridge	Standpipe	47,000

Leak Detection Methods: Visual, valve closures with leak detector.

Conservation Measures: None.

Planned Improvements: Telemetry monitoring.

Future Growth: System growth is anticipated.

**Community Water Supplier
GREEN ACRES MOBILE HOMES COURT**

Mailing Address: 311 Grobmyer Avenue
Carrollton, KY 41008

Phone: (502)732-8545

Raw Water Source: Well

Treatment Plant:

Location: KY 36, Easterday

Condition: Good

Type of Treatment: Chlorination, water softening

Permit Withdrawal: less than 10,000 gpd

Users: Residential with an estimated usage of 100 gpd per person with an average of 5,000 to 5,400 gpd.

Leak Detection Methods: Look for low water pressure and/or wet ground.

Conservation Methods: Park rules such as no car washing and no playing with water hoses.

Future Growth: None anticipated. Anticipated to hook-up to Carroll County Water District No. 1.

**Non-Community Water Supplier
DOW CORNING CORPORATION**

Address: 4770 Highway 42 East
Carrollton, KY 41008

Phone: (502)732-4371

Contact: Duane Cielinski or John Romans

Employment: 520

Raw Water Source: 9 Wells

Treatment Plant:

Location: Carrollton Plant

Capacity: 130 mgpd

Date Built: 1966

Condition: Good

Type of Treatment: Sodium zeolite softeners, chlorine disinfection

Treated Water Storage:

Location: Carrollton Plant

Type: Elevated Tank

Capacity: 30 mg

Conservation Methods: Pressure regulators installed on supply to office buildings. Reduced line pressure (from 90 to 45 psi) lowers water consumption.

Planned Improvements: Upgrade of chlorine disinfection system to closed loop control.

Future Growth: Anticipate modest growth in customers (Carrollton Plant water users) in conjunction with Carrollton plant growth.

**Non-Community Water Supplier
AMERIFORM MANUFACTURING**

Address: P.O. Box 345
Carrollton, KY 41008

Phone: (502)732-4473

Employment: 234

Raw Water Source: Wells

Treatment Plant:

Location: Four miles east of Milton, KY

Type of Treatment: Chlorination only

Permit Withdrawal: .450 mgpd

Planned Improvements: None

Future Growth: None. Discontinuing anodizing will reduce usage to approximately 4,500 gpd.

**Non-Community Water Supplier
KENTUCKY UTILITIES GHENT GENERATING STATION**

Address: c/o Kentucky Utilities
One Quality Street
Lexington, KY 40507

Phone: (606)255-2100

Employment: 245

Raw Water Sources: Wells and the Ohio River

Treatment Plant:

Location: Ghent Station

Capacity: .52 mgpd for wells only. The river is untreated.

Date Built: 1972 and 1981

Condition: Good

Type of Treatment: Sand filtration zeolite softeners and chlorination (hypochlorite addition)

Permit Withdrawal: Exempt

Treated Water Storage:

Location	Type	Capacity (mg)
Ghent Station-Potable	2 Elevated Tanks	0.01 (Total)
Ghent Station-Demineralized for Steam Production	6 Tanks at Grade	1.35 (Total)
Ghent Station-Filtered for equipment use	1 Tank at Grade	0.05

Conservation Measures: Maintain equipment to minimize leaks.

Planned Improvements: None.

Future Growth: Will continue to serve only plant needs.

Other Community Water Suppliers

Please refer to the Trimble County Water Supply Plan for water use and water use forecasts for the Milton Water Company, Trimble County Water District, and Henry County Water District.

Permitted Withdrawals

There are several other water withdrawal permittees that do not fall into the category of community or non-community water supplier or distributor. These include Elf-Atochem, North American Stainless, and Dayton-Walther.

Elf-Atochem, using five wells, has a permit limit of 5.5 mgd. In 1998, average monthly usage was 2.899 mgd and maximum monthly usage was 3.204 mgd.

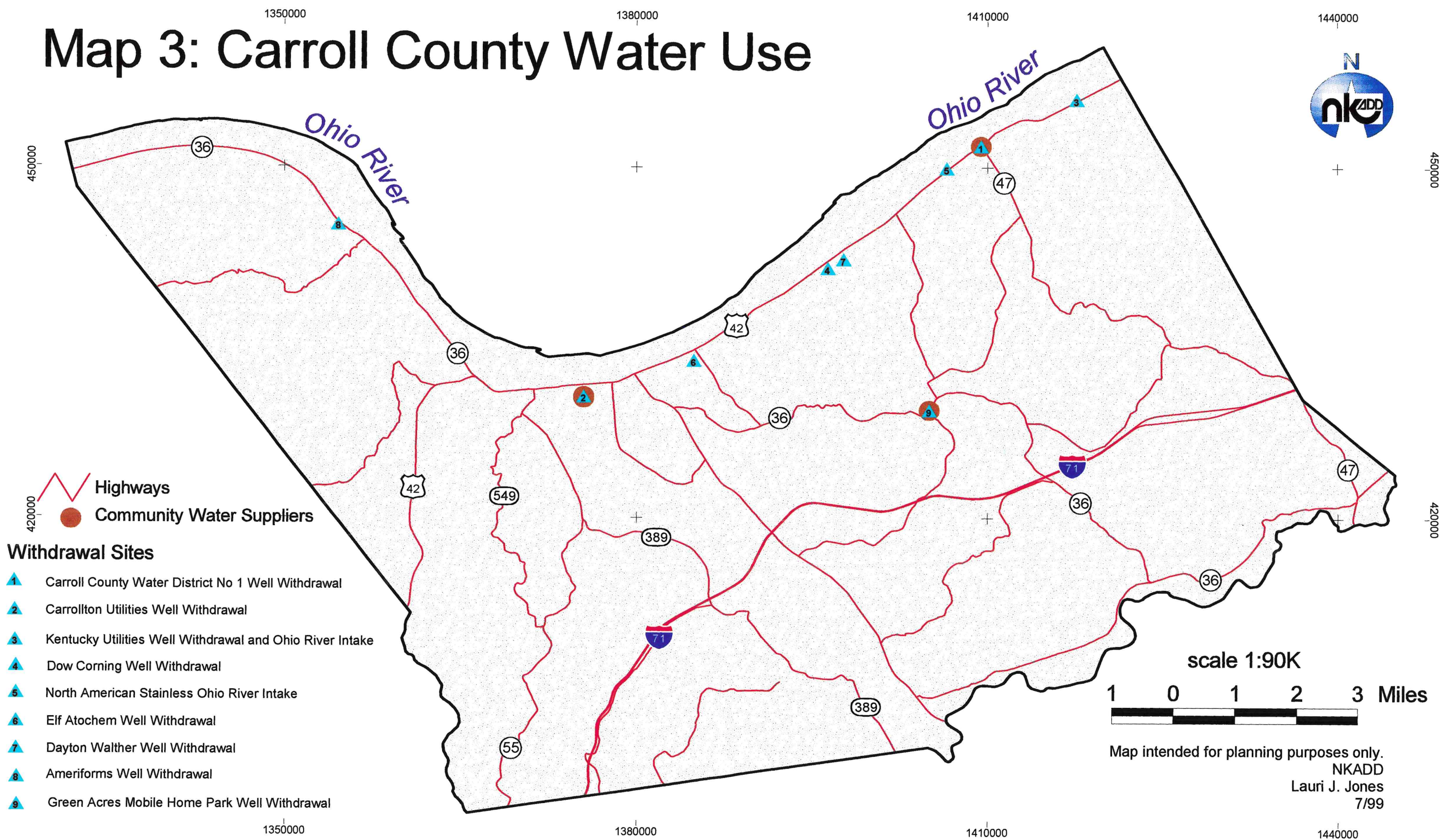
North American Stainless, located outside Ghent, has a permitted withdrawal of 3.5 mgd from the Ohio River. In 1998, average monthly usage was .941 mgd and maximum monthly usage was .982 mgd.

Permit-Exempt Withdrawals

There are a number of users that are exempt from the Division of Water's permitting requirements including power plants governed by the Public Service Commission and agricultural users. The Ghent Generating Station, profiled earlier, is permit-exempt and estimates total water usage at .52 mgpd. Of that, .06 mgpd is treated or potable water.

The 1992 Census of Agriculture reported that 155 acres in the county are irrigated or less than one percent of the total acreage. Irrigated acreage appears to be declining as there were 366 irrigated acres in 1987. It is very difficult to obtain an estimate of agricultural water use as farmers themselves often can't quantify the amount of water used.

Map 3: Carroll County Water Use



B. Water Use Forecast

The IWR-MAIN model, developed by the U.S. Army Corps of Engineers, was used to forecast demand for water for the major community water suppliers, Carrollton Utilities and Carroll County No. 1. Green Acres Mobile Home Park, a small supplier (withdrawing less than 10,000 gpd), is not expected to experience much growth and therefore, is exempt from computerized forecasting.

IWR-MAIN forecasts future demand for water by sector including residential, industrial, commercial/institutional, and public/unaccounted. It also allows conservation and demand management measures to be selected to create "what if" scenarios. The model requires extensive data inputs including both demographic and economic information.

The IWR-MAIN model, required for forecasting by water supply planning regulations, was originally developed for use in large urban areas and has been proven to be quite accurate. Unfortunately, in rural areas, the model is not nearly as effective and results must be compared with local knowledge of demand for water.

CARROLLTON UTILITIES SERVICE AREA

Data Sources

A number of sources were used including: 1980 and 1990 Censuses of Population and Housing, County Business Patterns (1985-1993), 1992 Census of Agriculture, Kentucky Directory of Manufacturers (1985-1993), and How Many Kentuckians: Population Forecasts 1995-2020 (1995 edition). These sources were used to provide the demographic and economic data required by the model.

In addition, information provided by Carrollton Utilities on the Water Source, Treatment, & Distribution questionnaire was used to calibrate the model and to evaluate the results. A copy of a sample questionnaire can be found in Appendix D.

Assumptions

A number of assumptions were made while preparing the data for the model.

1. Using the 1990 Census, housing unit value ranges were aggregated to create five value ranges from \$0 - \$250,000. Census counts per value range and census rent counts converted to equivalent home values yielded totals for each value range.
2. All units within structures of five or more units were assigned to Screen 5.1, Master Metered Apartments.
3. Density values were assigned based on local judgment about the average lot size.

4. No conservation measures are currently in place, nor are any anticipated.
5. No appreciable increase in customers is anticipated as Carrollton Utilities service area is surrounded by natural borders such as the Ohio River or water district boundaries. Undeveloped property within the service area is minimal.

Methodology and Verification

1990 was selected as the base year for the planning process. Forecast years were 1995, 2000, 2005, 2010, 2015, and 2020. 1990 and 1995 were used as comparison years for calibration and verification.

Results from the residential forecasts were reasonably accurate, so no calibration was necessary.

The model required some calibration of industrial usage coefficients. IWR-MAIN has a library of coefficients that assigns a water usage value per employee by SIC code. The library coefficient for SIC code 281, Industrial Organic Chemicals, is 1176.6 gpd per employee; however, actual usage in this SIC code is approximately 48 gpd per employee. Of course, water usage was grossly overstated by the library coefficient, and calibration yielded more acceptable results. The difference between the library coefficient and actual usage probably occurred because the only SIC code 281 industry, Elf Atochem, uses Carrollton Utilities for potable water and has a permit to withdraw groundwater for plant processing and other needs.

Commercial/Institutional forecasts were also fairly accurate and no calibration was necessary.

Public/Unaccounted has a default value of approximately nine to ten percent of total usage. This may be a little low; however, no calibrations were made.

Finally, IWR-MAIN projected reasonable average usage figures by sector and in total; however, maximum day forecasts were completely unrealistic and were discarded. For example, the model estimated total maximum day usage in 1990 at 843,000 gpd. The actual maximum day usage in 1990 was 610,197 gpd.

Figure 5.1 compares actual and projected usage for the Carrollton Utilities Service Area. While projected 1990 usage was lower than actual usage, projected and actual usage were fairly close in 1995. In 1998, average daily usage was 644,000 gpd which supports the flat growth scenario shown by the model.

Conclusions

IWR-MAIN forecasts slow growth for the Carrollton Utilities Service area. This is consistent with trends identified by the utility manager. The growth experienced between 1990 and 1995 was mainly due to an increase in wholesale sales to the West Carroll Water District. Further growth is anticipated to remain fairly flat. Figures 5.2 through 5.10 show average demand for water by sector. Commercial/Institutional which includes wholesale is the largest water usage sector currently and throughout the projections.

Figure 5.1
Carrollton Utilities: Actual Vs. Projected Demand

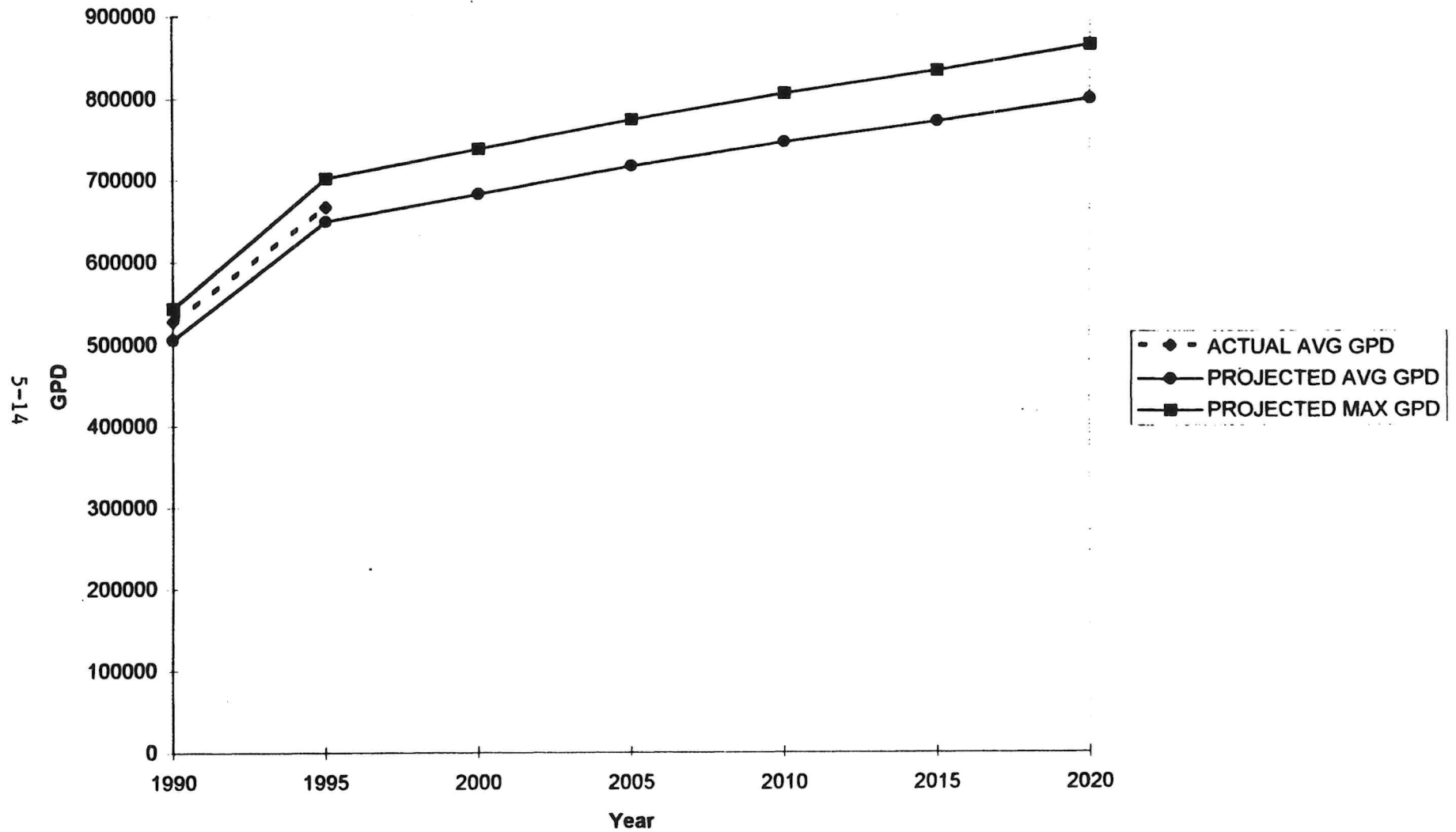


Figure 5.2

Carrollton Utilities: 1990 Actual Water Use

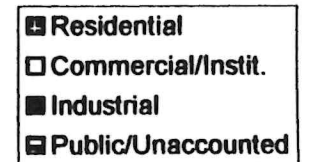
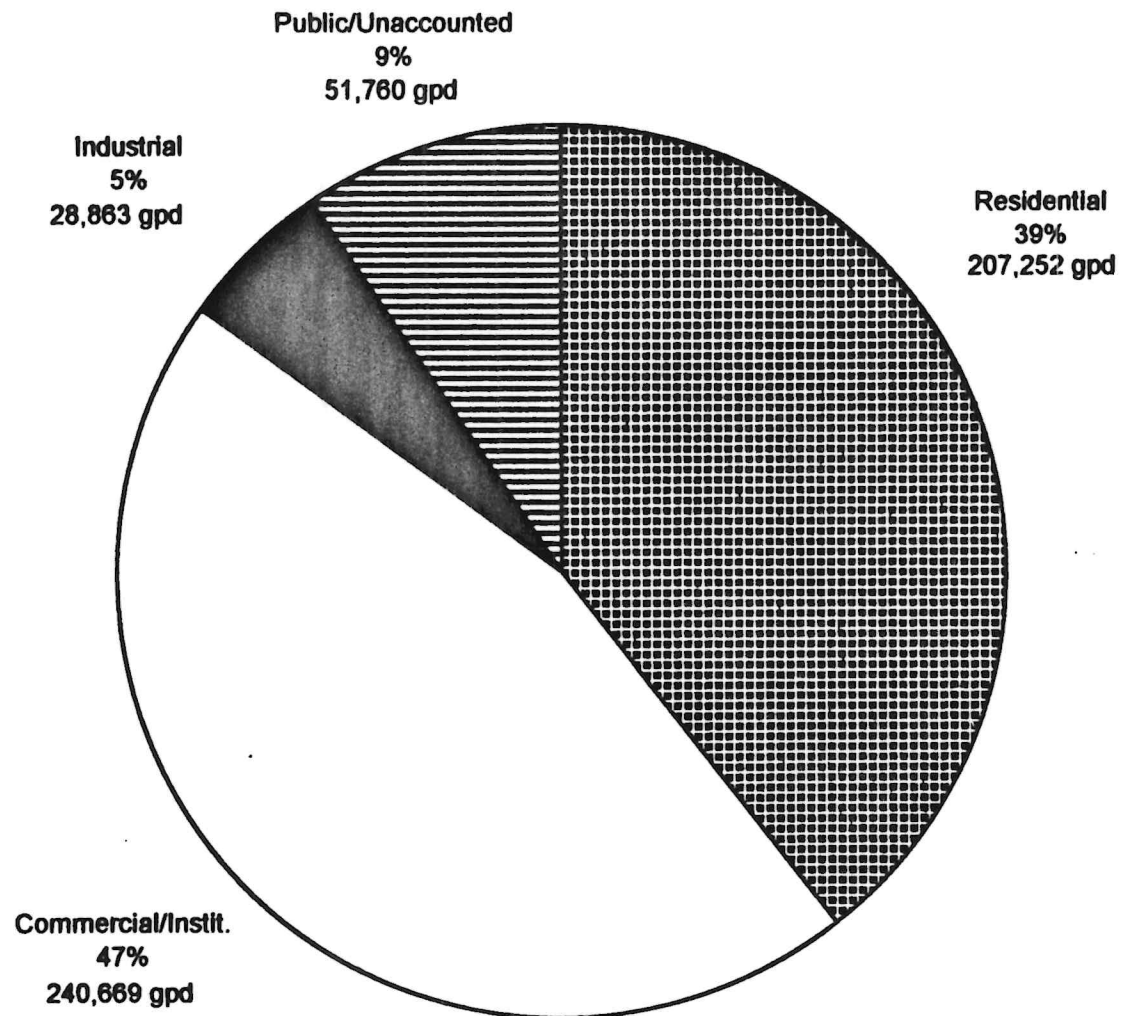


Figure 5.3
Carrollton Utilities: 1990 Projected Water Use

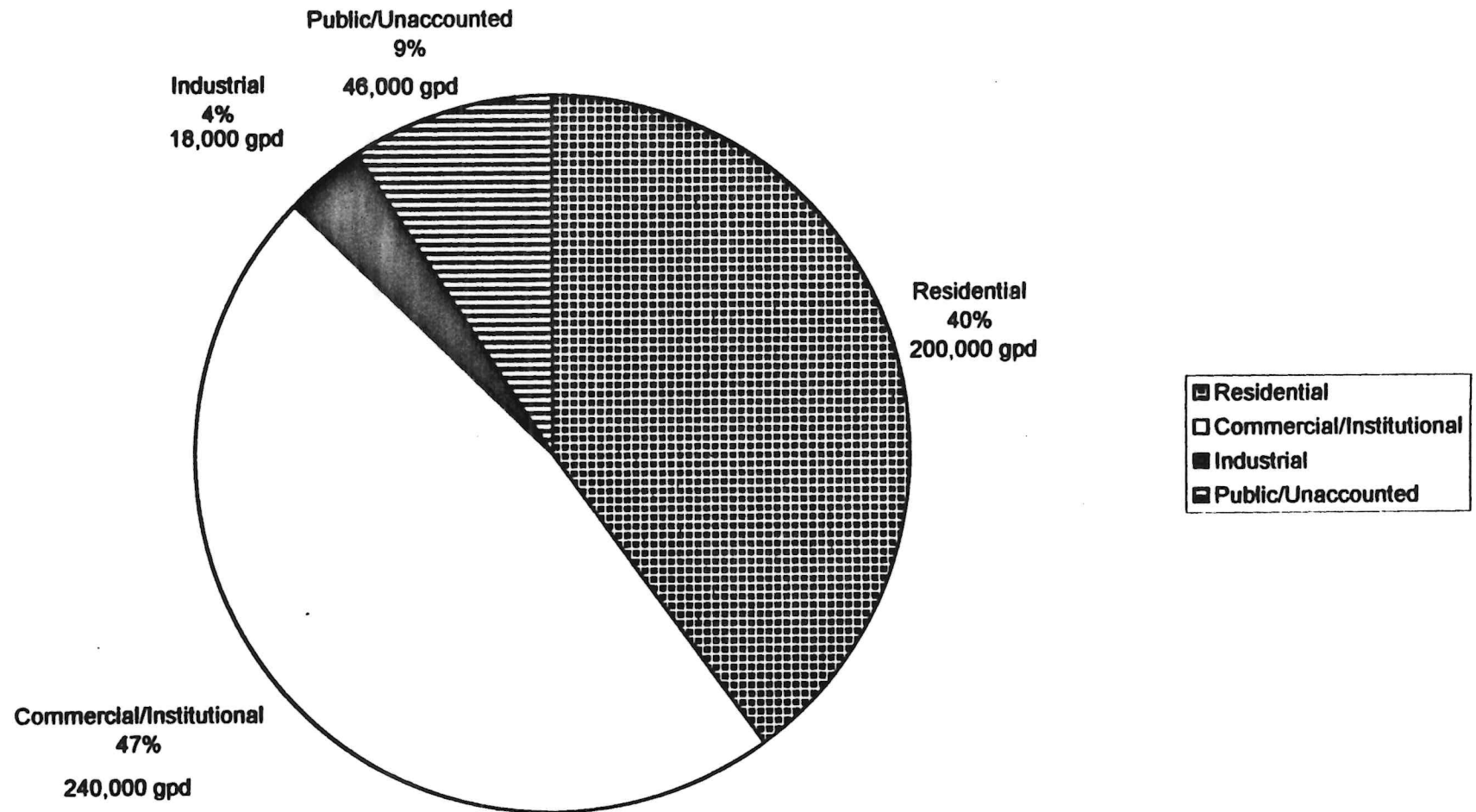


Figure 5.4
Carrollton Utilities: 1995 Actual Water Use

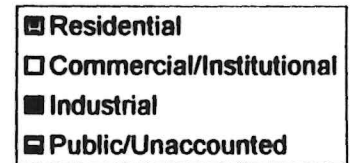
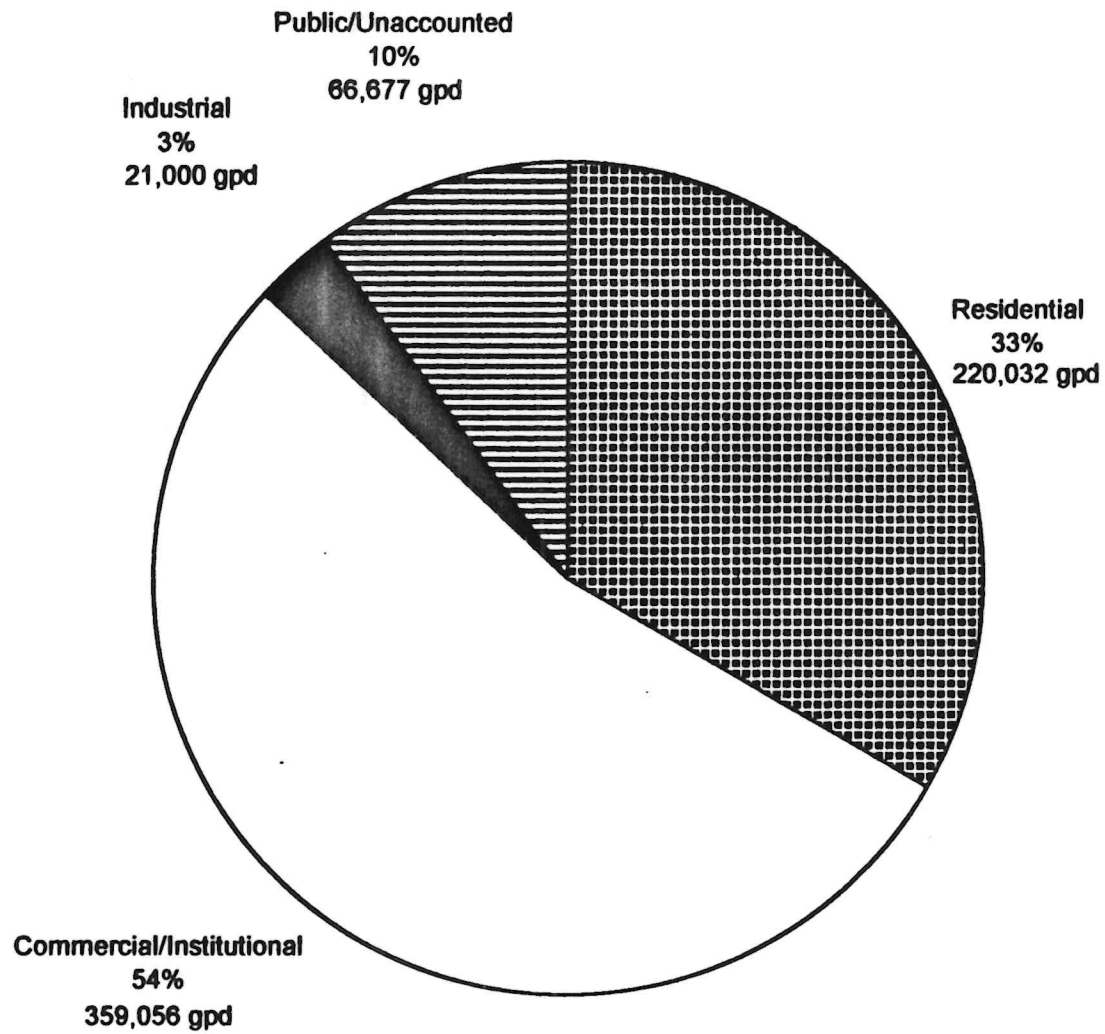


Figure 5.5

Carrollton Utilities: 1995 Projected Water Use

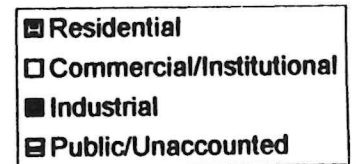
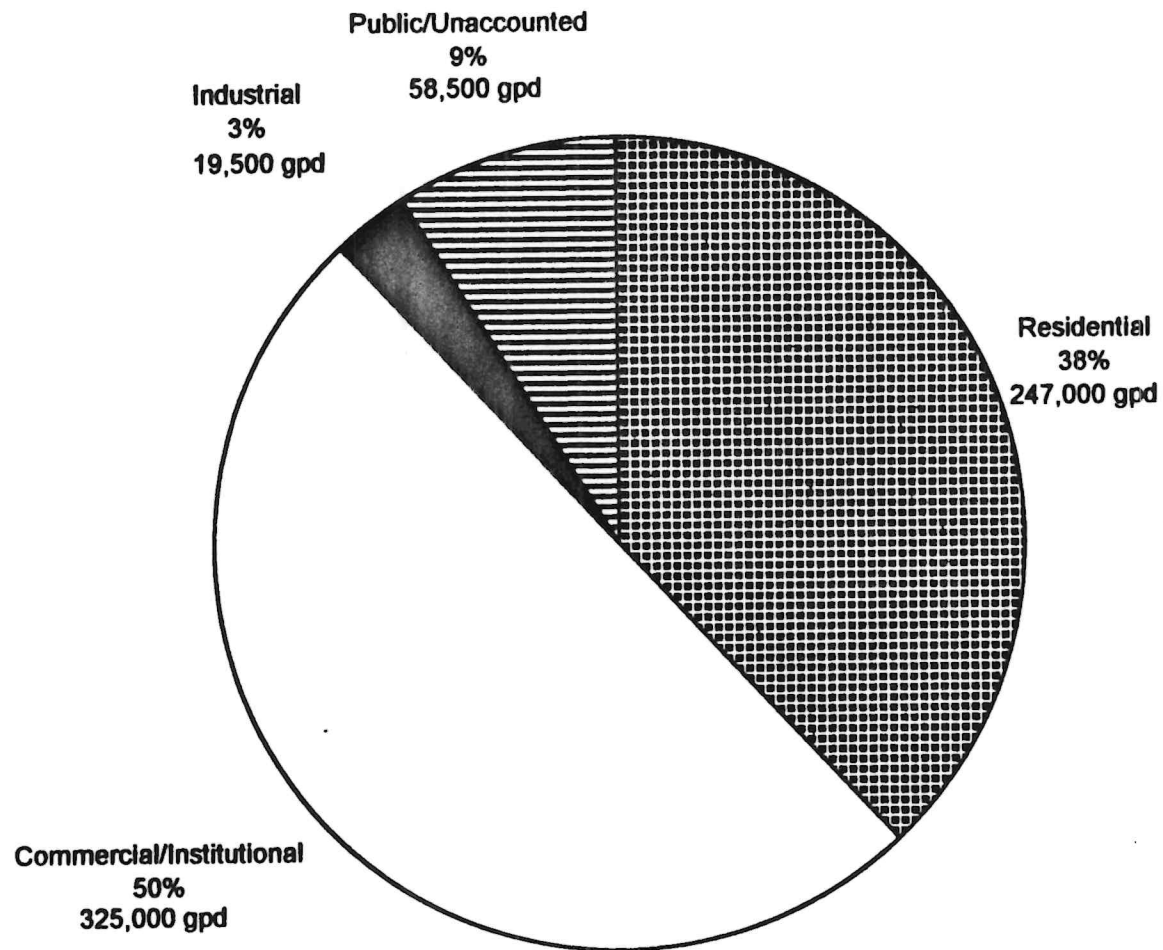


Figure 5.6
Carrollton Utilities: 2000 Projected Water Use

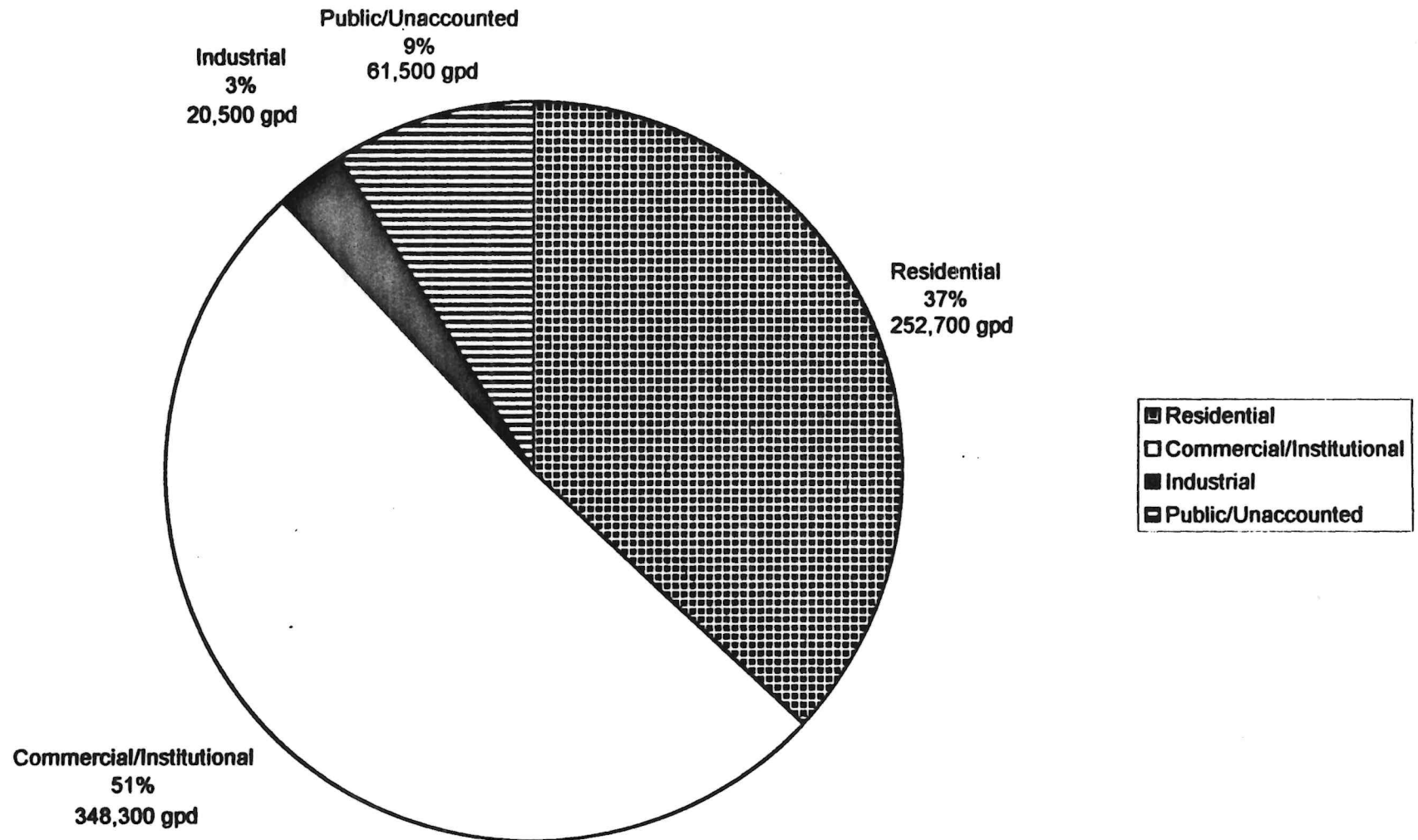


Figure 5.7
Carrollton Utilities: 2005 Projected Water Use

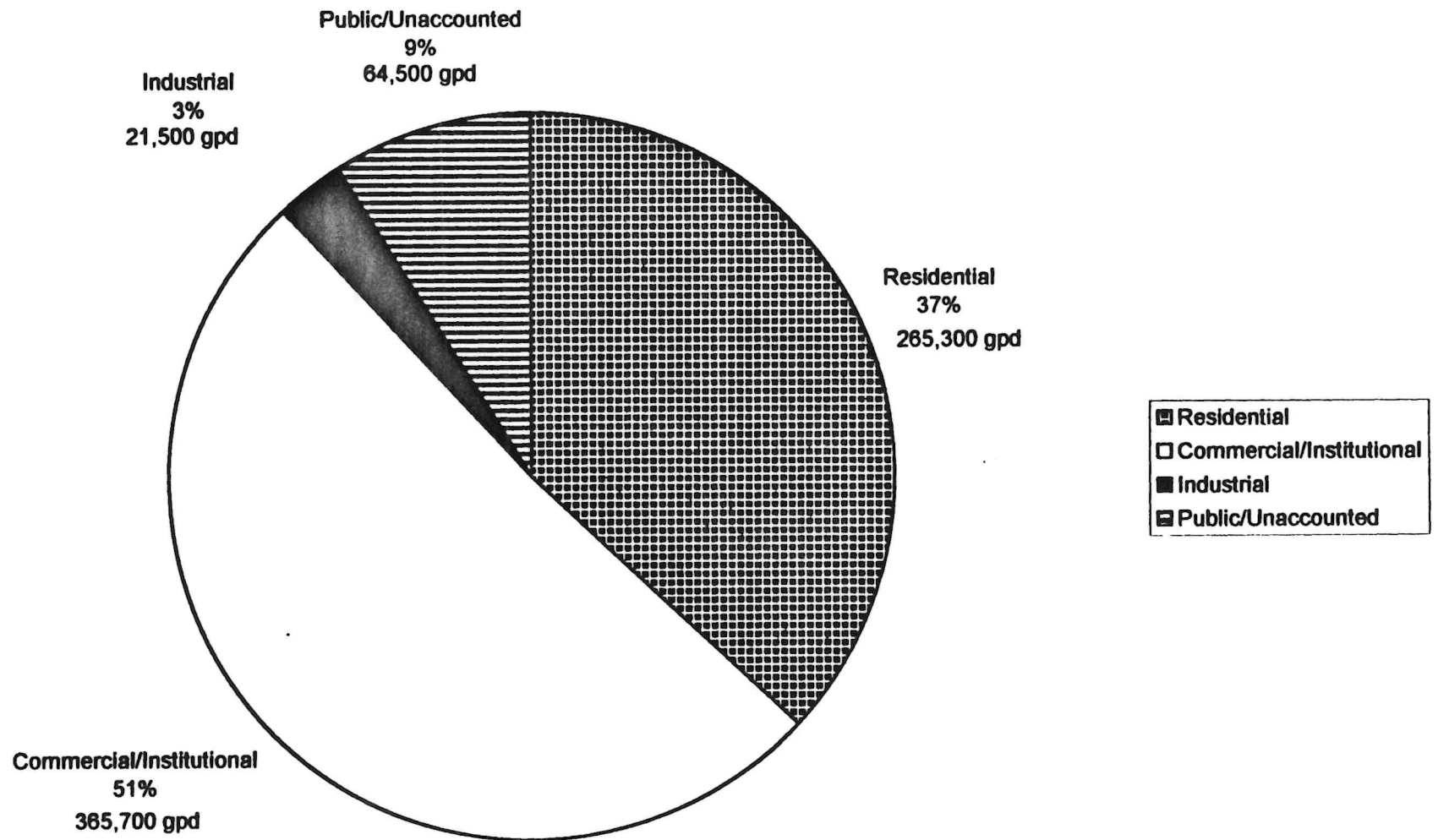


Figure 5.8
Carrollton Utilities: 2010 Projected Water Use

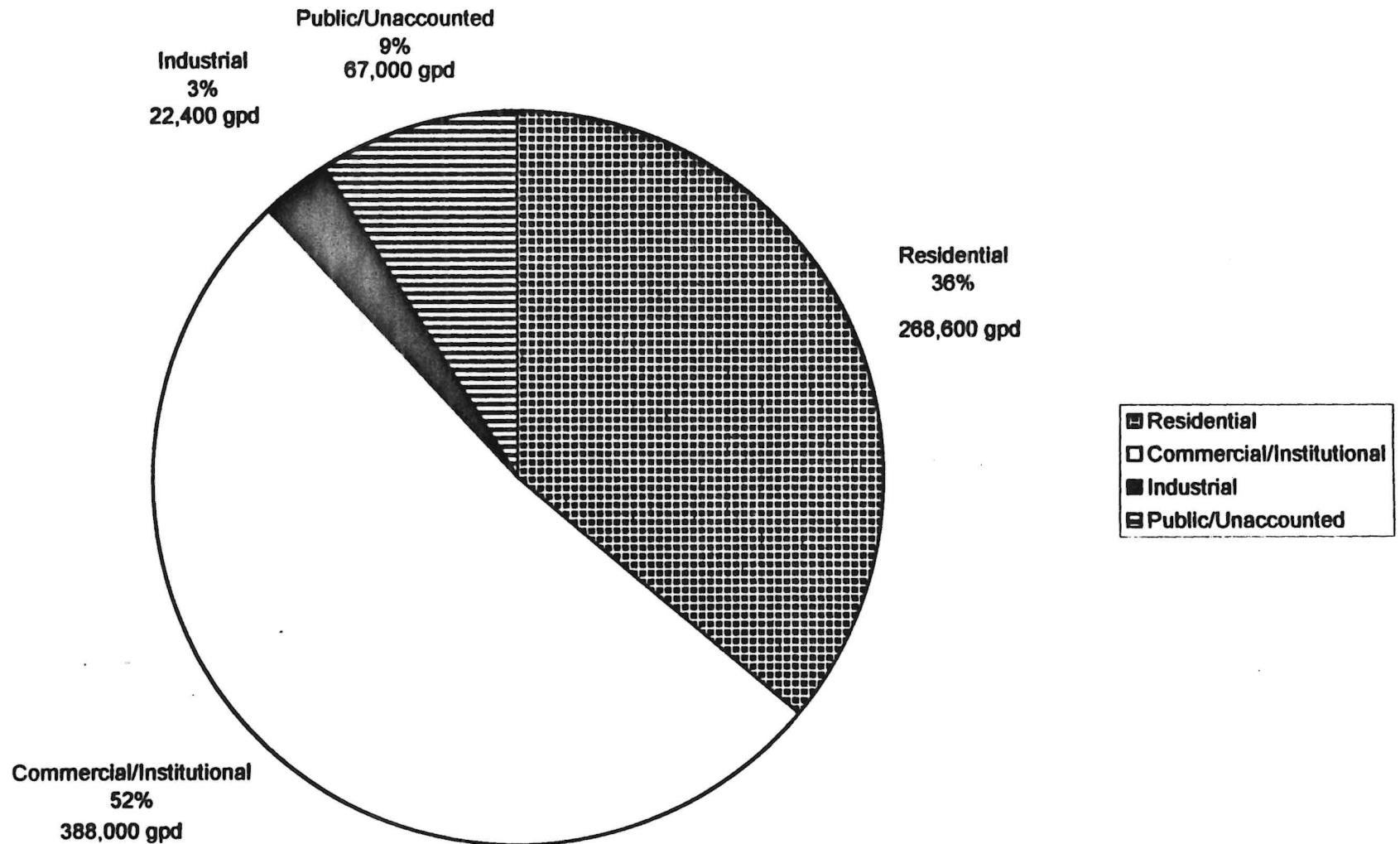


Figure 5.9

Carrollton Utilities: 2015 Projected Water Use

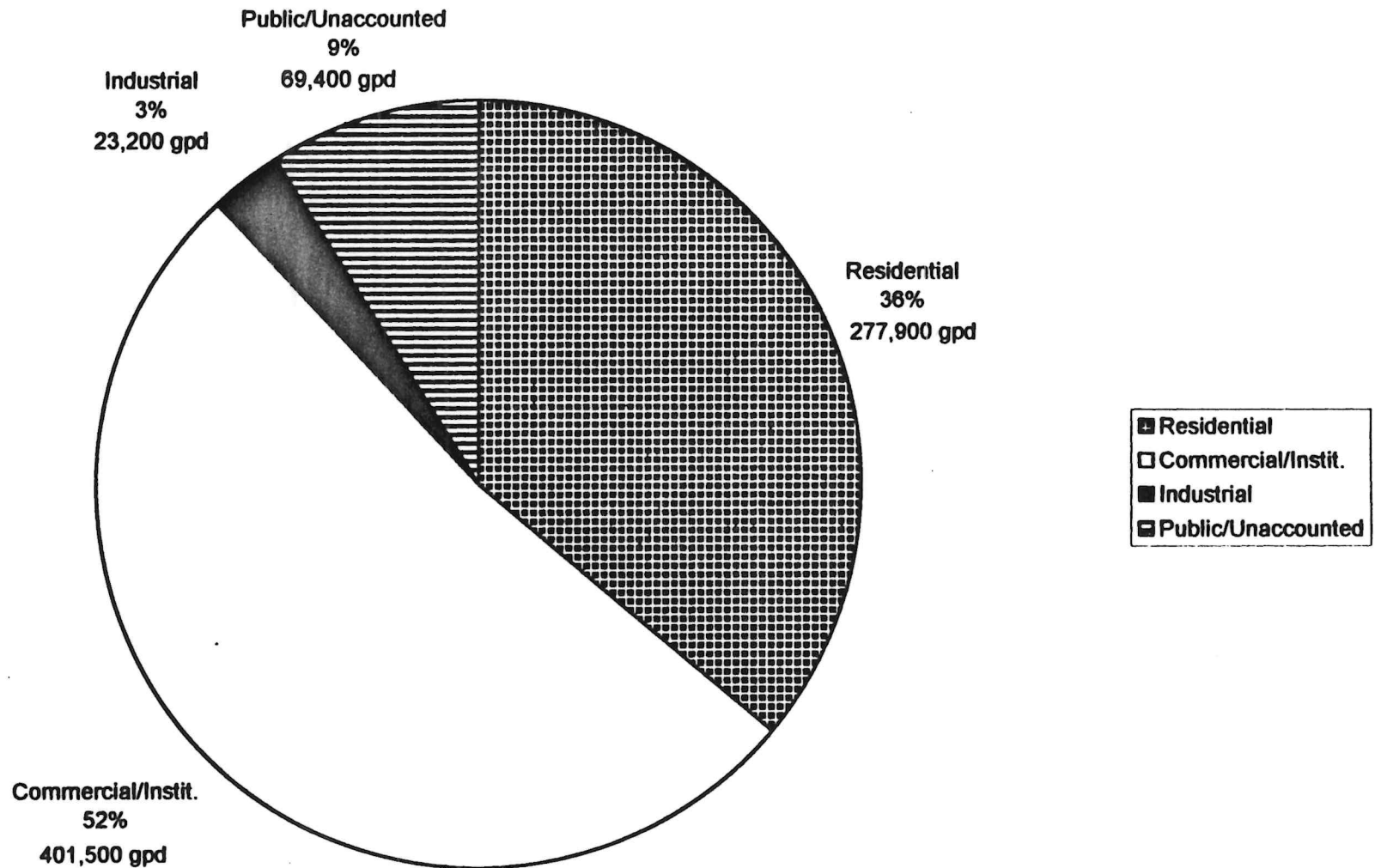
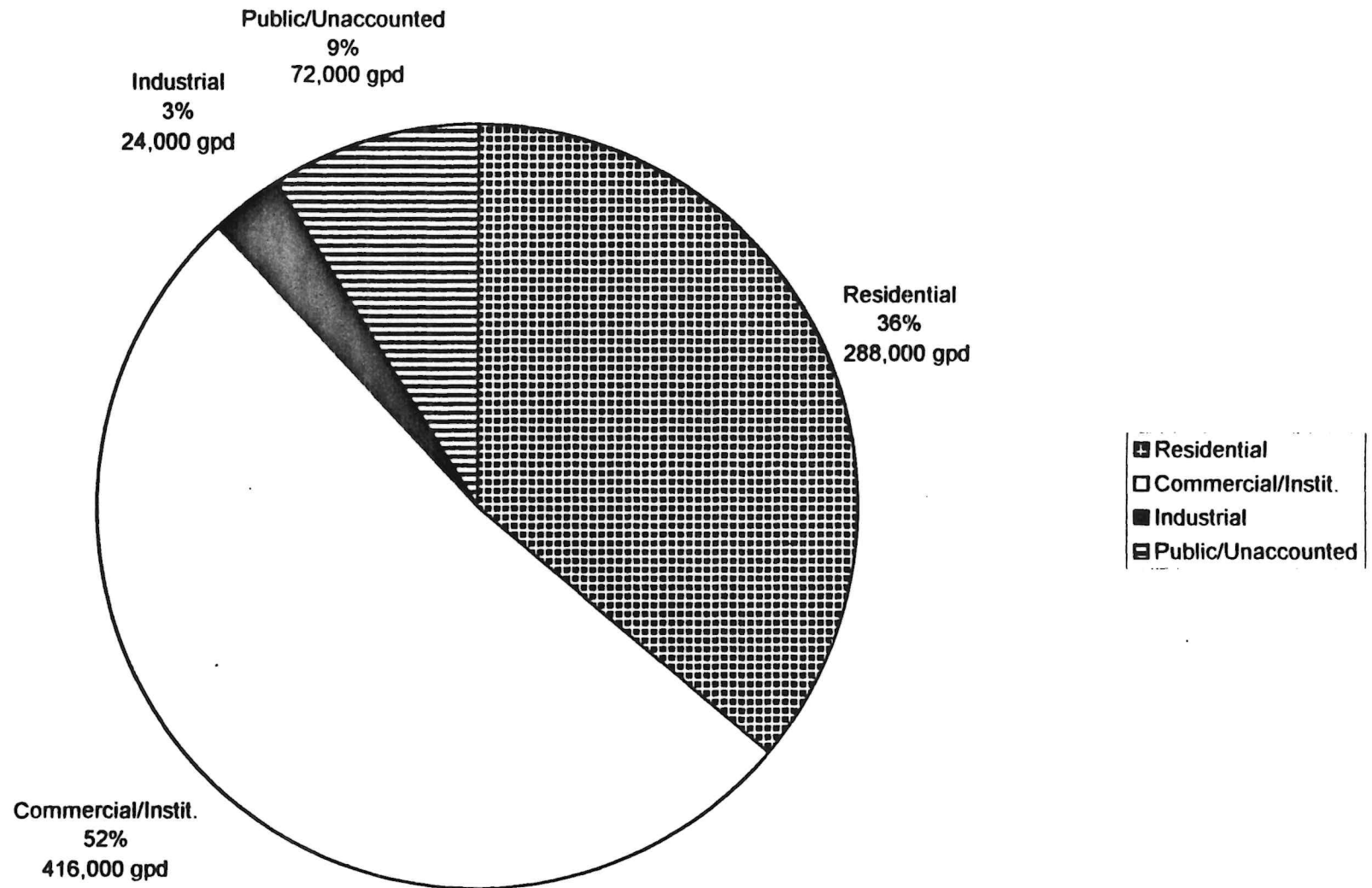


Figure 5.10

Carrollton Utilities: 2020 Projected Water Use



CARROLL COUNTY WATER DISTRICT NO. 1 SERVICE AREA

The Carroll County Water District Number 1 (CCWD) serves 1,313 customers in Carroll County, 292 customers in Owen County, and 258 customers in Gallatin County.

Data Sources

Sources used included the 1990 Census of Population and Housing, County Business Patterns (1985-1995), Kentucky Directory of Manufacturers (1985-1997), and How Many Kentuckians: Population Forecasts 1995-2020 (1998 edition). These sources were used to provide the demographic and economic data required for the IWR-MAIN model. In addition, information from the water supply planning survey and the Governor's Commission on Water Resources survey was also utilized.

Assumptions

A number of assumptions were made while preparing the data for the model.

1. 1990 was used as the base year because of the availability of extensive census data.
2. No conservation measures are currently in place and none are anticipated in the future.
3. Significant growth is anticipated in this water service area. There are a number of planned expansions to serve additional residential customers. There are also some significant industrial users and Carroll County continues to seek new industry and commercial enterprises. The new NASCAR track in Gallatin County is also expected to generate new customers, particularly in the commercial sector.

Methodology and Verification

1990 was selected as the base year. Forecast years were 1995, 2000, 2005, 2010, 2015, and 2020. 1990 and 1995 were used as comparison years for calibration and verification.

While the model understated water use in 1990, in 1995, water use was within .03 percent. However, after consultation with Jim Smith, Manager of CCWD, total water use was calibrated upwards for forecast years. The increases were based on local knowledge of growth and planned improvements and expansions. Figure 5.11 compares actual and projected demand for water. While projected demand is probably high, it was considered to be appropriate for planning purposes since there is uncertainty regarding the extent of future growth. IWR-MAIN is probably underestimating maximum day use at 8 to 10 percent above average demand; however, since the projected average demand is high, this was not adjusted.

Conclusions

Significant growth will occur in this water service area. Figures 5.12 through 5.20 show actual and projected demand for water by sector. The commercial/institutional sector will increase as a percentage of total demand during the planning period.

Figure 5.11
CCWD: Actual Vs. Projected Demand

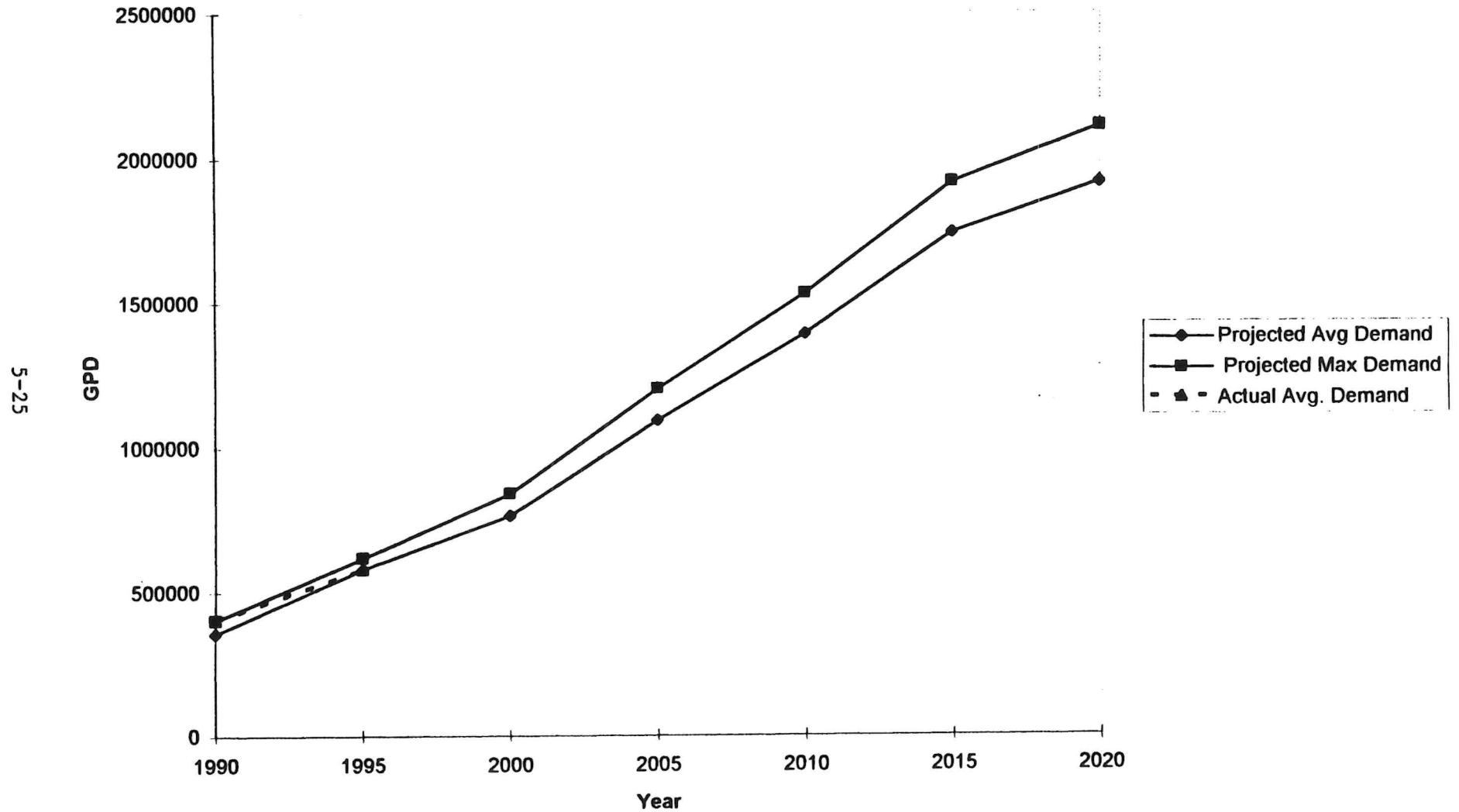


Figure 5.12
Carroll Co. W.D. No. 1: 1990 Actual Use

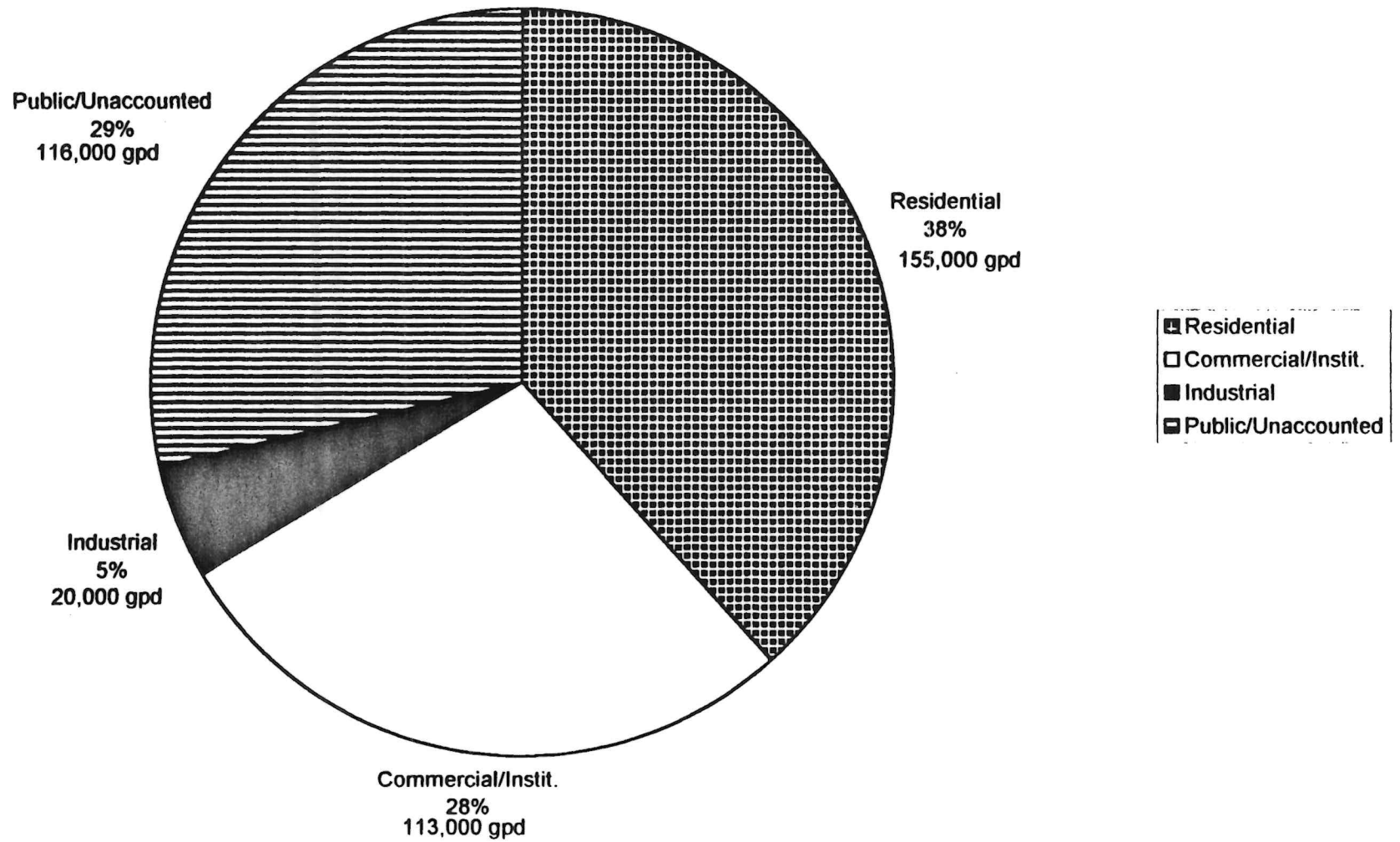


Figure 5.13
Carroll Co. W.D. No. 1: 1990 Projected Use

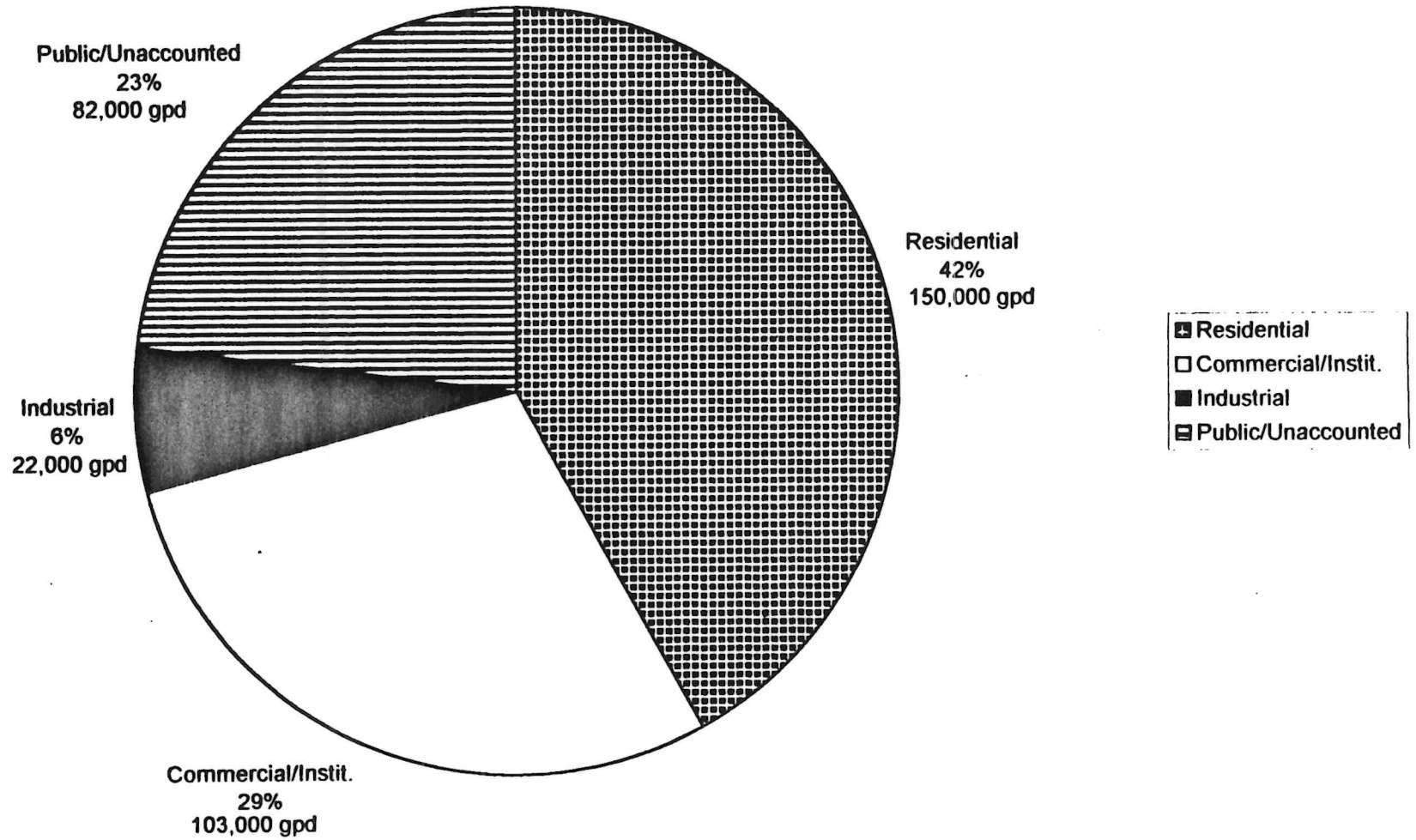


Figure 5.14
Carroll Co. W.D. No. 1: 1995 Actual Use

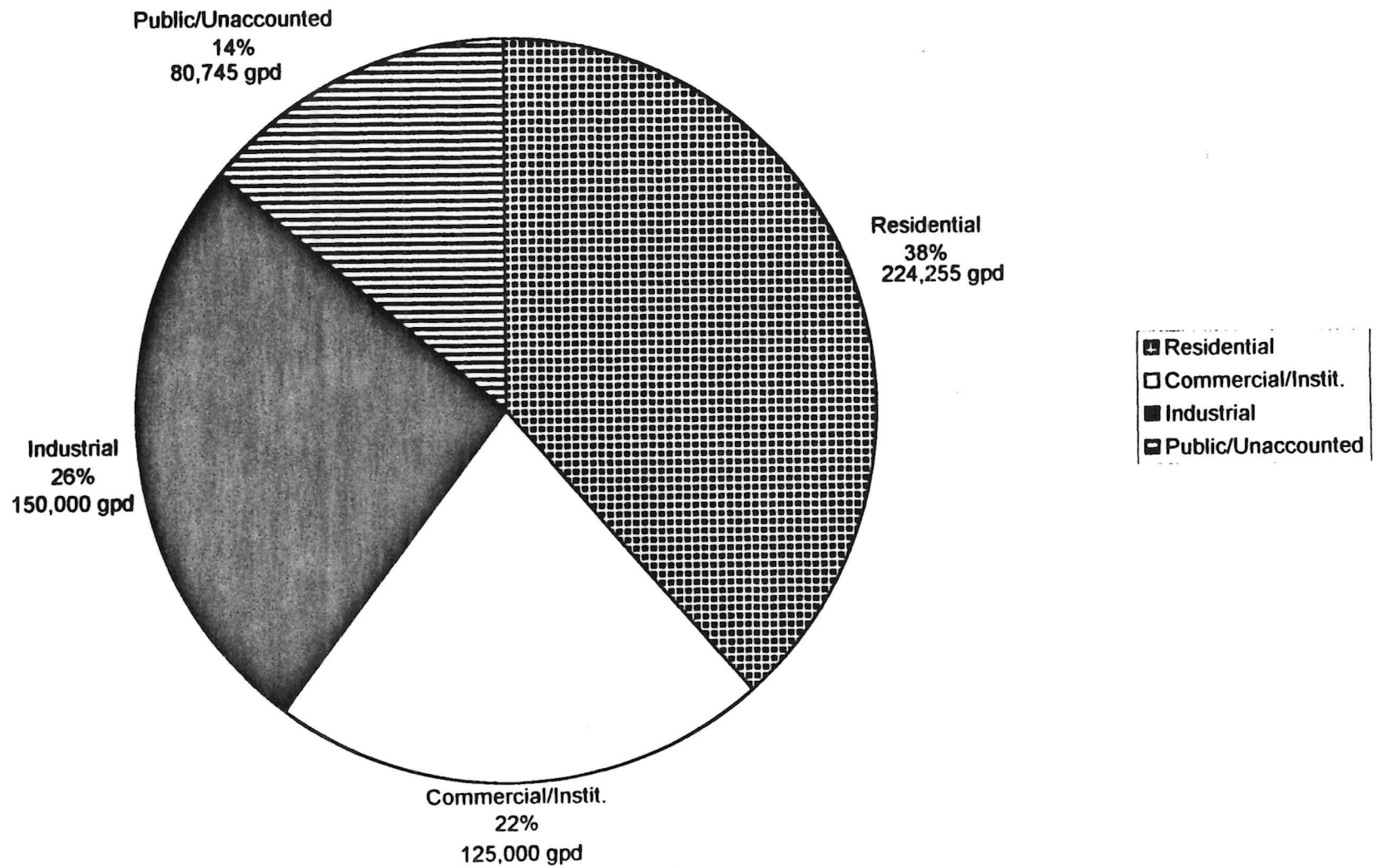


Figure 5.15
Carroll Co. W.D. No. 1: 1995 Projected Use

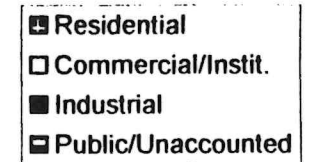
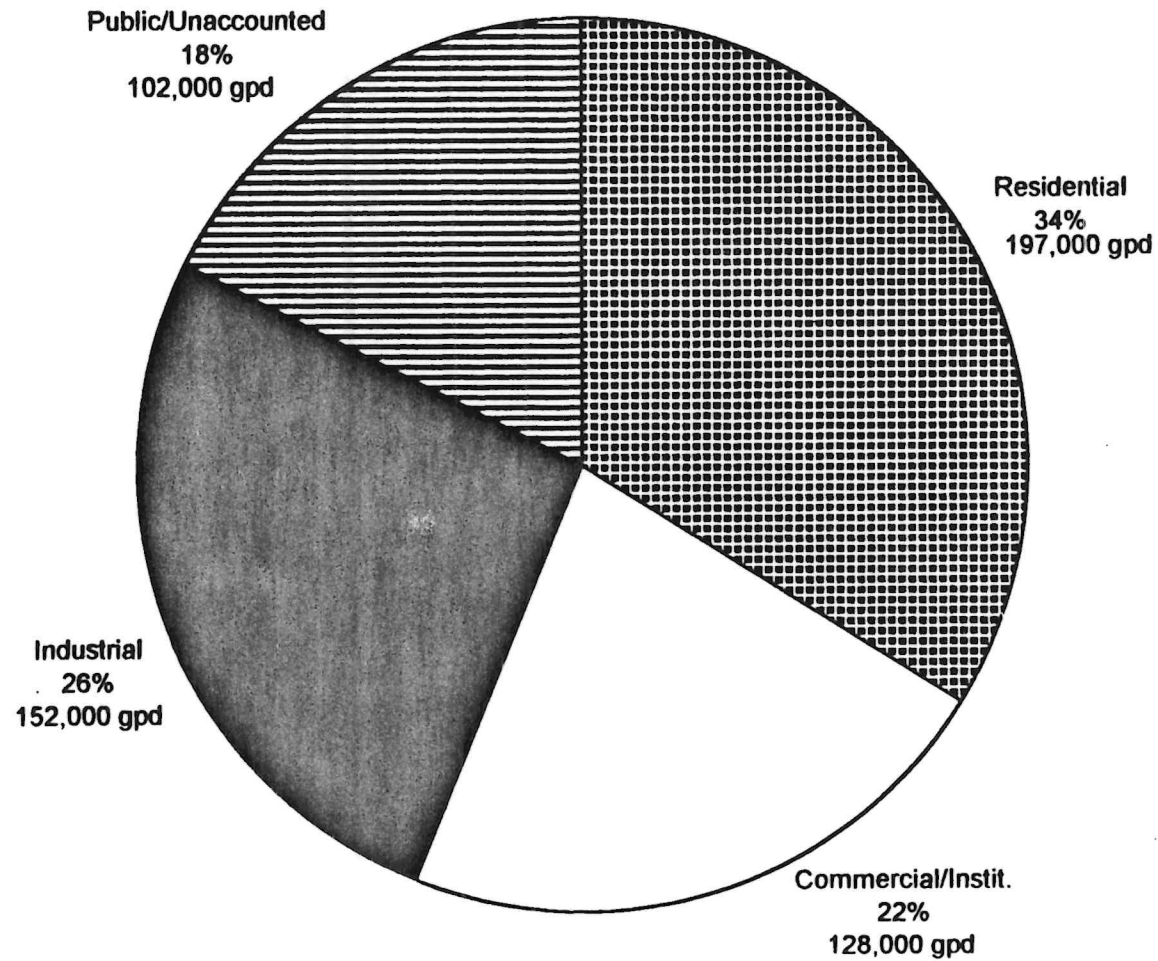


Figure 5.16

Carroll Co. W.D. No. 1: 2000 Projected Use

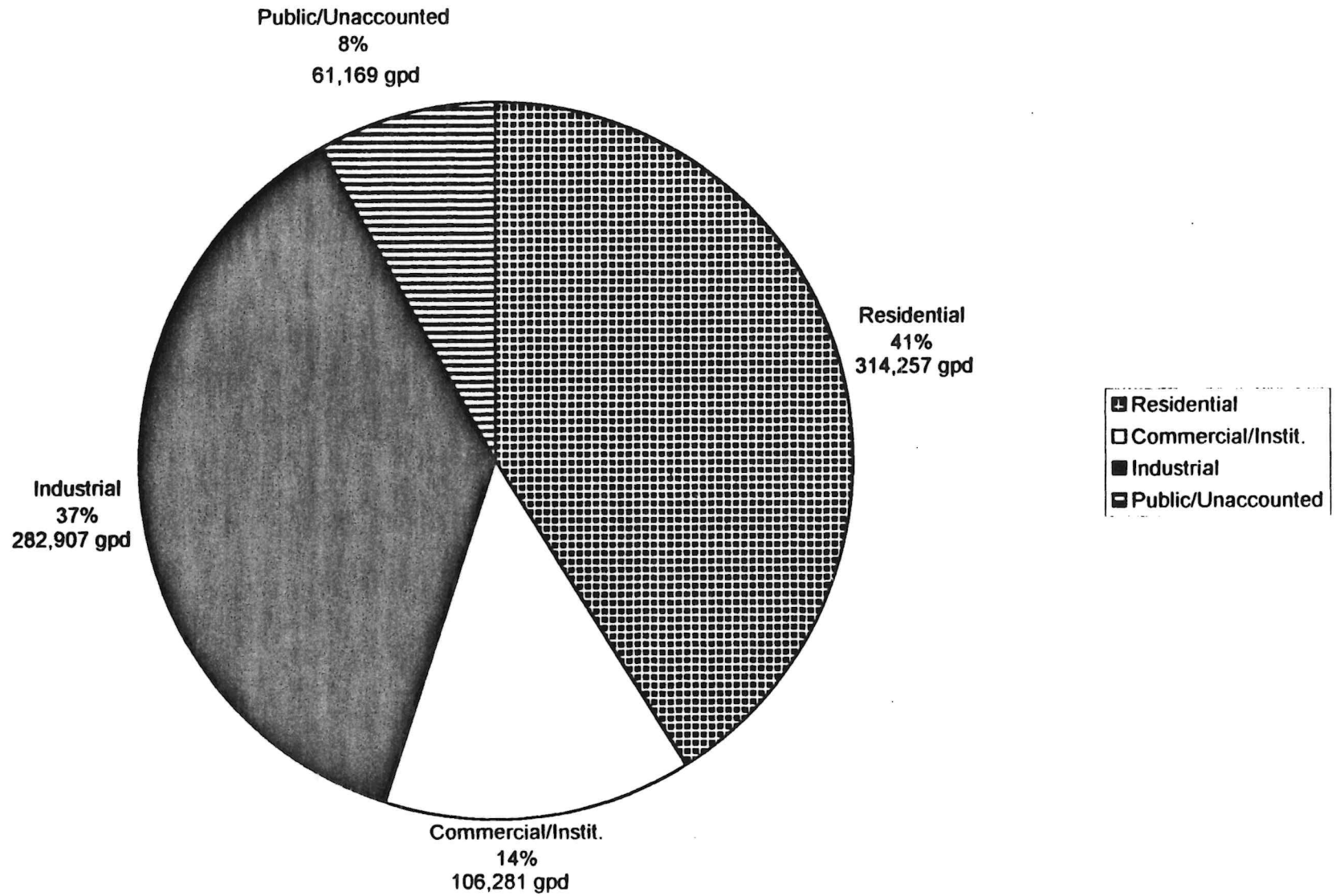


Figure 5.17

Carroll Co. W.D. No. 1: 2005 Projected Use

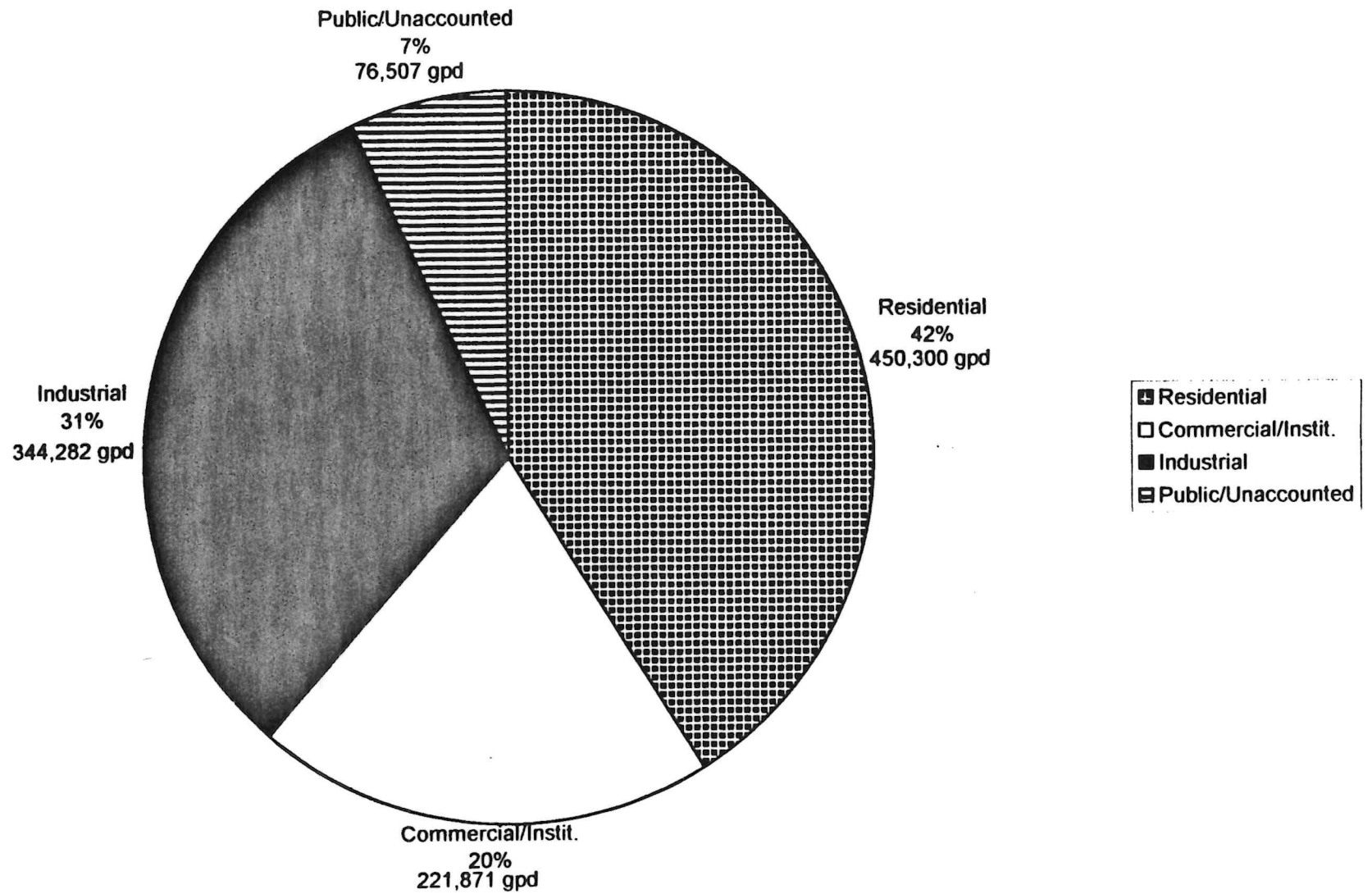


Figure 5.18
Carroll Co. W.D. No. 1: 2010 Projected Use

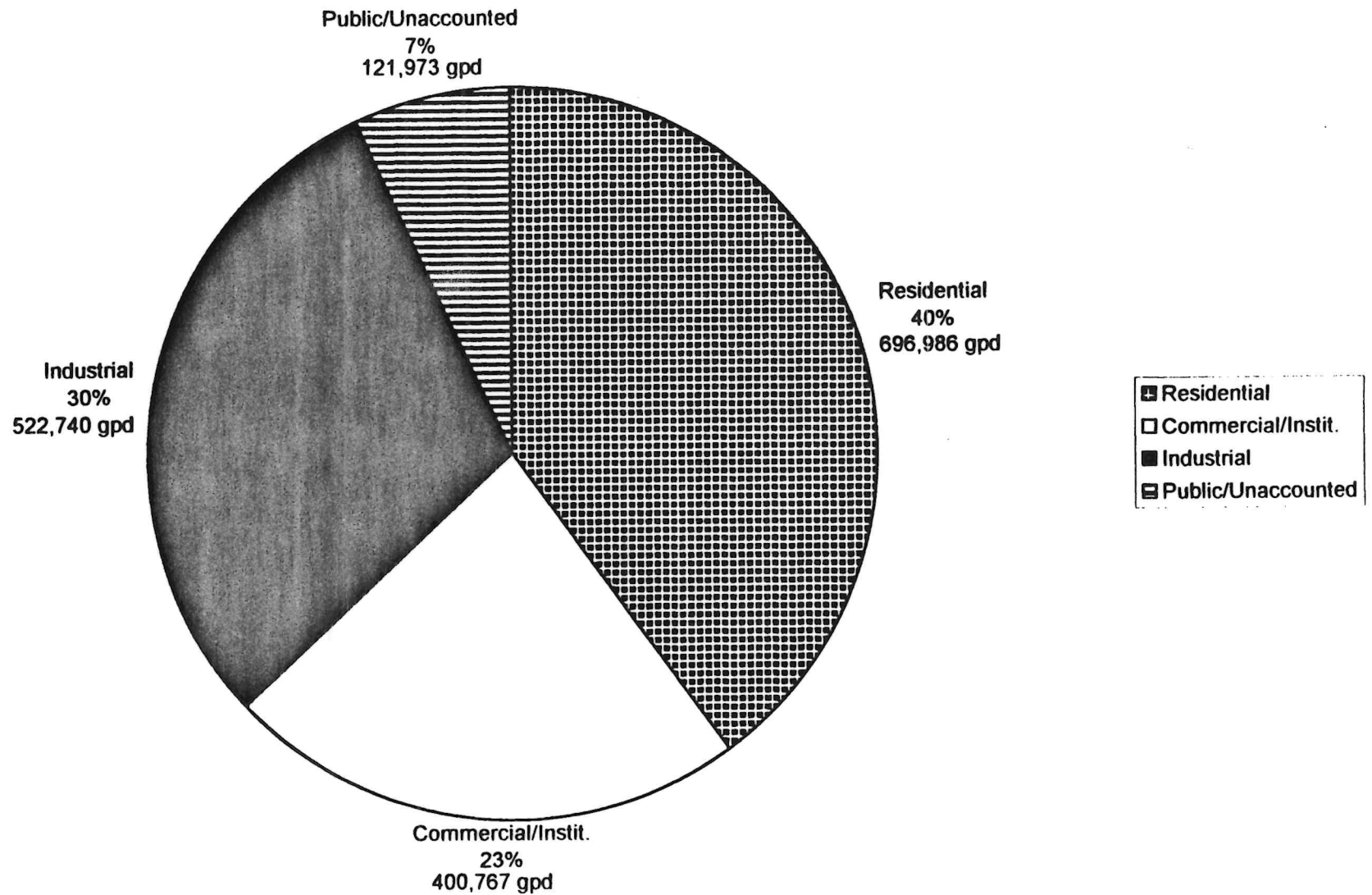


Figure 5.19

Carroll Co. W.D. No. 1: 2015 Projected Use

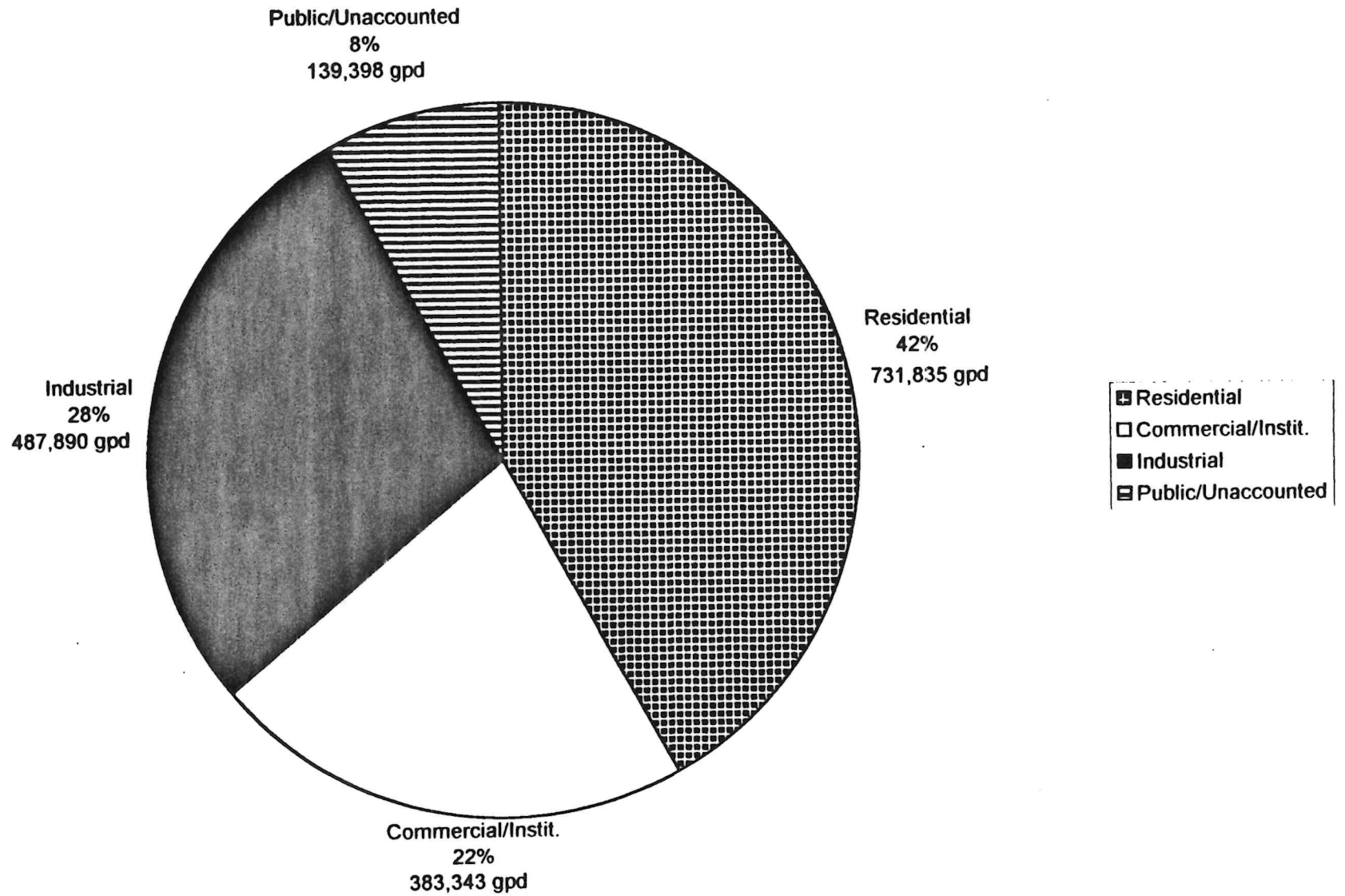
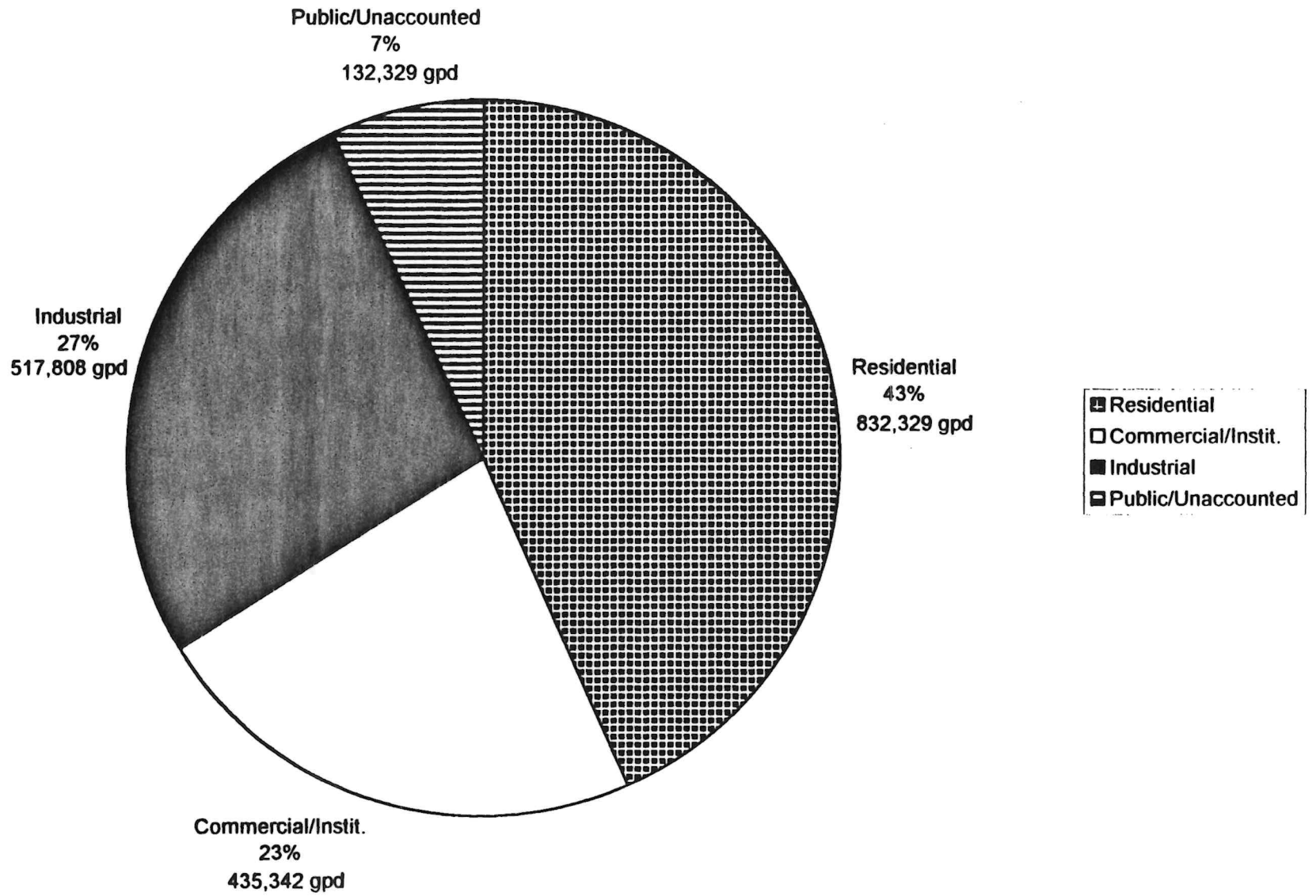


Figure 5.20

Carroll Co. W.D. No. 1: 2020 Projected Use



C. INFRASTRUCTURE ASSESSMENT

This section provides a general assessment of the infrastructure and treatment capacity, if applicable, of the major water suppliers and distributors.

Carrollton Utilities (Community Water Supplier)

Carrollton Utilities uses groundwater as a water source and currently has a limited design treatment capacity of 2.0 mgd. The treatment plant was constructed in 1992 and is in excellent condition. Currently, 50 percent of design capacity is in use. Comparing projected demand to treatment capacity, it appears that treatment capacity is more than adequate through 2020 (Figure 5.21). The treatment process includes chlorination, flocculation, sedimentation, filtration, softening, and fluoridation. There are no water quality problems. Total storage capacity is adequate at 1.29 mg in locations noted previously. The storage tanks have functional telephone line telemetry.

Water losses are estimated at 14 percent. There is an annual leak inspection using an Aqua Scope. Water lines are in good condition. There is a line maintenance program including regular closing/opening of all main line valves, flushing of the system, and a schedule for stored water exchange. There are periodic line breaks. The most typical is a 6" or 8" line and the cause is generally settlement or stress. Pressure checks are conducted throughout the system. The system is metered and there is a meter testing/replacement program.

According to the survey information, there is no single user that purchases 20 percent or more of the water produced; however, the West Carroll Water District is close at 16 percent. West Carroll does anticipate modest growth.

Carroll County Water District No. 1 (Community Water Supplier)

Carroll County Water District No. 1 (CCWD) also uses groundwater and has wellfields in Ghent and western Gallatin County. CCWD has two treatment plants, one recently upgraded and expanded and one newly constructed, both in 1998. The Ghent treatment plant has a capacity of 650,000 gpd and the Gallatin County plant has a capacity of 720,000 gpd. Treatment includes chlorination and fluoridation only. There are no water quality problems. Comparing projected demand to treatment capacity, it appears that if anticipated growth occurs, additional capacity will be needed by 2010 (Figure 5.22). It is anticipated that the additional capacity will be needed at the Ghent plant based on current trends.

Total storage capacity is 750,000 gallons in previously noted locations. Storage capacity is considered adequate for a typical day; however, with several large industrial users, it is possible to deplete all the storage within a few hours. The storage tanks at Dividing Ridge, Montgomery Road, and Jackson Ridge have functional radio telemetry. There is a routine for stored water exchange.

Water losses are estimated at 5 percent. Leak detection methods include visual inspection and

Figure 5.21

Carrollton Utilities: Projected Demand Vs. Treatment Capacity

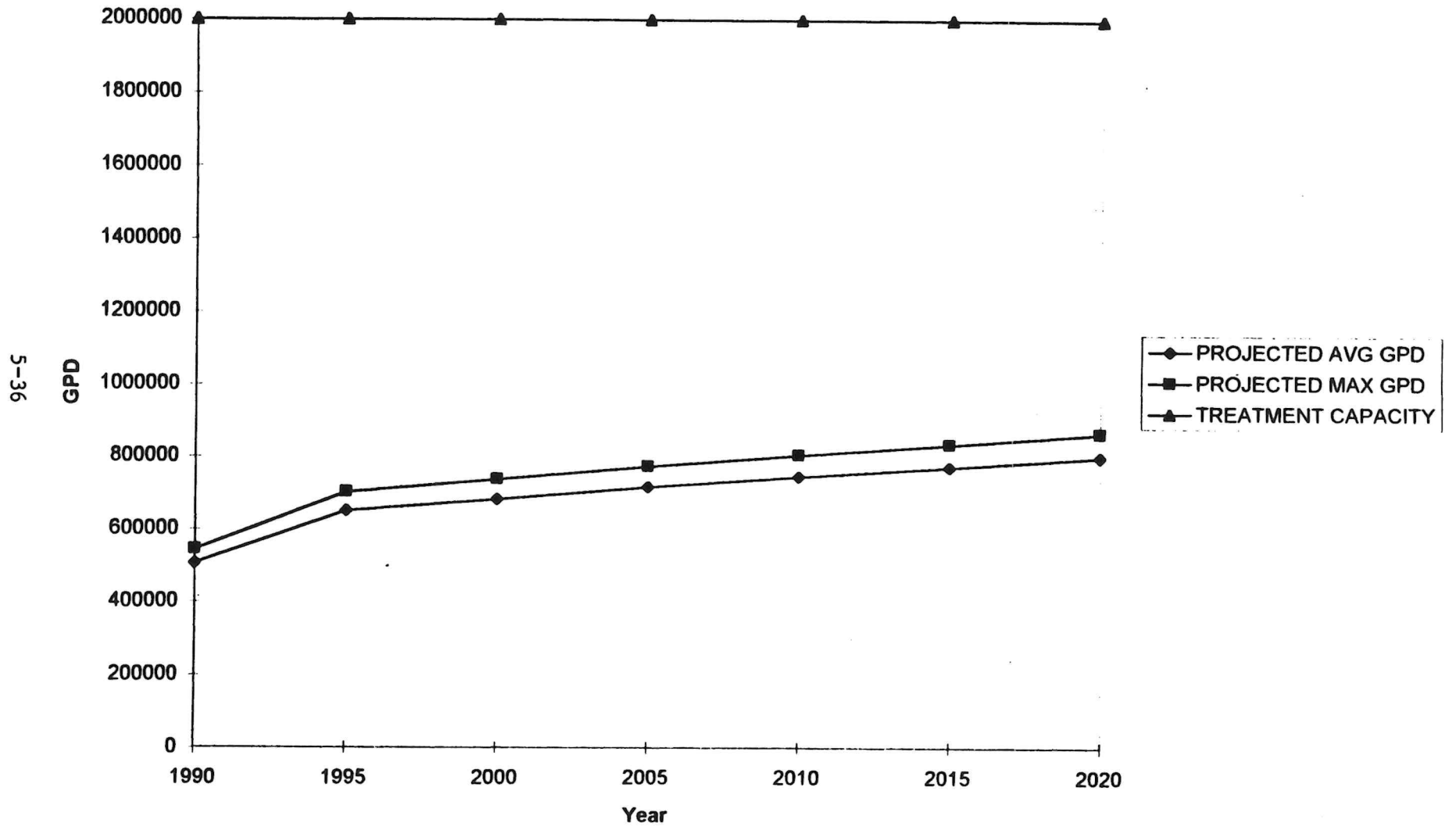
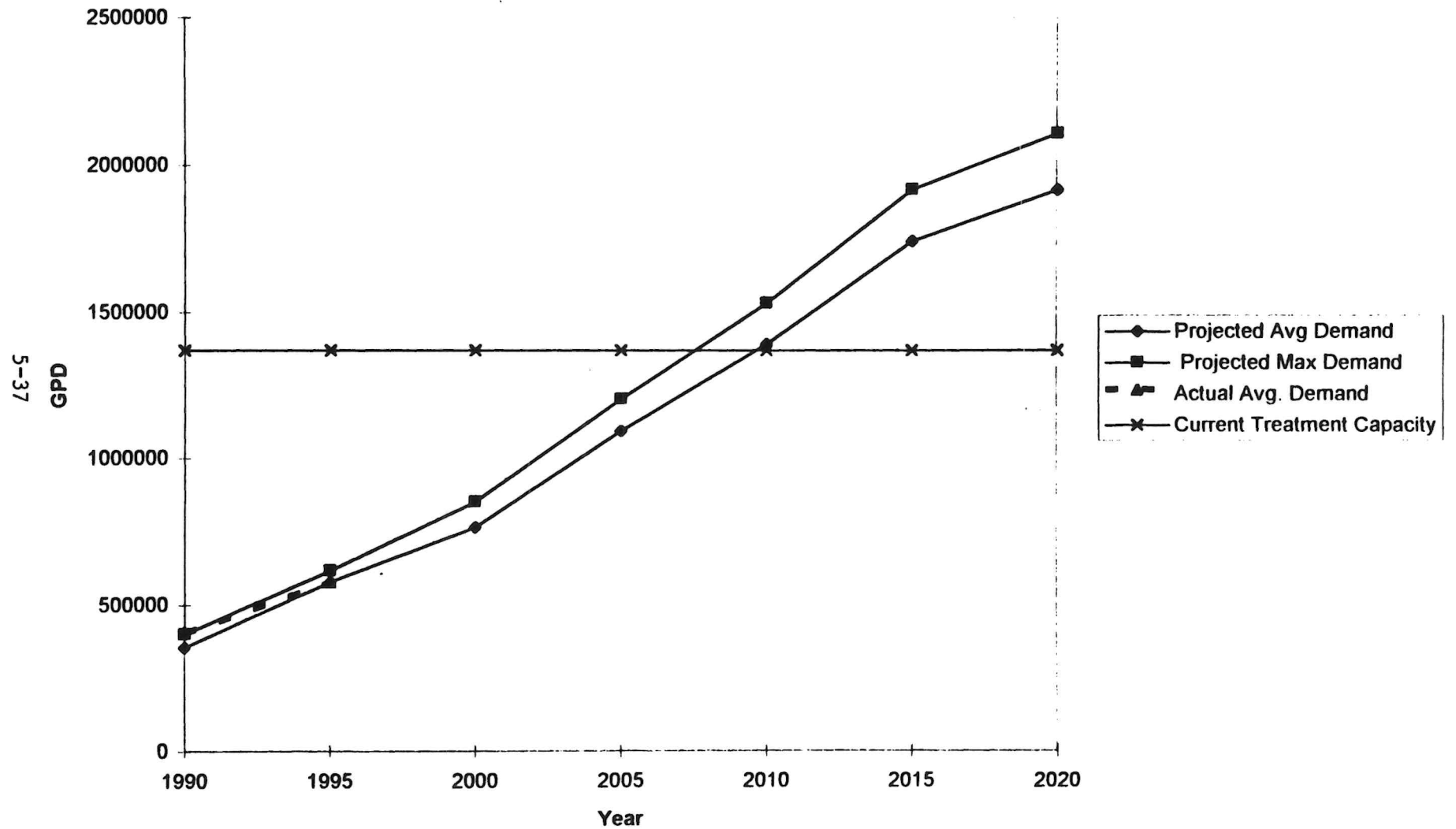


Figure 5.22
CCWD: Projected Demand Vs. Treatment Capacity



sequencing valve closures while monitoring appropriate locations with leak detectors. Overall, water lines are in good condition. There are periodic line breaks, primarily caused by the rock on the lines coming under stress. Another major cause is contractor hits during construction. The biggest problem area for construction- related breaks is KY 227.

No single user was identified that purchases 20 percent or more of the water produced. The system is metered. Planned improvements to the system include extending distribution lines wherever financially feasible. Currently, grant monies will be required to complete any major line extensions.

West Carroll Water District (Community Water Distributor)

West Carroll purchases water from Carrollton Utilities, Henry County Water District, Trimble County Water District, and the Milton Water Company. Total storage capacity is 94,000 gallons in locations noted previously. There is a line maintenance program and a schedule of periodic maintenance on pump stations. There are periodic pump station failures which are attributed primarily to electrical outages and equipment failure. The system is metered. Water losses were not estimated. There are no water quality problems. Carrollton Utilities has recently taken over management functions.

Green Acres Mobile Home Park (Community Water Supplier)

Green Acres uses groundwater to serve a population of approximately 50. The average gpd for this supplier is 5,000 to 5,400. The water is chlorinated and softened. Leak detection methods include staying alert for low water pressure or areas of wet ground. Conservation measures include rules such as "no car washing" and "no playing with water hoses". No growth is anticipated in this system. Carroll County Water District No. 1 is expected to provide water to this supplier.

Dow Corning Corporation (Non-Community Water Supplier)

Dow Corning uses groundwater from a field of 13 wells primarily for industrial processes, but also as a drinking water source for its 520 employees. Treatment plant capacity is 13 mgd and the plant uses chlorine disinfection and zeolite softeners. The plant was built in 1966 and is in good condition. The permitted withdrawal limit is 14 mgd. Only .5 percent of the water produced is used as potable water. Storage capacity is 30 mg in an elevated storage tank. The storage system is in good condition. The tank was repainted in 1994 and minor repairs and maintenance were also performed. Conservation measures include the installation of pressure regulators on the water supply to office buildings. The reduction in pressure from 90 to 45 psi results in decreased water consumption. Modest growth is anticipated as plant operations expand.

Ameriform Manufacturing (Non-Community Water Supplier)

Ameriform uses groundwater for industrial processes. The treatment plant is chlorination only. Because of the discontinuation of anodizing processes, water use is only 4,500 gpd.

Kentucky Utilities - Ghent Generating Station

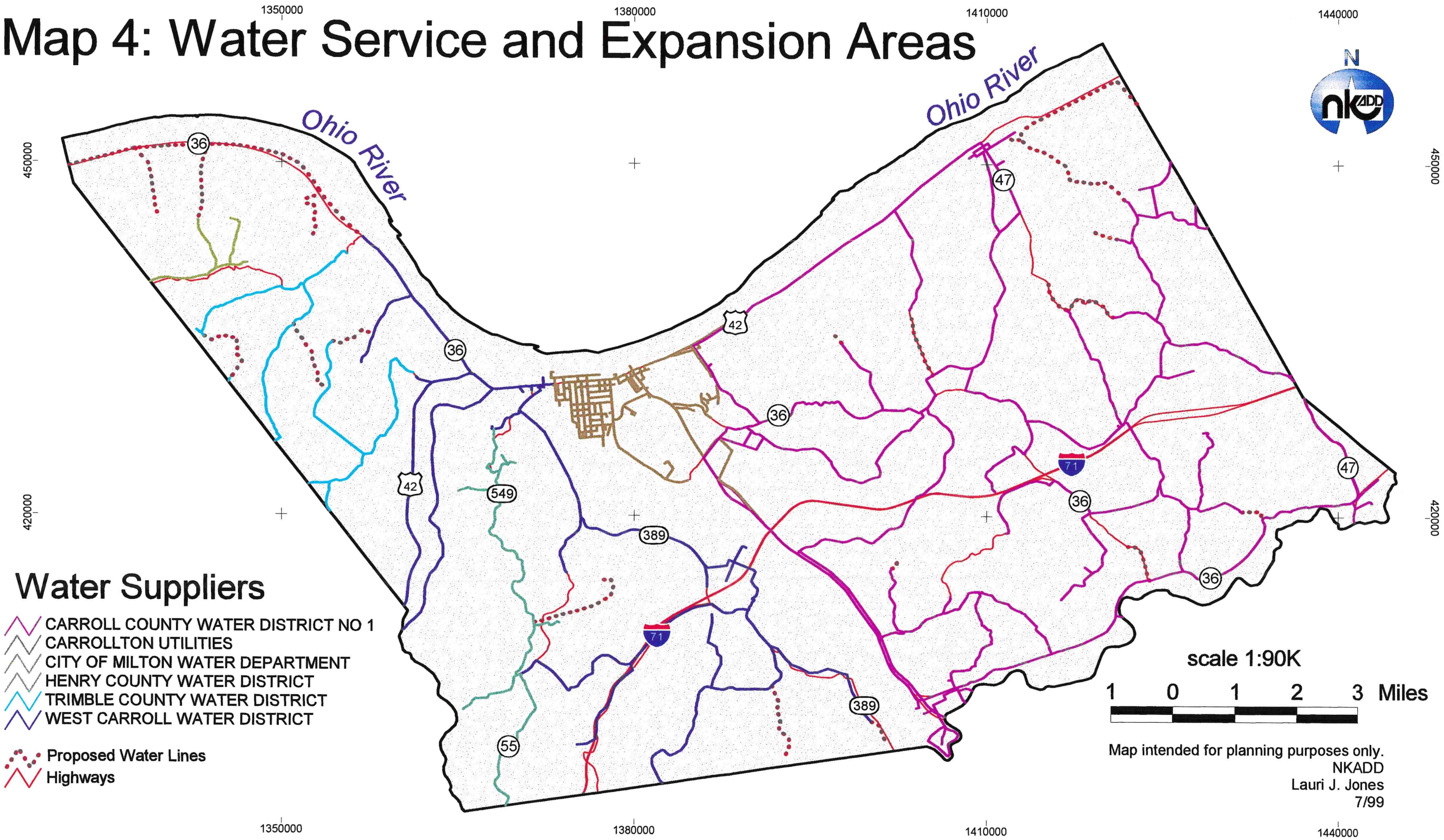
Kentucky Utilities uses groundwater for potable water as well as some processing. Ohio River water, which is untreated, is used strictly for plant processes. Kentucky Utilities has a treatment plant for the groundwater which has a capacity of 520,000 gpd. The plant is in good condition and uses sand filtration zeolite softeners and chlorination. Storage capacity for potable water is 10,000 gallons. An additional 1.4 mg of storage capacity is available for demineralized and filtered water. No growth is anticipated.

Milton Water Company, Trimble County Water District, and Henry County Water District

Please refer to the Trimble County Water Supply Plan for the infrastructure assessment.

Map 4 shows the service areas and planned expansions of the community suppliers and distributors.

Map 4: Water Service and Expansion Areas



CHAPTER 6

WATER SUPPLIER SOURCE ASSESSMENT

I. INTRODUCTION

All of Carroll County's water suppliers rely on groundwater as a source. This chapter assesses the amount of water available to each supplier.

II. GEOLOGIC AND SOIL CHARACTERISTICS

Geology

For a detailed description, please refer to pages 5 through 9 of USGS Water Resources Investigations Report 98-4215, Hydrogeology and Simulation of Ground-Water Flow in the Ohio River Alluvial Aquifer Near Carrollton, Kentucky, located in the back pocket of the report binder.

Soils

There are five major soil associations in Carroll County: Wheeling-Huntington-Alluvial Land, Otwell-Nolin-Markland, Fairmount-Rock-Outcrop-Lowell, Lowell-Nicholson, and Eden (See Appendix E).

The Wheeling-Huntington-Alluvial Land Association makes up approximately 10 percent of the soils in the county and can be found along stream terraces and the narrow flood plains along the Ohio River. This soil association lies along the entire northern border of the County. Wheeling soils are found mainly on stream terraces. The slopes are primarily level, but some are moderately steep along the breaks between terraces. The soils are deep and well-drained with loamy-textured subsoils. Huntington soils are nearly level and are well-drained with loamy-textured subsoils. Alluvial land is mainly located on the steep breaks between terraces and in the flood plains along the Ohio River bank. Much of the land in this association has been used for residential and industrial development.

Otwell-Nolin-Markland soils are found in the central part of the county and comprise approximately 12 percent of the county's soils. It is found along the stream terraces and flood plains of the Kentucky River, the Little Kentucky River, and Eagle Creek. Otwell soils are nearly level to sloping soils and are deep and moderately well-drained with a fragipan. Nolin soils are found on flood plains and are deep and well-drained with loamy-textured subsoils. Markland soils are found on gentle to steep slopes and are also moderately to well drained with clayey subsoils.

Fairmount-Rock Outcrop-Lowell Soils make up 63 percent of the county's soils and can be found on hillsides and narrow ridges. Underlying the soils are thin beds of limestone and soft, calcareous shales. Fairmount soils are found on gently to moderate-steep to steep slopes and are shallow with a flaggy, clayey subsoil. Rock outcrops occur in many areas on the steeper slopes. Lowell soils are on upper hillsides and ridgetops. They are deep, well-drained soils with a clayey textured lower

subsoil.

Lowell-Nicholson soils are found on upper hillsides and on fairly broad ridges. They have a loamy, clayey-textured subsoil. The soils are underlain by limestone, calcareous shales, and beds of siltstone. Only 9 percent of the soils in the county are in this association.

Eden Association soils comprise approximately six percent of the county's soils. They are located on steep hillsides and narrow ridges in highly dissected uplands. They have clayey-textured subsoils underlain by soft calcareous shale with thin layers of limestone and beds of siltstone.

III. SOURCE ASSESSMENT

A. Carroll County Water District No. 1

CCWD utilizes two wellfields, one in Ghent and one in western Gallatin County. The following calculations estimate the maximum "theoretical" daily yield of each well. Of course, the assumption is that well design is sufficient to obtain the maximum yield, which is unlikely. However, this provides a reasonable measure of water quantity for assessment purposes.

Well 1 (Ghent - used intermittently)

28 gpm/ft (specific capacity) X 35 ft (total available drawdown) = 980 gpm
980 gpm X 1,440 (minutes per day) = 1,411,200 gallons (maximum theoretical daily yield)

Well 2 (Ghent - used intermittently)

33 gpm/ft (specific capacity) X 38 ft (total available drawdown) = 1,254 gpm
1,254 gpm X 1,440 (minutes per day) = 1,805,760 (maximum theoretical daily yield)

Well 3 (Ghent)

44 gpm/ft (specific capacity) X 55 ft (total available drawdown) = 2,420 gpm
2,420 gpm X 1,440 (minutes per day) = 3,484,800 gallons (maximum theoretical daily yield)

Well 4 (Ghent)

56 gpm/ft (specific capacity) X 38 ft (total available drawdown) = 2,128 gpm
2,128 gpm X 1,440 (minutes per day) = 3,064,320 gallons (maximum theoretical daily yield)

Well 7 (Gallatin County)

69 gpm/ft (specific capacity) X 51 ft (total available drawdown) = 3,519 gpm
3,519 gpm X 1,440 (minutes per day) = 5,067,360 gallons (maximum theoretical daily yield)

Well 8 (Gallatin County)

110 gpm/ft (specific capacity) X 51 ft (total available drawdown) = 5,610 gpm
5,610 gpm X 1,440 (minutes per day) = 8,078,400 (maximum theoretical daily yield)

Comparing the maximum day projected demand of 2.1 mgd in 2020 to the total maximum theoretical daily yield of 22.9 mgd, it is evident that the supply is more than adequate. Again, the limiting factors would be well design and construction and pump capacity.

According to a memorandum from the Groundwater Branch of the Division of Water regarding "safe yield" of the aquifer, the amount of water available to CCWD is "not so much limited by the hydrologic conditions of the well field but rather by the number, design, and operation of the wells in the well field (Tracy M. Burgess III, DOW, 6/18/99). This is because the major contributor to aquifer recharge is induced infiltration from the Ohio River and its tributaries.

Wellhead Protection Plan

CCWD has made the completion of both Phase I and Phase II of the Wellhead Protection Plan a priority. CCWD intends to have the Phase I plan completed by the end of September 1999 and the Phase II plan completed by the end of December 1999. The Wellhead Protection Plan will delineate the recommended protection areas for the wells, including required maps.

B. Carrollton Utilities

Planning representative working to obtain necessary data for yield calculations.

Wellhead Protection Plan

The Phase I plan is currently underway with a scheduled completion date of December 1999. Phase II will be completed by June 2000. The Wellhead Protection Plan will delineate the recommended protection areas for the wells, including required maps.

C. Green Acres Mobile Home Park

Planning representative working to obtain necessary data for yield calculations.

Wellhead Protection Plan

The Phase I plan is scheduled for completion by June 2000 and Phase II is scheduled for December 2000. However, it is possible that this water supplier will hook-up to Carroll County Water District No. 1. The Wellhead Protection Plan will delineate the recommended protection areas for the wells, including required maps.

D. Dow Corning Corporation

Dow Corning has a large well field, which is used primarily for industrial processes; however, wells do provide drinking water for employees.

Planning representative working to obtain necessary data for yield calculations.

Wellhead Protection Plan

Dow Corning has submitted its Phase I plan. Phase II is scheduled for completion by December 1999. Please refer to the Phase I plan for the recommended wellhead protection areas.

E. Ameriform

Planning representative working to obtain necessary data for yield calculations.

Wellhead Protection Plan

Phase I is scheduled for completion by June 2000 and Phase II by December 2000. The Wellhead Protection Plan will delineate the recommended protection areas for the wells, including required maps.

F. Kentucky Utilities Ghent Generating Station

Kentucky Utilities uses groundwater for potable water and the Ohio River for plant processes.

Planning representative working to obtain necessary data for yield calculations.

Wellhead Protection Plan

Phase I is scheduled for completion by June 2000 and Phase II by December 2000. The Wellhead Protection Plan will delineate the recommended protection areas for the wells, including required maps.

G. Milton Water Company, Trimble County Water District, and Henry County Water District

Please refer to the Trimble County Phase I Water Supply Plan for source assessment and wellhead protection plan completion schedule.

Water Use Constraints

No quality or quantity constraints have become evident. The County, water suppliers, water distributors, and industrial users are very interested in protecting and managing the aquifer so it will continue to serve as an excellent resource for all parties. The USGS model is a very valuable tool in this effort.

Table 6.1 shows the source availability for the water suppliers.

TABLE 6.1
SOURCE AVAILABILITY

PUBLIC WATER SUPPLIER	SOURCE	SOURCE TYPE	NORMAL/1	MINIMUM/2	DROUGHT/3
Carroll County Water District No. 1	Well 1 Well 2 Well 3 Well 4 Well 7 Well 8	Groundwater Groundwater Groundwater Groundwater Groundwater Groundwater	28 gpm/ft 33 gpm/ft 44 gpm/ft 56 gpm/ft 69 gpm/ft 110 gpm/ft	Not Available.	Refer to text discussion of safe yield issue.
Carrollton Utilities	Well 1 Well 2 Well 3	Groundwater Groundwater Groundwater			
Green Acres Mobile Home Park	Well	Groundwater			
Dow Corning	Well 1 Well 2 Well 3 Well 4 Well 5 Well 6 Well 7 Well 8 Well 9 Well 10 Well 11 Well 12 Well 13	Groundwater Groundwater Groundwater Groundwater Groundwater Groundwater Groundwater Groundwater Groundwater Groundwater Groundwater Groundwater Groundwater			
Ameriform	Wells	Groundwater			
Kentucky Utilities	Wells	Groundwater			
Milton Water	Wells	Groundwater	Refer to Trimble Co. Water Supply Plan	Refer to Trimble Co. Water Supply Plan	Refer to Trimble Co. Water Supply Plan
Henry Co. Water District	Wells	Groundwater			
Trimble Co. Water District	Wells	Groundwater			
Footnotes	Wells				
/1	Specific Capacity				
/2	Specific Capacity				
/3	Safe Yield				

CHAPTER 7

WATER SUPPLY ADEQUACY

I. ADEQUACY STANDARDS

The Carroll County Water Supply Planning Council elected to plan for a continuous groundwater supply under all conditions which fairly represents the needs of all users. In addition, conservation is to be used to the maximum extent possible to fully protect existing users and allow adequate supply for growth.

As demonstrated throughout the plan, there are many users who rely upon the Ohio River aquifer. Community water suppliers actually represent a relatively small percentage (8% on an average day) of total water use. Most of the water withdrawn from the aquifer is used for industrial processes. Therefore, while the water supply is more than adequate for projected community water supply demand, the Planning Council worked with the USGS during the planning process to develop a model of groundwater flow. By using this model, the impact of increased withdrawals or new withdrawals on the aquifer can be evaluated, thus allowing for growth, while protecting a invaluable resource.

II. APPLICATION OF ADEQUACY STANDARDS

Carroll County Water District No. 1

The Ohio River alluvial aquifer is an adequate source throughout the planning period based on the maximum day projections. As noted in Chapter 5, the need for additional treatment capacity is anticipated at the Ghent plant by 2010, if growth occurs as expected.

Carrollton Utilities

The Ohio River alluvial aquifer is an adequate source throughout the planning period based on the maximum day projections. There are no infrastructure inadequacies.

Green Acres Mobile Home Park

The Green Acres Mobile Home Park well is also located in the alluvial aquifer which should be a more than adequate source as Green Acres withdraws less than 10,000 gpd. However, with ever increasing water testing requirements, it is anticipated that Green Acres will be served by Carroll County Water District No. 1. There are no known infrastructure inadequacies.

Dow Corning

Dow Corning is the largest water user in the county, withdrawing an average of 12 mgd, primarily

for cooling. Potable water for employees is a very small component of their total water use. Water use is expected to remain relatively constant during the planning period, with only modest growth expected. *Planning representative is working to obtain additional information about application of adequacy standard from John Romans.*

Ameriform

The alluvial aquifer is an adequate source. No growth is expected and current use has dropped below 5,000 gpd as a result of discontinuing anodizing. No infrastructure inadequacies exist.

Kentucky Utilities

The alluvial aquifer is an adequate source. No growth is expected during the planning period. No infrastructure inadequacies exist.

Milton Water Company, Trimble County Water District, and Henry County Water District

According to the Trimble County Water Supply Plan, the alluvial aquifer is an adequate source. Please refer to this document for additional information.

Other Water Users

Elf-Atochem is the second largest user of the aquifer with withdrawals averaging 2.8 mgd and peak use at 3.5 mgd over the past 10 years. This withdrawal rate is expected to remain constant. Dayton-Walther also uses groundwater averaging under .5 mgd. The aquifer is an adequate source for these competing users and good management through the use of the model should help ensure the adequacy of this resource.

CHAPTER 8

SUPPLY PROTECTION

I. POTENTIAL CONTAMINANT SOURCES

All of the water suppliers in the County rely on groundwater to meet demand. As part of the required wellhead protection plans, a complete contaminant inventory will be conducted in the delineated wellhead protection areas (Please refer to Chapter 6 for the wellhead protection plan schedule). Maps showing the location of the potential contaminants will also be prepared. It should be noted that while suppliers rely on groundwater, there is infiltration from the Ohio River (a surface water source) into the aquifer.

II. SUSCEPTIBILITY ANALYSIS

After the contaminant inventory is completed in the wellhead protection areas, a susceptibility analysis will determine the term, chance of contaminant release, and degree of hazard for each potential pollutant identified.

III. GEOLOGY AND SOILS

A. Geology

All of the water suppliers have wells located in the Ohio River alluvial aquifer. The Ohio River alluvial aquifer is characterized by large deposits of sand and gravel. Soils and near-surface deposits are typically a mixture of clays, silts, and fine-grained sands to a depth of 10 to 30 feet. In addition to water stored in alluvial deposits, the aquifer has induced infiltration from the Ohio River and lateral flow from the valley walls. Please refer to the USGS Water Resources report located in the back pocket of the report binder for an extensive description of the geology.

B. Soils

All the water suppliers, with the exception of Green Acres Mobile Home Park, have wells that are located in Wheeling silt loam (WhA) soil. This soil typically has a surface layer of brown silt loam that is approximately 9 inches thick. The subsoil is mostly brown and extends to a depth of about 60 inches. The underlying material is stratified layers of sand, gravel, and silt. Permeability is moderate and run-off is slow to medium.

Green Acres Mobile Home Park's well is located in Otwell silt loam (OtB). OtB soil formed in mixed alluvium derived mostly from limestone and calcareous shale. Run-off is medium to slow.

IV. EXISTING REGULATORY AND NON-REGULATORY PROTECTION MEASURES

The primary focus of this section is on local, rather than state or federal, regulatory and non-regulatory protection measures for Carroll County's water supply. No regulatory or non-regulatory measures that specifically address protection of the water supply were identified. Carroll County does not have county-wide planning and zoning.

Both the Cities of Carrollton and Ghent have comprehensive plans, zoning ordinances, and subdivision regulations. Carrollton also has a nuisance ordinance. While these documents do not specifically address protection of the water supply, there are some sections that address protection of the environment. Appendix H contains pertinent excerpts.

The County does have an ordinance that regulates the storage, collection, transportation, processing, and disposal of solid waste. Appendix H contains a copy.

V. PROTECTION RECOMMENDATIONS

Supply protection recommendations will be formulated and presented for public comment as a part of the wellhead protection plan process. The adopted recommendations will then be amended into this plan.

VI. SECURITY OF ACCESS

Carroll County Water District No. 1

In Ghent, three out of four wells are fenced and locked. The fourth well is not. The Gallatin County wells are patrolled by Gallatin Steel security and there is no access from the road; however, if one were determined, it would be possible to reach the wells from the woods adjacent to the Ohio River.

Carrollton Utilities

The production wells are located on treatment plant property and are secured. There is no public access.

Green Acres Mobile Home Park

No information regarding security of access was provided.

Dow Corning Corporation

The wells are located on the company property and Dow has its own security personnel.

Ameriform Manufacturing

The well is located on company property and is not accessible.

Kentucky Utilities

The wells are located on the utility's property and security personnel restrict access.

Milton Water Company, Trimble and Henry County Water Districts

Please refer to the Trimble County Water Supply Plan for discussion of security of access.

CHAPTER 9

WATER RESOURCES INVENTORY

As detailed in Chapters 6 and 7, Carroll County's water supply sources have been determined to be adequate. Therefore, an inventory of water resources was not conducted.

CHAPTER 10

WATER SUPPLY ALTERNATIVES

No water supply inadequacies were identified in Carroll County. However, the Carroll County Water District No. 1 does anticipate the need for additional treatment capacity at its Ghent treatment plant between 2005 and 2010. This need is based on projected growth associated with the Kentucky Speedway development, riverboat gambling in Florence, Indiana, and new development in Carroll County including a Super Wal-Mart. However, the extent of this growth is still speculative at this time.

An estimated additional 350,000 gallons of treatment capacity will be needed in Ghent between 2005 and 2010. Needed improvements will include an additional well with associated piping and controls, an addition to the chlorination system, and a booster. The estimated cost is 400,000 (1999\$).

If an additional 500,000 gallons of treatment capacity is needed between 2010 and 2020, it is estimated that the cost would be approximately \$2,000,000 (1999\$). Needed improvements to the electrical system, larger piping in the distribution system leading out of Ghent, a step-out plant, and real estate acquisition.

Since this is strictly an infrastructure issue, no other alternatives have been considered, especially as the growth is rather speculative. Obviously, if growth does not occur at the anticipated rate, these improvements will not be undertaken.

These infrastructure improvements are consistent with the objective to provide a continuous groundwater supply under all conditions. Conservation is not a viable means to expand service to additional customers. No adverse environmental impacts are anticipated and the water supply has been determined to be adequate.

CHAPTER 11

PRIMARY WATER SUPPLY ALTERNATIVE

As stated previously, no water supply inadequacies were identified. However, if predicted growth occurs, the Carroll County Water District No. 1 will need additional treatment capacity at its Ghent plant. Additional treatment capacity will be added in two phases with components and costs as outlined below.

PHASE I (Time Frame - Between 2005 and 2010)

- Additional well with associated piping and controls
- Addition to the chlorination system
- Booster

Estimated Cost (1999\$) = \$400,000

Potential Funding Sources: Community Development Block Grant, Rural Development Grants and Loans, State Drinking Water Revolving Loan Fund, KIA, and local contributions.

PHASE II (Time Frame - Between 2010 and 2020)

- Step-Out plant
- Electrical system improvements
- Larger piping in the distribution system leading out of Ghent
- Real estate acquisition

Estimated Cost (1999\$) = \$2,000,000

Potential Funding Sources: Community Development Block Grant, Rural Development Grants and Loans, State Drinking Water Revolving Loan Fund, KIA, and local contributions.

Because the proposed improvements are related to infrastructure only, a public hearing was not held. Obviously, if growth does not occur as projected, additional treatment capacity will not be added.

CHAPTER 12

EMERGENCY PLANS

I. WATER SHORTAGE RESPONSE PLANS

None of the County's water suppliers are drought-vulnerable. Therefore, no water shortage response plans were completed.

II. SUPPLY CONTAMINATION RESPONSE PLANS

The following contamination response plans outline the procedures that County water suppliers would take in the event of contamination, or a threat of contamination, of their water supply source.

A. Carroll County Water District No. 1

Notification Procedures

Customers would be notified through announcements on local radio stations, tv stations, and local newspapers. The General Manager would contact the Division of Water and the Public Service Commission as required.

Emergency Water Sources

For a short-term emergency, stored water would be utilized. Also, for both a short or a long-term emergency, depending upon the nature and extent of the contamination, pumping from the affected wells could be halted.

Distribution Problems

No problems were identified that would hinder CCWD's ability to cope with a contamination event.

Threat of Contamination

If there were a threat of contamination, pumping from potentially contaminated areas would stop until the threat could be evaluated.

B. Carrollton Utilities

Notification Procedures

Customers would be notified through announcements on local radio and tv stations and the local newspaper. The General Manager would contact the Division of Water and the West Carroll Water District (managed by Carrollton Utilities) as required.

Emergency Water Sources

For a short-term emergency, stored water would be utilized. For a long-term emergency, depending on the nature and extent of contamination, options could include drilling new wells or utilizing the

Ohio River.

Distribution Problems

No problems were identified that would hinder the utility's ability to cope with a contamination event.

Threat of Contamination

Carrollton would rely on stored water until the contamination threat could be fully evaluated.

C. Green Acres Mobile Home Park

Notification Procedures

The Park Manager would go door-to-door to notify residents and would be responsible for any required notification to DOW.

Emergency Water Sources

In a short-term emergency, residents could utilize bottled water. In a long-term contamination event, Carroll County Water District No. 1 could serve this area.

Distribution Problems

No problems were noted in the information provided by the water supplier; however, there is limited infrastructure.

Threat of Contamination

Residents would be advised to use bottled water until the threat could be evaluated.

D. Dow Corning

Notification Procedures

The Environmental Department would be responsible for notifying the Division of Water. Employees would be notified through meetings and/or communications with supervisors.

Emergency Water Sources

Only a very small percentage of the water withdrawn is used as potable water. Therefore, bottled water or water trucked in by a water hauler could be used in a short-term event. If long-term contamination occurred, depending on the extent and nature, Carroll County Water District No. 1 may be able to provide water as it has a water line on US 42.

Distribution Problems

No problems were identified that would hinder the company's ability to cope with a contamination event.

Threat of Contamination

Stored water would be used for potable water until the threat of contamination could be evaluated.

E. Ameriform

Notification Procedures

The General Manager would notify any state or federal agencies, as required. Employees would be notified through meetings or communications with supervisors.

Emergency Water Sources

Since most of the water withdrawn is used for industrial processes, it would be possible to utilize bottled water as a potable water source for employees in a short-term event. In a long-term event, the West Carroll Water District plans to extend water lines in this area.

Distribution Problems

No problems were identified that would hinder the company's ability to cope with a contamination event.

Threat of Contamination

Employees would use bottled water until the potential threat could be evaluated.

F. Kentucky Utilities

Notification Procedures

The General Manager would notify any state or federal agencies, as required. Employees would be notified through meetings or communications with supervisors.

Emergency Water Sources

Since most of the water withdrawn is used for processing, it would be possible to utilize bottled water as a potable water source for employees in a short-term event. Carroll County Water District No. 1 has a water line along US 42 which would be a potential source, depending upon the nature and extent of the contamination, in a long-term event.

Distribution Problems

No problems were identified that would hinder the utility's ability to cope with a contamination event.

Threat of Contamination

Employees would use bottled water until the potential threat could be evaluated.

G. Milton Water Company, Trimble and Henry County Water Districts

Please refer to the Trimble County Water Supply Plan for discussion of emergency plans.

CHAPTER 13 IMPLEMENTATION PLAN

I. ANNUAL MEETING

The Carroll County Water Supply Planning Council plans to meet annually and the next meeting is tentatively scheduled for November 18, 1999 at the Carroll County Courthouse.

II. PLAN UPDATES

Once the Carroll County Water Supply Plan has been approved by the Division of Water, all participants will receive a hard copy of the plan. NKADD will be available on a contractual basis to provide assistance with future updates and amendments.

III. IMPLEMENTATION

The two primary implementation activities will be completion of the wellhead protection plans and infrastructure improvements.

Wellhead Protection Plans

The schedule for completion is contained in Chapter 6.

Ghent Treatment Plant Expansion

CCWD will monitor growth in demand at the Ghent plant over the next two years. If growth is progressing as anticipated, preliminary design work and the search for funding sources will begin.

CHAPTER 14 PLAN APPROVALS

Judge/Executive Gene McMurry
Carroll County Fiscal Court

Gerald Ballinger
Council Chair/City of Carrollton

Ruby Keck
City of Worthville

Mayor Rick Flynn
City of Ghent

Mayor Mervin Kindoll Sr.
City of Prestonville

Jim Smith
Carroll County Water District No. 1

Arthur Anderson
Green Acres Mobile Home Park

Duane Cielinski
Dow Corning/Industrial Advisory Committee

Representative
City of Sanders

Representative
West Carroll Water District

Representative
Carroll County Health Department

Representative
Agriculture & Soil Conservation Service

Representative
Carroll County Community Development Corp.

Any missing signature indicates that the member became a non-participant during the planning process.

Appendix A: Minutes

WATER SUPPLY PLANNING COUNCIL MEETING
APRIL 19, 1994
7:00 P.M.

The meeting was called to order by Gerald Ballinger at 7:15 p.m.

Mr. Ballinger provided a review of the Phase I and Phase II requirements as mandated by state law, KRS 151.110 through 116. Each county is required to have a plan in place by July 1, 1998 to be eligible for Federal or State Grants. Grant money to fund the planning process is available for 1994 and 1995. To be eligible to receive grant monies for this year an application must be filed by May 1, 1994. A proposal by the USGS to model the groundwater supply from the Kentucky River to Markland Dam is anticipated to be included within the plan.

Mr. Ballinger indicated that the members of the Water Supply Planning Council had been chosen in accordance with the plan requirements. He indicated that an Industrial Advisory Group should be considered to assist with the plan development and that one member of this group should be a member of the Council. The Water Supply Planning Council members are as follows:

- *Gene McMurry, County Judge Executive
- *Rick Alexander, City of Sanders
- *Ruby Keck, City of Worthville
- Rick Flynn, City of Ghent
- *Mervin Kindoll, Sr., City of Prestonville
- *Gerald Ballinger, City of Carrollton/Carrollton Utilities
- *Jim Smith, Carroll County Water District #1
- *Robert Perry, West Carroll Water District
- Arthur Anderson, Green Acres Mobile Home Park
- *Bill Mitchell, CCCDC
- Sam Scott, ASCS
- Don Eckler, Carroll County Health Department
- *Larry Kurin, Dow Corning Corporation/Industrial Advisory Committee

* Denotes member was present at the meeting.

The duties and responsibilities of the Council were discussed. Mr. Ballinger indicated that the proper notification of the intent of the plan and date of the meeting had been provided.

Election of Council Chair

The plan requires the election of a Council member to chair the meeting, keep records of meetings and assist with the development of the planning process.

IT WAS MOVED BY JIM SMITH AND SECONDED BY ROBERT PERRY TO NOMINATE GERALD BALLINGER AS CHAIR FOR THE CARROLL COUNTY WATER SUPPLY PLAN.

VOTE: AYES 9 NAYS 0

Determine Planning Unit

The regulations for the development of the Water Supply Plan require that the county or counties to be included within the plan be established by the Council. The regulations will allow this to be a single or multi-county unit.

IT WAS MOVED BY GERALD BALLINGER AND SECONDED BY BILL MITCHELL THAT THE PLANNING UNIT CONSIST OF CARROLL COUNTY.

VOTE: AYES 9 NAYS 0

Determination of Quorum

IT WAS MOVED BY GERALD BALLINGER AND SECONDED BY BILL MITCHELL THAT THE QUORUM FOR A MEETING OF THE CARROLL COUNTY WATER SUPPLY PLAN BE 51% OF THE COUNCIL MEMBERSHIP.

Establishment of an Industrial Advisory Group

IT WAS MOVED BY LARRY KURIN AND SECONDED BY RICK ALEXANDER TO FORM AN INDUSTRIAL ADVISORY GROUP TO ASSIST WITH THE CARROLL COUNTY WATER SUPPLY PLAN.

VOTE: AYES 9 NAYS 0

Select Planning Representative

The Council discussed the need for outside assistance to conduct the water supply plan. Mr. Ballinger indicated that he had review various parties to assist with the project and had received a proposal from the Northern Kentucky Area Development District (NKADD). The NKADD is currently conducting the Water Supply Plan for Boone County. The Council discussed the need to apply for a grant application by May 1 and discussed additional financial options within the planning unit to meet the cost of the plan above the grant monies. A decision for funding will be made following a determination of the grant monies which will be received.

IT WAS MOVED BY GERALD BALLINGER AND SECONDED BY JIM SMITH TO HIRE THE NKADD AS THE PLANNING REPRESENTATIVE FOR THE DEVELOPMENT OF THE CARROLL COUNTY WATER SUPPLY PLAN. THE FINAL COST OF THE STUDY IS TO BE DETERMINED AND DISCUSSED AT THE NEXT MEETING.

VOTE: AYES 9 NAYS 0

Establish Goals and Objectives

To assist the planning representative, the Council must approve the Goal and Objectives of the Water Supply Plan. The Council was provided a list of the goal and objectives included in the regulations and was asked to consider these and other issues to discuss at the next meeting.

Next Meeting

The next meeting for the Carroll County Planning Council was set for May 17, 1994, at 7:00 p.m. at the Carroll County Courthouse.

Water Supply Planning Meeting
April 19, 1994

ATTENDING:

Chester & Donna Friend, Rt 1, Box 174, Sanders, KY 41083
Ruby Keck, Worthville City Council
John Romans, Dow Corning Corp.
Gerald L. Ballinger, Carrollton Utilities
Larry J Kurin, Dow Corning Corp.
Rick Alexander, Sanders Mayor
Robert Perry, West Carroll Water
Mervin Kindoll, Prestonville Mayor
Jim Smith, Carroll County Water District
William Jackson, Carroll County Water District
Richard Braff, Northern KY Area Development District
Heidi Vankeuren, Northern KY Area Development District
Bill Gill, Owenton Water Department, Owenton, KY
Kathleen Regan, T.M.Regan, INC.
Liz Gillespie, Elf ATochem
K.F. Ballard, Owenton Mayor
Phillys Allen, Perry Park, Owen County
Charles L Greiner, Glenwood Hall Resort
Gene McMurry, Carroll Co. Judge Executive

WATER SUPPLY PLAN MEETING

APRIL 19, 1994

AGENDA

1. Introduction
 - A. Phase I
 - B. Phase II (To include groundwater model)
2. Planning Council
 - A. Membership
 - B. Notification
 - C. Duties and Procedures
3. Planning Unit
4. Elect Council Chair
5. Determine Quorum
6. Establish Water Supply Advisory Group
7. Select Planning Representative
 - A. NKADD Proposal (Draft)
 - B. Financing Discussion
 - C. Grant Application
8. Establish Goals and Objectives
9. General Discussion and Remarks
10. Adjourn

**CARROLL COUNTY
WATER SUPPLY PLANNING MEETING
JUNE 2, 1994 MINUTES**

Planning Council Members Present:

Gene McMurry, Carroll County Judge-Executive
Larry Kurin, Dow Corning Corporation
Robert Perry, West Carroll Water District
Arthur Anderson, Green acres Mobile Home Park
Mervin Kindoll, Mayor of Prestonville
Don Eckler, Carroll County Health Department
Sam Scott, ASCS
Jim Smith, Carroll County Water District
Bill Mitchell, CCCDC
Ruby Keck, Worthville City Clerk
Gerald Ballinger, Carrollton Utilities

Planning Council Members Absent:

Rick Alexander, Mayor of Sanders
Rick Flynn, Mayor of Worthville

Other Present:

Pamla Wood, Kentucky Division of Water
Heidi Van Keuren, NKADD
Paul Gardner, NKADD
Jim Sapp, Carroll County Fiscal Court
Kathleen Regan, T.M. Regan, Inc.
John Romans, Dow Corning Corporation

THE MEETING WAS CALLED TO ORDER BY MR. BALLINGER AT 7:00 P.M. A QUORUM OF THE COUNCIL WERE IN ATTENDANCE.

READING OF MINUTES

IT WAS MOVED BY MR. KURIN AND SECONDED BY MR. PERRY TO ACCEPT THE MINUTES OF THE WATER SUPPLY PLANNING MEETING OF APRIL 19, 1994.

VOTE: 11 AYES 0 NAYS

GRANT APPLICATION REVIEW

Mr. Ballinger reported that the grant application to the Kentucky Division of Water had been filed on April 28, 1994, by the NKADD. The application requested \$10,000 funding for Phase I and an additional \$10,000 for Phase II. The total cost to prepare the Water Supply Plan document by the NKADD is \$20,000.

Pamla Wood of the Kentucky Division of Water reported that grant applications received exceeded the \$200,000 available for this funding period. She noted that the available funds of \$200,000 were subject to State Legislative approval. Ms. Wood indicated that an initial review of the applications indicates an anticipated funding to the Carroll County Water Supply Plan of \$6,000 for Phase I. The Council discussed options for funding the additional costs of Phase I and determined that Carroll County Fiscal Court and Carrollton Utilities would fund the remaining balance. The final contributions required will be presented for Council approval following the allocation of the grant funds.

ESTABLISH PLANNING GOALS AND OBJECTIVES

The Regulation requires the council to establish planning goals and objectives to facilitate the development of the Water Supply Plan. Following consideration the following goals and objectives were recommended:

1. The Water Supply Plan will use conservation to the maximum extent possible to fully protect existing users and allow adequate supply for growth;
2. The Water Supply Plan will provide a continuous groundwater supply under all circumstances which fairly represents the needs of all users;
3. The Water Supply Plan will be compatible with existing plans and, if required, will offer recommendation to alter these plans;
4. The Water Supply Plan will protect and enhance the overall quality of the environment;
5. Cost effectiveness will be utilized to develop the Water Supply Plan;
6. The Water Supply Plan will be developed to meet the social and political needs of Carroll County; and

7. The Water Supply Plan will include the development of a Ground Water Model to provide a quantitative assessment of the aquifer and to facilitate the goals and objectives of the Council.

IT WAS MOVED BY JUDGE McMURRY AND SECONDED BY MR. MITCHELL TO ACCEPT THE PLANNING GOALS AND OBJECTIVES OF THE WATER SUPPLY PLAN

VOTE: 11 AYES 0 NAYS

GROUNDWATER MODEL DISCUSSION

The Council discussed a proposal from the U.S. Geological Survey (USGS) to provide a groundwater model of the aquifer along the Ohio River from Markland Dam to the Kentucky River. Mr. Ballinger informed the council of the meeting he and Mr. Romans attended in Louisville with the USGS. He indicated that the USGS was excited about the possibility of this project and had \$50,000 within the current year budget (fiscal year ending 9/30/94) to begin.

Mr. Ballinger informed the Council that a letter had been sent to area water suppliers and local industry requesting well data. This information will be forwarded to the USGS.

The Council discussed financing the proposed Ground Water Model Project estimated to cost \$262,000 of which 50% is funded by the USGS and the remaining balance by the Carroll County Water Supply Council. The Council can acquire outside funding for its portion through grants or in-kind services to further reduce this cost.

Mr. Mitchell indicated that he had discussed grant funding for the Project with two sources. The EPA in Atlanta indicated that no funds were available and suggested the Rural Development Administration in Washington as a possible source. Rural Development indicated that funding for this type project was not included within its programs. Mr. Mitchell is to review other options and report to the Council.

IT WAS MOVED BY JUDGE McMURRY AND SECONDED BY MR. PERRY TO ADJOURN AT 7:48 P.M.

VOTE: 11 AYES 0 NAYS

WATER SUPPLY PLAN MEETING

JUNE 2, 1994

AGENDA

1. Review Minutes of April 19, 1994 Meeting
2. Grant Application Review
3. Establish Planning Goals and Objectives
4. Ground Water Model Discussion
5. Other Business/Comments
6. Adjourn

CARROLL COUNTY
WATER SUPPLY PLANNING MEETING
JULY 26, 1994
7:00 P.M.

PRESENT:

* LARRY KURIN, DOW CORNING CORPORATION
* ARTHUR ANDERSON, GREEN ACRES MOBILE HOME PARK
* MERVIN KINDOLL, SR., MAYOR OF PRESTONVILLE
* BILL MITCHELL, CCCDC
* RUBY KECK, WORTHVILLE CITY CLERK
* GERALD BALLINGER, CARROLLTON UTILITIES
* RICK ALEXANDER, MAYOR OF SANDERS
PAUL GARDNER, NKADD
MIKE UNTHANK, USGS
KATHLEEN REGAN, T.M. REGAN & ASSOCIATES
JOHN ROMANS, DOW CORNING CORPORATION

* DENOTES PLANNING COUNCIL MEMBERS

THE MEETING WAS CALLED TO ORDER BY GERALD BALLINGER AT 7:00. A QUORUM OF COUNCIL MEMBERS WERE IN ATTENDANCE.

READING OF MINUTES

IT WAS MOVED BY BILL MITCHELL AND SECONDED BY LARRY KURIN TO ACCEPT THE MINUTES OF THE WATER SUPPLY PLANNING MEETING OF JUNE 2, 1994.

VOTE: 7 AYES 0 NAYS

NO. KY AREA DEVELOPMENT DISTRICT(NKADD)-DATA COLLECTION INFORMATION

PAUL GARDNER OF THE NKADD INFORMED THE COUNCIL THAT A SURVEY WOULD BE FORWARDED TO WATER SUPPLIERS REQUESTING WATER USE DATA WITHIN A FEW DAYS. A COPY OF THE FORM WAS REVIEWED BY THE COUNCIL. THE FORMS ARE TO BE RETURNED TO THE NKADD BY SEPTEMBER 2, 1994.

GRANT APPLICATION REVIEW

MR. BALLINGER INFORMED THE COUNCIL THAT A \$6,500 GRANT HAD BEEN AUTHORIZED BY THE KENTUCKY DIVISION OF WATER. AS INDICATED AT THE JUNE 2 MEETING, THE APPLICATIONS FOR THE GRANT MONEY EXCEEDED THE AVAILABLE FUNDS, THUS REDUCING OUR REQUESTED AMOUNT OF \$10,000. A FINAL ROUND OF FUNDING IS AVAILABLE IN 1995. APPLICATIONS MUST BE SUBMITTED BY MAY 1, 1995, TO BE CONSIDERED. THE COUNCIL WILL DISCUSS THE APPLICATION AT A LATER DATE.

WSP MINUTES
JULY 26, 1994 MEETING
PAGE 2

GROUNDWATER MODEL DISCUSSION - USGS

THE COUNCIL DISCUSSED THE REVISED PROPOSAL FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS) TO PROVIDE A GROUNDWATER MODEL ALONG THE OHIO RIVER FROM MARKLAND DAM TO THE KENTUCKY RIVER. MIKE UNTHANK OF THE USGS REVIEWED THE REVISED PROPOSAL AND DISCUSSED THE CHANGES WHICH HAD BEEN MADE. THE REVISED PROPOSAL REDUCES THE COST OF THE MODEL DEVELOPMENT FROM \$262,400 TO \$221,800. THE SAVINGS ARE A RESULT OF CHANGES IN THE DATA COLLECTION AND USING AVAILABLE HISTORICAL DATA. THE MODEL DEVELOPMENT WILL REQUIRE 2.5 YEARS TO COMPLETE.

MIKE INDICATED THAT IF THE MODEL BEGAN NOW THE USGS WOULD BE ABLE TO GUARANTEE THE USGA 50% MATCHING FUNDS FOR THE ENTIRE PROJECT. THUS, REQUIRING THE COUNCIL AND INDUSTRIAL GROUP TO MATCH 50% OF THE PROJECT COST OR \$110,900.

IT WAS MOVED BY GERALD BALLINGER AND SECONDED BY RUBY KECK TO AUTHORIZE THE GROUNDWATER MODEL STUDY BY THE USGS. THE CONTRACT IS TO INCLUDE CARROLLTON UTILITIES, CARROLL COUNTY WATER DISTRICT, CARROLL COUNTY FISCAL COURT AND THE WSP INDUSTRIAL COMMITTEE.

VOTE: 7 AYES 0 NAYS

ADJOURNMENT

IT WAS MOVED BY BILL MITCHELL AND SECONDED BY LARRY KURIN TO ADJOURN.

Carrollton Ground-water Modeling Project
Project billing
July 26, 1994

Post-It™ brand fax transmittal memo 7671 # of pages 2	
To <i>RITA</i>	From <i>[Signature]</i>
Co.	Co.
Dept.	Phone #
Fax #	Fax #

USGS Fiscal Year 1994

I. Pre-modeling		
A. Data compilation	\$ 18,900	
B. Conceptual model	5,800	
II. Data collection		
A. Ground-water surveillance	15,000	no
B. Aquifer characterization	15,200	27
Total	\$ 59,300	$\frac{1}{2} = \underline{\underline{\$29,650}}$

To be billed by September 30, 1994

PAID BY November 30, 1994.

USGS Fiscal Year 1995

II. Data collection		
A. Ground-water surveillance	\$ 15,000	
(continued)		
B. Aquifer characterization	0	
(completed)		
C. Electromagnetic survey	15,200	
D. Borehole geophysical	32,300	
survey		
E. Floodwave analysis	11,500	
III. Model development (partial)	20,000	
IV. Project documentation		
A. Fact sheet	5,400	
B. Model report (in process)	10,000	44
Total	\$109,400	$\frac{1}{2} = \underline{\underline{\$54,700}}$

To be billed by September 30, 1995

USGS Fiscal Year 1996

II. Data collection
A. Ground-water surveillance \$ 6,500

III. Model development 17,900

IV. Project documentation
A. Fact sheet 5,500
B. Model report 23,200

To be billed by September 30, 1996

Total

\$ 53,100 / 2 = 26,550

TOT = 110,900

To: JDR
GB } - Comments? *fang*

Carroll County Water Supply Plan
Proposed Aquifer Model Funding

	1994 Pumping	Percent of Total	Total Contribution	Annual pmt for 2 yrs.
CU	700,000	4.2%	\$10,415	\$5,208
Ghent	400,000	2.4%	\$9,523	\$4,762
DCC	12,000,000	71.4%	\$44,026	\$22,013
Ato	3,000,000	17.8%	\$17,257	\$8,628
KU	700,000	4.2%	\$10,415	\$5,208
D-W	10,000	0.1%	\$8,363	\$4,182
<i>ccfc/ccg,c</i> Total	16,810,000	100.0%	^{110,000} \$100,000	

Total # of co's *67*
Carroll County WSP Council model cost ^{110 -}
\$100,000

Total Contribution: 1/2 of model cost divided equally among participants
1/2 of model cost allocated according to aquifer usage
percentage

DRAFT DRAFT DRAFT June 7, 1994

c:\qpro\wspfund.wq1

Participants	1994 Pumping	% Total w/Gallatin	% Total w/o Gallatin	Total Contributions w/Gallatin	Total Contributions w/o Gallatin
CU	700,000	3.46%	4.44%	\$8,076.96	\$8,623.99
GHENT	400,000	1.97%	2.54%	\$7,255.88	\$7,568.47
DOW	11,000,000	54.29%	69.80%	\$36,267.23	\$44,863.52
ELF	3,150,000	15.55%	19.99%	\$14,782.41	\$17,244.07
KU	500,000	2.47%	3.17%	\$7,529.57	\$7,920.31
DAYTON	10,000	0.05%	0.06%	\$6,188.48	\$6,196.30
CCFC/CCCDC	0	0.00%	0.00%	\$6,161.11	\$6,161.11
NAS	0	0.00%	0.00%	\$6,161.11	\$6,161.11
GALLANTIN	4,500,000	22.21%	0%	\$18,477.25	\$6,161.11
Total w/Gallatin	20,260,000	100.00%		\$110,900	\$110,900
Total w/o Gallatin	15,760,000		100.00%		

Carroll County Water Supply Plan
Proposed Aquifer Model Funding
July 8, 1994

Participants	1994 Pumping	Percent of Total	Total Contribution	Annual Pmt for 7 ³ yrs.
CU	700,000	4.16%	\$10,145	\$5,073
GHENT	400,000	2.38%	\$9,166	\$4,583
DCC	12,000,000	71.39%	\$47,122	\$23,561
ATO	3,000,000	17.85%	\$17,675	\$8,838
KU	700,000	4.16%	\$10,145	\$5,073
DW	10,000	0.06%	\$7,890	\$3,945
CCFC/CCDC	0	0.00%	\$7,857	\$3,929
NAS TOTAL	16,810,000	100.00%	110,000	

Total # of co's 7
Carroll County WSP Council model cost \$110,000

Total 1/2 of model cost divided equally amount participants
Contribution: 1/2 of model cost allocated to aquifer usage percentage

Carroll County Water Supply Plan
Proposed Aquifer Model Funding
July 26, 1994

Participants	1994 Pumping (Estimated)	Percent of Total	Total Contribution	Annual Payment		
				Nov.94	Nov.95	Nov.96
CU	700,000	4.4%	\$9,371	\$2,506	\$4,622	\$2,243
GHENT	400,000	2.5%	\$8,318	\$2,224	\$4,103	\$1,991
DCC	11,000,000	69.6%	\$45,524	\$12,171	\$22,454	\$10,899
ATO	3,000,000	19.0%	\$17,467	\$4,670	\$8,615	\$4,182
KU	700,000	4.4%	\$9,371	\$2,505	\$4,622	\$2,244
DW	10,000	0.1%	\$6,987	\$1,868	\$3,446	\$1,673
CCFC/CCDC	0	0.0%	\$6,931	\$1,853	\$3,419	\$1,659
NAS	0	0.0%	\$6,931	\$1,853	\$3,419	\$1,659
TOTAL	15,810,000	100.0%	110,900	\$29,650	\$54,700	\$26,550

Total # of participants 8
Carroll County WSP Council model cost \$110,900

Total 1/2 of model cost divided equally amount participants
Contribution: 1/2 of model cost allocated to aquifer usage percentage

WATER SUPPLY PLAN MEETING

JULY 26, 1994

AGENDA

1. Review Minutes of June 2, 1994 Meeting
2. Water Supply Plan Data Collection Information - NKADD
3. Ground Water Model Discussion
 - A. Review Revised USGS Proposal
 - B. Review Grant Funding Options
 - C. Discuss Financial Proposal
4. Other Business/Comments
5. Adjourn

**CARROLL COUNTY
WATER SUPPLY PLANNING MEETING
JANUARY 31, 1995 MINUTES**

Planning Council Members Present:

Gene McMurry, Carroll County Judge-Executive
Robert Perry, West Carroll Water District
Jim Smith, Carroll County Water District
Bill Mitchell, CCCDC
Ruby Keck, Worthville City Clerk
Gerald Ballinger, Carrollton Utilities

Planning Council Members Absent:

Larry Kurin, Dow Corning Corporation
Rick Alexander, Mayor of Sanders
Mervin Kindoll, Mayor of Prestonville
Arthur Anderson, Green Acres Mobile Home Park
Jim Hamilton, Carroll County Health Department (Replacing Don Eckler)
Sam Scott, ASCS
Rick Flynn, Mayor of Worthville

Other Present:

Heidi Van Keuren, NKADD
Mike Unthank, USGS
Martin Rose, USGS
Kathleen Regan, T.M. Regan, Inc.
Allison Dunn, T.M. Regan, Inc.
John Romans, Dow Corning Corporation
Valarie Hudson, Gallatin Steel
Dorine Wheeler, Dayton Walther Corporation

THE MEETING WAS CALLED TO ORDER BY MR. BALLINGER AT 7:00 P.M. A QUORUM OF THE COUNCIL WERE NOT IN ATTENDANCE. NO OFFICIAL ACTION COULD BE TAKEN.

READING OF MINUTES

THE MINUTES OF THE WATER SUPPLY PLANNING MEETING OF JULY 26, 1994 WERE DISCUSSED. APPROVAL WAS TABLED UNTIL THE NEXT MEETING DUE TO THE LACK OF A QUORUM.

GROUNDWATER MODEL DISCUSSION - USGS

Mr. Unthank of the USGS provided the Council with a progress report. The Council discussed ownership of the model, options to maintain the model upon completion and the issue of "free ridership". These items were tabled for further discussion and possible action until a future meeting.

WATER SUPPLY PLAN PROGRESS REPORT

Ms. Van Keuren informed the Council that the NKADD was continuing to gather information as required for the Water Supply Plan. She indicated that a survey had been forwarded to water suppliers requesting water use data and requested that any party which had not responded to provide this information as soon as possible so that data analysis could be completed.

FUNDING SOURCES

Mr. Mitchell reported that he was continuing to investigate potential funding sources, but had been unable to locate additional sources at this time.

ADJOURNMENT

IT WAS MOVED BY MR. McMURRY AND SECONDED BY MR. PERRY TO
ADJOURN THE MEETING AT 8:06 P.M.

WATER SUPPLY PLAN MEETING

JANUARY 31, 1995

AGENDA

1. Review Minutes of July 26, 1994 Meeting
2. Ground Water Model
 - A. USGS Model Development Review and Progress Report
 - B. "Free Rider" Discussion
3. Water Supply Plan Progress Report – NKADD
4. Funding Source Research Review – Bill Mitchell
5. Other Business/Comments
6. Adjourn

**CARROLL COUNTY
WATER SUPPLY PLANNING MEETING
DECEMBER 12, 1995 MINUTES**

Planning Council Members Present:

Gene McMurry, Carroll County Judge-Executive
Duane Cieslinski, Dow Corning Corporation (Replacing Larry Kurin)
Robert Perry, West Carroll Water District
Jim Smith, Carroll County Water District
Mervin Kindoll, Mayor of Prestonville
Sam Scott, ASCS
Gerald Ballinger, Carrollton Utilities

Planning Council Members Absent:

Rick Alexander, Mayor of Sanders
Arthur Anderson, Green acres Mobile Home Park
Jim Hamilton, Carroll County Health Department (Replacing Don Eckler)
Rick Flynn, Mayor of Worthville
Ruby Keck, Worthville City Clerk
Bill Mitchell, CCCDC

Other Present:

Heidi Van Keuren, NKADD
Mike Unthank, USGS
John Romans, Dow Corning Corporation
Valarie Hudson, Gallatin Steel

THE MEETING WS CALLED TO ORDER BY MR. BALLINGER AT 7:00 P.M. A QUORUM OF THE COUNCIL WERE IN ATTENDANCE.

IT WAS MOVED BY MR. SMITH AN SECONDED BY MR. McMURRY TO PLACE DUANE CIESLINSKI OF DOW CORNING TO FILL THE VACANT SEAT OF LARRY KURIN TO THE COUNCIL.

VOTE: 7 AYES 0 NAYS

READING OF MINUTES

IT WAS MOVED BY MR. SMITH AND SECONDED BY MR. PERRY TO ACCEPT THE MINUTES OF THE WATER SUPPLY PLANNING MEETING OF JULY 26, 1994.

VOTE: 7 AYES 0 NAYS

GROUNDWATER MODEL DISCUSSION

Mr. Unthank report to the Council of its progress on the Groundwater Model. The attached handout summarizes this discussion. He noted that drill logs of existing wells were needed, if available.

WATER SUPPLY PLAN REPORT

Ms. Van Keuren informed the Council that the water use data had been accumulated and assembled. The Council discussed alternatives to reduce the costs of the NKADD concerning the mapping requirements of the Water Supply Plan. The NKADD and the USGS are to review to determine if maps assembled by the USGS can be utilized.

FUNDING SOURCES

Mr. Mitchell indicated that efforts to locate potential funding sources for the USGS Model and/or the NKADD Water Supply Plan work have not uncovered available funds for the project. He reviewed several sources that he had discussed the project, but money is not available.

ADJOURNMENT

IT WAS MOVED BY MR. McMURRY AND SECONDED BY MR. SCOTT TO
ADJOURN AT 8:26 p.m.

VOTE: 7 AYES 0 NAYS

U.S. Geological Survey

Carrollton Ground-water Flow Model Progress Report

As presented to the Carroll County Water Supply Planning Council - January 31, 1995

Progress during the last quarter - October 1, 1994 through December 31, 1994

1. Data compilation

Identified all ground-water users who withdraw over 10,000 gpd

Conducted a ground-water well inventory

In the process of constructing a data base using a Unix based system and ESRI's ARC/Info software package

Identified potential data gaps - contributions to the water budget for the valley wall and bedrock; detailed descriptions of aquifer formations (drillers' logs)

2. Conceptual model

Formed preliminary model and treatment of the aquifer system based on data collected to date
Future data collection activities will focus on the Ohio River connection and aquifer geologic description

Investigate infiltration rates from precipitation

3. Data collection

Conducted initial ground-water level measurements during the week of November 7-11, 1994

Installed and are maintaining continuous recorders on three observation wells

Surveyed measured observation wells to determine ground-water altitude

Currently assembling pumping rates from ground-water users and available drillers' logs

Anticipated activities for the next quarter - January 1, 1995 through March 31, 1995

1. Develop base map and other ARC/Info coverages, i.e. depth to bedrock, saturated thickness, geology.
2. Continue data base refinement
3. Conduct initial computer model runs and evaluate and incorporate the results
4. Finish compiling well data, pumping rates, and aquifer parameters
5. Schedule the EM survey for April to May
6. Install a minimum of two additional continuous recorders
7. Produce a fact sheet or map of the November 1994 ground-water levels
8. Review area ground-water models

WATER SUPPLY PLAN MEETING

DECEMBER 12, 1995

AGENDA

1. Review Minutes of July 26, 1994 and January 31, 1995 Meeting
2. Ground Water Model Development Review and Progress Report
3. Water Supply Plan Progress Report – NKADD
4. Funding Source Research Review – Bill Mitchell
5. Other Business/Comments
6. Adjourn

**CARROLL COUNTY
WATER SUPPLY PLANNING MEETING
JULY 9, 1996 MINUTES**

Planning Council Members Present:

Gene McMurry, Carroll County Judge-Executive
Duane Cieslinski, Dow Corning Corporation (Replacing Larry Kurin)
Mervin Kindoll, Mayor of Prestonville
Jim Smith, Carroll County Water District
Bill Mitchell, CCCDC
Sam Scott, ASCS
Gerald Ballinger, Carrollton Utilities

Planning Council Members Absent:

Rick Alexander, Mayor of Sanders
Robert Perry, West Carroll Water District
Arthur Anderson, Green acres Mobile Home Park
Jim Hamilton, Carroll County Health Department
Rick Flynn, Mayor of Worthville
Ruby Keck, Worthville City Clerk

Other Present:

Mike Unthank, USGS
John Romans, Dow Corning Corporation
Valarie Hudson, Gallatin Steel
Allison Dunn, T.M. Regan, Inc.

THE MEETING WAS CALLED TO ORDER BY MR. BALLINGER AT 7:00 P.M. A QUORUM OF THE COUNCIL WERE IN ATTENDANCE.

READING OF MINUTES

IT WAS MOVED BY MR. McMURRY AND SECONDED BY MR. KINDOLL TO ACCEPT THE MINUTES OF THE WATER SUPPLY PLANNING MEETING OF DECEMBER 12, 1995.

VOTE: 7 AYES 0 NAYS

GROUNDWATER MODEL DISCUSSION

Mr. Unthank report to the Council of its progress on the Groundwater Model. The Council reviewed preliminary data and maps included in the USGS Model. The Council also reviewed well survey data accumulated to date by the USGS and project participants. The Council also discussed potential uses for the model and the need to maintain the Model upon completion.

WATER SUPPLY PLAN REPORT

Ms. Ballinger informed the Council that the NKADD continued to accumulate data and was in the process of discussing the use of maps to be provided by the USGS.

ADJOURNMENT

IT WAS MOVED BY MR. SCOTT AND SECONDED BY MR. MITCHELL TO
ADJOURN AT 8:26 p.m.

VOTE: 7 AYES 0 NAYS

WATER SUPPLY PLAN MEETING

JULY 9, 1996

AGENDA

1. Review Minutes of December 12, 1995 Meeting
2. Ground Water Model Development Review and Progress Report
3. Water Supply Plan Progress Report – NKADD
4. Other Business/Comments
5. Adjourn

**CARROLL COUNTY
WATER SUPPLY PLANNING MEETING
SEPTEMBER 9, 1997 MINUTES**

Planning Council Members Present:

Gene McMurry, Carroll County Judge-Executive
Duane Cieslinski, Dow Corning Corporation (Replacing Larry Kurin)
Ruby Keck, Worthville City Clerk
Jim Smith, Carroll County Water District
Bill Mitchell, CCCDC
Sam Scott, ASCS
Gerald Ballinger, Carrollton Utilities

Planning Council Members Absent:

Rick Alexander, Mayor of Sanders
Robert Perry, West Carroll Water District
Arthur Anderson, Green acres Mobile Home Park
Jim Hamilton, Carroll County Health Department
Rick Flynn, Mayor of Worthville
Mervin Kindoll, Mayor of Prestonville

Other Present:

Heidi Van Keuren, NKADD
Mike Unthank, USGS
John Romans, Dow Corning Corporation
Dennis Rassenfoss, Envirotech, Inc.
Allison Dunn, T.M. Regan, Inc.

THE MEETING WAS CALLED TO ORDER BY MR. BALLINGER AT 7:00 P.M. A QUORUM OF THE COUNCIL WERE IN ATTENDANCE.

VOTE: 7 AYES 0 NAYS

READING OF MINUTES

IT WAS MOVED BY MR. McMURRY AND SECONDED BY MR. SCOTT TO ACCEPT THE MINUTES OF THE WATER SUPPLY PLANNING MEETING OF JULY 9, 1996.

VOTE: 7 AYES 0 NAYS

GROUNDWATER MODEL DISCUSSION

Mr. Unthank reported to the Council of its progress on the Groundwater Model. A group representing Carroll County met with the USGS at its offices earlier in the day to review the Model. The USGS has completed the Model and is now beginning the colleague review process to develop the final written report. It is anticipated that a final report will be issued by November 1997.

Mr. Unthank provide the following summary to the Council:

1. Physical Characteristics of the Model
 - A. The Container
 - B. Data Coverage
2. Data Collection Process
 - A. Water Levels
 - B. Pumping Amounts
 - C. River/Aquifer Connection
3. Model Development Process
 - A. Grid Design
 - B. Boundary Conditions
 - C. Steady State Assumptions
4. Model results
 - A. November 1994 & November 1995 Data
 - B. Sensitivity Results
 - C. Applications
5. Next Steps
 - A. Model Refinement
 - B. Field Activities

ADJOURNMENT

IT WAS MOVED BY MS. KECK AND SECONDED BY MR. McMURRY TO
ADJOURN AT 9:12 p.m.

VOTE: 7 AYES 0 NAYS

WATER SUPPLY PLAN MEETING

September 9, 1997

AGENDA

1. Review Minutes of July 9, 1996 Meeting
2. Ground Water Model Review
3. Other Business/Comments
4. Adjourn

**CARROLL COUNTY
WATER SUPPLY PLANNING MEETING
MARCH 11, 1998 MINUTES**

Planning Council Members Present:

Gene McMurry, Carroll County Judge-Executive
Duane Cieslinski, Dow Corning Corporation (Replacing Larry Kurin)
Mervin Kindoll, Mayor of Prestonville
Bill Mitchell, CCCDC
Gerald Ballinger, Carrollton Utilities

Planning Council Members Absent:

Rick Alexander, Mayor of Sanders
Robert Perry, West Carroll Water District
Arthur Anderson, Green acres Mobile Home Park
Jim Hamilton, Carroll County Health Department
Rick Flynn, Mayor of Worthville
Sam Scott, ASCS
Ruby Keck, Worthville City Clerk
Jim Smith, Carroll County Water District

Other Present:

John Romans, Dow Corning Corporation
Dorine Wheeler, Dayton Walther Corporation
Valarie Hudson, Gallatin Steel

The meeting was called to order by Mr. Ballinger at 7:00 p.m. A quorum of the Council was not in attendance. Informational meeting - no action required.

READING OF MINUTES

The Council reviewed the minutes of the Water Supply Planning meeting of September 9, 1997. Approval of minutes will be conducted at the next meeting.

GROUNDWATER MODEL DISCUSSION

The Council reviewed the progress of the USGS Model. The USGS had reported that a final draft would be complete in late 1997. The final report has not been published and no estimated date is currently available. The USGS and the NKADD continue to discuss the possibility of sharing maps to insert into the Water Supply Plan. The NKADD had hoped to utilize certain maps from USGS to reduce the cost for the Plan.

The group discussed the ownership of the Model and the policy decisions required by the Council associated with growth (i.e., increased aquifer utilization) and additional users (i.e., new industrial customers). The Council is to address these and related issues at its next meeting.

The group also reviewed maintenance of the Model. The group fully supported continued maintenance of the Model to provide plans for existing and future utilization of the Model. The group agreed that the best source to maintain the Model is the USGS. Mr. Ballinger is to get additional information from the USGS concerning an on-going relationship with the Council to maintain the Model and provide related services as required.

ADJOURNMENT

The meeting adjourned at 8:31 p.m.

WATER SUPPLY PLAN MEETING

March 11, 1998

AGENDA

1. Review Minutes of September 9, 1997 Meeting
2. Ground Water Model Review/Policy Discussion
3. Other Business/Comments
4. Adjourn

Appendix B: Notifications

APPENDIX B NOTIFICATIONS

Notifications to Adjacent Counties

A notification letter was sent to mayors, county judge/executives, and public water suppliers in adjacent counties as required by 401 KAR 4:220 subsection 5.3(a) (see sample at end of Appendix).

The following is a list of recipients of this letter.

Judge/Executive Jack Couch, Trimble County
Mayor Russell Clifton, City of Bedford
Mayor Annabet Gobel, City of Milton
Judge/Executive Thomas Bryant, Henry County
Mayor Bobby Malin, City of Campbellsburg
Mayor Thomas Shroyer, City of Eminence
Mayor Rodney Young, City of Pleasureville
Mayor Mark Beck, City of New Castle
Mayor Maurice Clark, City of Smithfield
Judge/Executive Clarence Davis, Gallatin County
Mayor Sidney Gullion, City of Sparta
Mayor E.R. Wood, City of Warsaw
Mayor Russell Clark, City of Glencoe
Judge/Executive Tom Olds, Owen County
Mayor K.F. Ballard, Jr., City of Owenton
Mayor Billy Stamper, City of Gratz
Mayor Rebecca Albaugh, City of Monterey
Eminence Water Works
Peggy Bush, Campbellsburg Water
William Hawkins, Henry County Water District #2
Tommy Benham, New Castle Water Company
Bob Kelly, Milton Water & Sewer Department
Carolyn Frost, Trimble County Water District #1
Archie Helton, Helton's Mobile Home
Morris Courtney, Gallatin County Water District
Eric Moore, Warsaw Water Works
Barry Alexander, Alexander Hauling
Vernon Minch, Elk Lake Water Company
Carol Cox, Tri-Village Water District
Obie Cook
Marshall Gibson, Owenton Municipal Water Company
Charles Greiner, Glenwood Hall

Notifications to Local Governments and Water Suppliers in the Planning Unit

A letter was also sent to local units of government in Carroll County, water suppliers that provide water for use in Carroll County, and all local governments that share the same water sources. The letter notified recipients of Carroll County water supply planning activities and requested pertinent information (see sample at end of Appendix).

Carroll County Fiscal Court
Mayor Rick Flynn, City of Ghent
Mayor Rick Alexander, City of Sanders
Mayor Mervin Kindoll Sr., City of Prestonville
Mayor Welty, City of Carrollton
Mayor, City of Worthville
Jim Smith, Carroll County Water District No. 1
Gerald Ballinger, Carrollton Utilities
Arthur Anderson, Green Acres Mobile Home Park

Notifications to Division of Water and Kentucky River Authority

A letter of Intent to Plan was sent to Pam Wood, Supervisor of Water Quantity Management section at DOW and the Kentucky River Authority (copies at end of Appendix).

Water Watch Groups

A letter was sent to Ken Cooke regarding water watch groups (copy at end of Appendix). At that time, none existed in the County.

Public Notifications

A combined Public Notice of Intent to Plan and Public Hearing Notice on Planning Objectives was advertised in the April 6, 1994 edition of the News-Democrat. The Planning Council kept a copy of the advertisement text (see end of Appendix), but not the actual tearsheet.

Information Review

No information was received as a result of the notification process.

CARROLL COUNTY JUDGE/EXECUTIVE

CARROLL COUNTY COURTHOUSE
SECOND FLOOR
CARROLLTON, KENTUCKY 41008
(502) 732-7000

ADJACENT COUNTY ELEC
OFFICIALS : ADJACENT
COUNTY WATER SUPPLIERS

EQUAL EMPLOYMENT OPPORTUNITY

March 31, 1994

Mayor Maurice Clark
Route 1
Smithfield, KY 40068

Dear Mayor Clark:

Carroll County has begun the process of preparing a water supply plan in accordance with state law, KRS 151.110 through 116. The purpose of the plan is to assess the long-range water supply availability for the county. If the water resources appear adequate to supply the county's residential, commercial, municipal, and industrial needs for the next 20 years, then the water supply planning council will develop water supply protection recommendations for the county and cities. If the current water supply appears inadequate to meet the county's long-term needs, then the council will also prepare a water shortage response plan and select alternatives.

Members of the Carroll County Water Supply Planning Council are listed on the attachment included with this letter.

The planning council is interested in your input. If you or your representative would like to attend planning council meetings, receive minutes from the meetings, or submit written comments involving the plan or planning process, please contact:

Gerald Ballinger
Carrollton Utilities
P.O. Box 269
Carrollton, KY 41008
502-732-7055

Sincerely yours,

Gene McMurry
Carroll County Judge/Executive

Encl.

CARROLL COUNTY WATER SUPPLY PLANNING COUNCIL

Gene McMurry
County Judge Executive
Carroll County Courthouse
Carrollton, KY 41008
(502) 732-7000

Don Eckler
Carroll County Health Department
401 11th Street
Carrollton, KY 41008
(502) 732-6641

Ruby Keck
Worthville City Clerk
P.O. Box 251
Worthville, KY 41098
(502) 732-4113

Robert Perry
West Carroll Water District
P.O. Box 213
Turners Station, KY 40075
(502) 732-6925

Mervin Kindoll Sr.
Mayor, City of Prestonville
P.O. Box 384
Carrollton, KY 41008
(502) 732-5659

Rick Alexander
Mayor, City of Sanders
P.O. Box 170
Sanders, KY 41083
(502) 347-5503

Gerald Ballinger
Carrollton Utilities
P.O. Box 269
Carrollton, KY 41008
(502) 732-7055

Rick Flynn
Mayor, City of Ghent
P.O. Box 441
Ghent, KY 41045
(502) 347-5689

Sam Scott
Agriculture and Conservation Services
1215 Highland Avenue
Carrollton, KY 41008
(502) 732-6931

Jim Smith
Carroll County Water District
205 Main Cross Street
Ghent, KY 41045
(502) 347-9500

Bill Mitchell
Carroll Co. Community Development
P.O. Box 334
Carrollton, KY 41008
(502) 732-7035

Larry Kurin
Dow Corning Corporation
P.O. Box 310
Carrollton, KY 41008
(502) 732-2000

Arthur Anderson
Green Acres Mobile Home Park
311 Grobmyer Avenue
Carrollton, KY 41008
(502) 732-8545

CARROLL COUNTY JUDGE/EXECUTIVE

CARROLL COUNTY COURTHOUSE

SECOND FLOOR

CARROLLTON, KENTUCKY 41008

(502) 732-7000

LOCAL OFFICIALS

LOCAL WATER SUPPLIERS

EQUAL EMPLOYMENT OPPORTUNITY

March 31, 1994

Rick Flynn, Mayor
P.O. Box 441
Ghent, KY 41045

Dear Mayor Flynn:

Carroll County has begun the process of preparing a water supply plan in accordance with state law, KRS 151.110 through 116. The purpose of the plan is to assess the long range water supply availability for the county. If the water resources appear adequate to supply the county's residential, commercial, municipal, and industrial needs for the next 20 years, then the water supply planning council will develop water supply protection recommendations for the county and cities. If the current water supply appears inadequate to meet the county's long term needs, then the council will also prepare a water shortage response plan and select alternatives.

The Water Supply Planning Council members for Carroll County are listed on the attachment included with this letter.

In compliance with the planning requirements and in the interest of cooperation, please submit the following information to the address below by May 1, 1994.

- (1) A copy of any existing water supply studies or related plans.
- (2) A statement of any current or potential conflicts, problems or opportunities that the local units or water systems want the planning process to examine or address, including water use rights, access and conservation; and

- (3) A description of expected changes in or around the planning unit that may alter current growth trends, including existing ordinances and planning goals.

If you have any questions, please contact:

Gerald Ballinger
Carrollton Utilities
P.O. Box 269
Carrollton, KY 41008
502-732-7055

Sincerely yours,

Gene McMurry
Carroll County Judge/Executive

Encl.



UTILITIES

P.O. Box 269
CARROLLTON, KENTUCKY 41008

April 1, 1994

Ms. Pamla A. Wood
Water Quality Management
Division Of Water
18 Reilly Road
Frankfort, KY 40601

Dear Pam:

As you are aware, Carroll County is beginning the process of preparing a water supply plan in accordance with state law, KRS 151.110 through 116. The Water Supply Planning Council members for Carroll County are listed on the attachment included with this letter. The planning unit currently considered for this plan would include only Carroll County. It is the intent of the council to apply for a planning grant from the Cabinet by May 1, 1994.

The first meeting of the Water Supply Planning Council is scheduled for April 19, 1994, at 7:00 p.m. at the Carroll County Court House on Main Street. To assist with the formation of the council and to insure we get off to a good start, your attendance would be greatly appreciated.

If you have any questions do not hesitate to call.

Sincerely,


Gerald L. Ballinger
Manager





UTILITIES

P.O. Box 269
CARROLLTON, KENTUCKY 41008

April 1, 1994

Kentucky River Authority
107 Metro Street
Frankfort, KY 40601


Dear Kentucky River Authority:

Carroll County is beginning the process of preparing a water supply plan in accordance with state law, KRS 151.110 through 116. The Water Supply Planning Council members for Carroll County are listed on the attachment included with this letter. The planning unit currently considered for this plan would include only Carroll County.

The council is not certain that Carroll County is included within the Kentucky River watershed area which concerns the Authority. Please indicate whether Carroll County is included in the watershed area and if so please provide any information concerning planning objectives or activities that might impact our water supply planning process. For your information there are no water withdrawals directly from the Kentucky River of which I am aware.

The first meeting of the Water Supply Planning Council is scheduled for April 19, 1994, at 7:00 p.m. at the Carroll County Court House on Main Street. If you have any questions or require additional information do not hesitate to call.

Sincerely,


Gerald L. Ballinger
Manager





UTILITIES

P.O. Box 269
CARROLLTON, KENTUCKY 41008

March 21, 1994

Mr Ken Cooke
Kentucky Water Watch Program Coordinator
Kentucky Division of Water
18 Reilly Road
Frankfort, Ky 40601

Dear Mr Cooke

Carroll County is currently developing the Water Supply Plan as defined by 401 KAR 4:220. Please provide me with a list of "Water Watch Groups" within Carroll County so that we may include them in the planning process.

If you have any questions please call me at (502) 732-7055.

Sincerely

Gerald L. Ballinger



PUBLIC NOTICE OF INTENT TO CREATE A WATER SUPPLY PLAN

Carroll County announces its intent to participate in the water supply planning process as mandated by KRS Chapter 151. The purpose of the plan is to assess the water resources available to the county. The planning process consists of two phases, the first of which will include planning initiation and data collection. Phase two includes planning for emergencies, supply protection, and, if necessary, selecting an alternative water source. The process will be accomplished through a series of planning council meetings. The proposed planning unit will include Carroll County.

The planning process will be guided by a planning council consisting of the following members:

Gene McMurtry.....	Carroll County Judge/Executive
Rick Flynn.....	Mayor, City of Ghent
Rick Alexandria.....	Mayor, City of Sanders
Mervin Kindoll, Sr.....	Mayor, City of Prestonville
Ruby Keck.....	City Council of Worthville
Jim Smith.....	Carroll County Water Dist.#1
Robert Perry.....	West Carroll Water District
Gerald Ballinger.....	Carrollton Utilities
Auther Anderson.....	Green Acres Mobile Home Park
Sam Scott.....	Carroll County ASCS
Bill Mitchell.....	C.C.Community Development Corp.
Don Eckler.....	Carroll County Health Dept.

The public is invited to attend and comment at all meetings of the planning council. The first planning council meeting will be held April 19, 1994 at 7:00PM at the Carroll County Courthouse on Main Street. This meeting will be held specifically to solicit public input concerning objectives and issues affecting the planning process. Anyone interested in providing written comment or additional information contact:

Gerald Ballinger
Carrollton Utilities
P.O. Box 269
Carrollton, KY 41008
502-732-7055

clothing
Off Hwy. 421 turn east
to Abbotts Lane, turn
here, follow signs.

Highway 227
Carrollton, Ky.
Mon.-Fri.
8 am-5 pm

Trimble, Gallatin & Henry
Counties
• In business since 1985
Douglas Lansdale,
Owner

Ford-Mercury
Hwy 227, Carrollton, Ky.
732-6674

PUBLIC NOTICE

1999 PROPOSED TAX RATE PUBLIC HEARING

The Ghent Fire Protection District will hold a public hearing on Monday, August 30, 1999, at 7:00 p.m. at the fire house in Ghent, Kentucky, for the purpose of obtaining comments from the public regarding the proposed tax rate.

The tax rate levied last year was .041 and produced revenues in the amount of \$77,460.00. This year's compensating rate is .039 and will produce revenues in the amount of \$85,387.00. The Ghent Fire Protection District proposes a tax rate of .040 which will produce a total of \$87,576.00 in revenues.

Revenue expected from New Property is \$1,080.00; revenue expected from Personal

THE FOLLOWING ORDINANCE NO. 99- 0604 WAS ADOPTED BY CARROLL COUNTY FIS- CAL COURT ON JULY 13, 1999

Ordinance No. 99-0604

WHEREAS, the Fiscal Court of Carroll County, Kentucky has determined that an economic hardship exists within the County and the sale of alcoholic beverages by the drink could aid economic growth; and
WHEREAS, the Fiscal Court has further determined that licensing of hotels, motels, inns or restaurants for the sale of alcoholic beverages by the drink for consumption of the premises would encourage economic growth:

IS IS THEREFORE
ORDAINED by the Fiscal Court of Carroll County, Kentucky as follows:

1. Licenses for the sale of alcoholic beverages by the drink for consumption on the premises within the unincorporated areas of Carroll County is hereby authorized under KRS 242.185 to be issued only to hotels, motels or inns containing not less than fifty (50) sleeping units

and having dining facilities for not less than one hundred (1200) persons or bona fide restaurants open to the general public having dining facilities for not less than one hundred (10) persons:

2. A license fee is hereby imposed for such licenses as may be issued hereunder in such maximum amount as provided for in KRS 243.070 or such other statute or regulation as may apply hereto:

3. The licenses issued hereunder shall be subject to all state laws and regulations as well as such additional administrative regulations as the Fiscal Court may issue for the enforcement or administration of this ordinance. This ordinance was first read on 6-8-99 followed by a second reading on July 13, 1999 on a motion made and duly seconded and adopted by a vote of 3 ayes and 1 nayes, this the 13th day of July, 1999.

Gene McMurry
Carroll County
Judge Executive

ATTEST
Billy Lyles, Carroll
County Clerk

AN AMENDMENT TO THE CARROLL COUNTY ORDINANCE RELATING TO LICENSE FEES UPON ALL PERSONS WHO ARE ENGAGED OR EMPLOYED IN ANY TRADE, OCCUPATION OR PROFESSION WITHIN THE COUNTY OF CAR- ROLL FOR THE HEALTH EDUCATION, SAFETY, WELFARE AND CONVENIENCE OF THE INHAB- ITANTS OF CARROLL COUNTY ELIMINATING THE \$5,000 ANNUAL EXEMPTION.

The Carroll County Fiscal Court held a first reading of an ordinance amending the Carroll County License fees ordinance eliminating the annual \$5000 exemption from Section III on August 10, 1999, to become effective on January 1, 2000. A second reading and final passage of this ordinance will be considered on September 14, 1999. The full text of the original ordinance and this amendment ordinance is available for public inspection at the Office of the Carroll County Judge Executive on the 2nd floor of the Carroll County Courthouse.

It is hereby certified by the Fiscal Court that this is a true and accurate summary of the amendment ordinance.

Gene McMurry
Carroll County Judge Executive

PUBLIC NOTICE OF INTENT TO CREATE A PHASE II WATER SUPPLY PLAN

Carroll County announces its intent to continue to participate in the water supply planning process as mandated by KRS Chapter 151. The purpose of the plan is to assess the water resources available to the county. The planning process consists of two phases. Phase 1, recently completed and approved, focused on forecasting the demand for water over a 20 year period and comparing projected demand against existing water supply sources. Phase II includes planning for emergencies and protection of water supply sources. The process will be accomplished through a series of planning council meetings. The planning unit is Carroll County.

The planning process is being guided by a planning council consisting of the following members:
Gene McMurry - Carroll County Judge/Executive;
Gerald Blalinger - Council Chair, City of Carrollton;
Rick Flynn - Mayor, City of Ghent; Mervin Kindoll, Sr. - Mayor, City of Prestonville; Ruby Keck - City of Worthville; Jim Smith - Carroll County Water District No. 1; Duane Cielinski - Dow Corning Corporation; Arthur Anderson - Green Acres Mobile Home Park.

The public is invited to attend and comment at all meetings of the planning council. For more information, contact: Richard Bragg, Northern Kentucky Area Development District, 16 Spiral Drive, PO Box 668, Florence, KY 41022-0668, (606) 283-1885.

Appendix C: Workplan

**CARROLL COUNTY WATER SUPPLY PLANNING COUNCIL
GRANT APPLICATION AND WORKPLAN**

I. INTRODUCTION

The Carroll County Water Supply Planning Council was officially formed on April 19, 1994 after several months of planning and informational and organizational meetings. The planning unit is Carroll County.

Carroll County has experienced considerable industrial growth and development and continues to actively work towards attracting new industry to the area. However, with the County's reliance on groundwater, a water supply plan is essential to address concerns about current and future demand for water.

The Water Supply Planning Council and its associated Water Supply Advisory Group, composed of representatives of local industry, are also pursuing a concurrent study which will be included in the water supply plan. This study, which is to be completed by the U.S.G.S., will provide a computer model of the local aquifer and a detailed analysis of the local hydrology. This model will provide valuable information for the public water suppliers within Carroll County to meet the projected water requirements which will be determined within Phase I of the plan.

This information will greatly benefit the flourishing industrial sector within Carroll County. The model will provide existing industry with information which is currently not available to assist long-term planning for plant expansions. This study would provide the Carroll County Development Corporation with valuable information when recruiting additional industry. The model will also benefit the Kentucky Division of Water when evaluating applications for new withdrawal permits from the groundwater supply.

The cost to complete the groundwater model is estimated to be approximately \$260,000. Since the plan is to be conducted by the U.S.G.S., the local contribution for this study would be 50 percent of this cost or approximately \$130,000. This study would complement the water supply plan by providing information that would normally be beyond the scope of the plan as outlined in 401 KAR 4:220, Section 6, as outlined below.

II. TASKS TO BE PERFORMED

The Northern Kentucky Area Development District (NKADD) will serve as the planning representative and will complete all duties as per 401 KAR 4:220, Section 6, as outlined below:

fifteen, and twenty years afterward, for each water supplier or source.

4. Evaluate adequacy of water supply to meet forecasted demand for twenty years past the base year. If inadequate, inventory water resources of the county. If adequate, evaluate and describe security of access to supply.

Engineering

1. Calculate the amount of available water at the site of any water supplier intake or a stream.
2. Calculate the available amount of water at the site of any water supplier intake in a water supply reservoir during normal and drought conditions.
3. Coordinate with other contractors to supply safe yield, specific capacity, zone of contribution, and zone of influence for each water supplier well.
4. Determine existing treatment and total distribution capacity of the water suppliers.
5. Determine if vertical elevation of an intake or capacity of a pump limits access to available water and describe access limitations.
6. Estimate the cost of finding and repairing leaks for water suppliers whose water losses are greater than fifteen percent.

Graphics

1. Prepare a county base map according to regulation specifications.
2. Prepare a water use map according to regulation specifications.
3. Create disaggregated use diagrams for water withdrawn by each of the water suppliers including the categories of domestic, industrial, commercial, municipal, and lost or unaccounted-for water use during the base year.
4. Prepare a water supplier source map according to regulations.
5. Prepare a service area map for the county showing the existing jurisdictional and service area boundaries of water suppliers and distributors.

capacity; location alternatives; proposed construction schedule; expected federal, state, and local costs; types of financing; and sources of local funding.

11. Prepare water shortage response and supply contamination plans according to regulation.
12. Determine and describe steps necessary to implement the water supply plan including methods for updating and amending the plan, containing a timetable for initiation and completion of tasks, showing anticipated costs of implementation, and recommending procedures to coordinate actions of local government and others, and describing existing authority to implement the plan and identifying any legal charges or agreements that are necessary to implement the plan.
13. Include all outlined work in plan documents required by regulation.

Data Collection

1. Compile the following information:
Historical streamflow data; average monthly precipitation from historical data; state and federal requirements and policies affecting water availability; construction data, usage data and average monthly static water levels, where readily available, of wells used at average rates of more than 10,000 gallons per day; generalized quality of water; description of groundwater aquifers, including confining layers, flow characteristics and predicted maximum yield; and ownership of dams or waterbody access rights to any reservoirs or impoundments.
2. Acquire and include U.S. Geological Survey topographic maps of the county.
3. Identify and assemble all readily available printed information related to water resources in the planning unit.

Graphics

1. Develop a tabular display of the degree of hazard posed by potential contaminants and create a map of potential sources of contamination.
2. Prepare a water resource map for the county according to regulations.

April 1996 - June 1996

- Prepare Final Plan Document (Phase II)

IV. PLANNING BUDGET

The cost of Phase I and Phase II planning activities is \$
Costs per phase are broken down below.

Phase I

Planning	\$ 1,000
Data Collection	\$ 2,000
Engineering	\$ 2,000
Computer Modeling and Data Analysis.....	\$ 4,000
Graphics	\$ 1,000
Subtotal	\$10,000

Phase II

Planning	\$ 6,000
Data Collection	\$ 3,000
Graphics	\$ 1,000
Subtotal	\$10,000

TOTAL	\$20,000
-------------	----------

V. PROPOSED DEVIATIONS

There are no proposed deviations from the standard requirements of the Water Supply Planning regulation as allowed by 401 KAR 4:220.



NORTHERN KENTUCKY AREA DEVELOPMENT DISTRICT

MEMORANDUM

DATE: August 9, 1994

TO: Water Suppliers/Water Distributors

FROM:  Paul Gardner, Planning Representative, Carroll County Water Supply Plan

RE: Questionnaire

The Carroll County Water Supply Planning Council is formulating the Water Supply plan to comply with 401 KAR 4:220 mandating county level planning.

Phase one of this plan is primarily a data collection phase, and phase two formulates actions on the data and resulting forecasts.

The enclosed questionnaire is designed to collect the majority of data for phase one requirements. Although all questions may not pertain to your operations, please complete as accurately as possible by Friday September 2, 1994. Please call if any questions arise regarding this questionnaire or the plan in general.

Thanks for your cooperation,

PG/mw

enc:

Appendix D: Survey

**NORTHERN KENTUCKY AREA DEVELOPMENT DISTRICT
CARROLL COUNTY WATER SUPPLY PLAN
WATER SOURCE, TREATMENT, & DISTRIBUTION QUESTIONNAIRE**

GENERAL INFORMATION

UTILITY NAME _____

MAILING ADDRESS _____

OPERATIONS MANAGER _____

BUSINESS PHONE _____

PERSON COMPLETING QUESTIONNAIRE _____

WATER SOURCE & TREATMENT INFORMATION

RAW WATER SOURCE (SOURCES)

LOCATION	TYPE*	PERMIT WITHDRAWAL (MGPD)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

* /R (River), L (Lake), W (Well), S (Spring), O (Other)

TREATMENT PLANT

LOCATION _____

CAPACITY (MGPD) _____

DATE BUILT _____

CONDITION _____

TYPE OF TREATMENT _____

TREATED WATER SOURCE(S)

IF YOUR UTILITY PURCHASES TREATED WATER FROM ANOTHER UTILITY, PLEASE LIST THE SOURCE UTILITY, THE CONTRACT PRICE, AND THE MAXIMUM AMOUNT OF WATER THAT CAN BE DELIVERED TO YOU.

SOURCE UTILITY	CONTRACT PRICE	MAXIMUM DELIVERY
_____	_____	_____
_____	_____	_____
_____	_____	_____

TREATED WATER STORAGE

LOCATION	TYPE*	CAPACITY (MG)
_____	_____	_____
_____	_____	_____
_____	_____	_____

*S (Standpipe), E (Elevated Tank, G (Tank at Grade)

STORAGE SYSTEM COMMENTS (condition, etc.) _____

DISTRIBUTION SYSTEM

GENERAL CONDITION OF WATER LINES _____

BEST ESTIMATE OF SYSTEM EFFICIENCY (GALLONS TREATED AS COMPARED TO GALLONS SOLD)

	TREATED		SOLD		WATER LOSSES
1980	_____	MGPD	_____	MGPD	_____ %
1985	_____	MGPD	_____	MGPD	_____ %
1990	_____	MGPD	_____	MGPD	_____ %
1993	_____	MGPD	_____	MGPD	_____ %
RECENT MONTH	_____	MGPD	_____	MGPD	_____ %

LEAK DETECTION METHODS _____

NON-REVENUE SYSTEM USAGE

	ANNUAL AVG. (GAL/DAY)	MAX DAILY (GAL/DAY)
FIRE PROTECTION	_____	_____
PLANT OPERATIONS (Back Flush, etc.)	_____	_____
OTHER	_____	_____

PLEASE ATTACH CURRENT RATE SCHEDULE AND EFFECTIVE DATE (INCLUDING AVERAGE YEARLY PRICE OF WATER IN DOLLARS PER 1,000 GALLONS).

HAS THE PRICE OF WATER FLUCTUATED SEASONALLY IN THE PAST (E.G. IS IT MORE EXPENSIVE IN SUMMER AS OPPOSED TO WINTER)?

YES _____ NO _____ IF YES, EXPLAIN: _____

TOTAL WATER USAGE (GALLONS PER DAY)

	ANNUAL AVERAGE		MAXIMUM DAILY	
1980	_____ GPD		_____ GPD	
1985	_____ GPD		_____ GPD	
1990	_____ GPD		_____ GPD	
1993	_____ GPD		_____ GPD	

CUSTOMERS (TOTAL BY CATEGORY)

	1980	1985	1990	1993
RESIDENTIAL	_____	_____	_____	_____
COMMERCIAL	_____	_____	_____	_____
INDUSTRIAL	_____	_____	_____	_____
INSTITUTIONAL	_____	_____	_____	_____

AVERAGE USAGE BY CATEGORY

	1980		1985		1990		1993
RESIDENTIAL	_____ GPD		_____ GPD		_____ GPD		_____ GPD
COMMERCIAL	_____ GPD		_____ GPD		_____ GPD		_____ GPD
INDUSTRIAL	_____ GPD		_____ GPD		_____ GPD		_____ GPD
INSTITUTIONAL	_____ GPD		_____ GPD		_____ GPD		_____ GPD

MAJOR WATER USERS BY CATEGORY

INDUSTRIAL	AVERAGE (GPD)	PEAK (GPD)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

COMMERCIAL (RETAIL, WHOLESALE*, CAR WASHES, LAUNDRIES, ETC.)

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

***IF UTILITY SELLS TREATED WATER TO ANOTHER UTILITY, (INCLUDE HERE)**

INSTITUTIONAL (SCHOOLS, HOSPITALS, NURSING HOMES, ETC.)

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

RESIDENTIAL (APARTMENTS, TRAILER PARKS, ETC.)

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

OTHER (PARKS, GOLF COURSES, SWIMMING POOLS, ETC.)

	AVERAGE (GPD)	PEAK (GPD)
_____	_____	_____
_____	_____	_____
_____	_____	_____

DOES YOUR SYSTEM SELL TREATED WATER TO OTHER UTILITIES OR WATER DISTRICTS? ____ YES ____ NO

IF "YES", LIST CUSTOMERS, CONTRACT PRICE, AND CONTRACT AMOUNT, IF ANY.

CUSTOMER	CONTRACT PRICE
----------	----------------

_____	_____
_____	_____
_____	_____

WHAT CURRENT CONSERVATION MEASURES, IF ANY, DO YOU FOLLOW? _____

WHAT ABOUT CONSERVATION IN THE FUTURE?

DO YOU HAVE PLANS TO INCREASE CAPACITY WITHIN THE NEXT 10 YEARS?
5 YEARS? _____

WHAT IMPROVEMENTS ARE PLANNED FOR YOUR FACILITIES?

IN THE NEXT 10 YEARS DO YOU ANTICIPATE AN INCREASE IN CUSTOMERS?
WHY? WHY NOT?

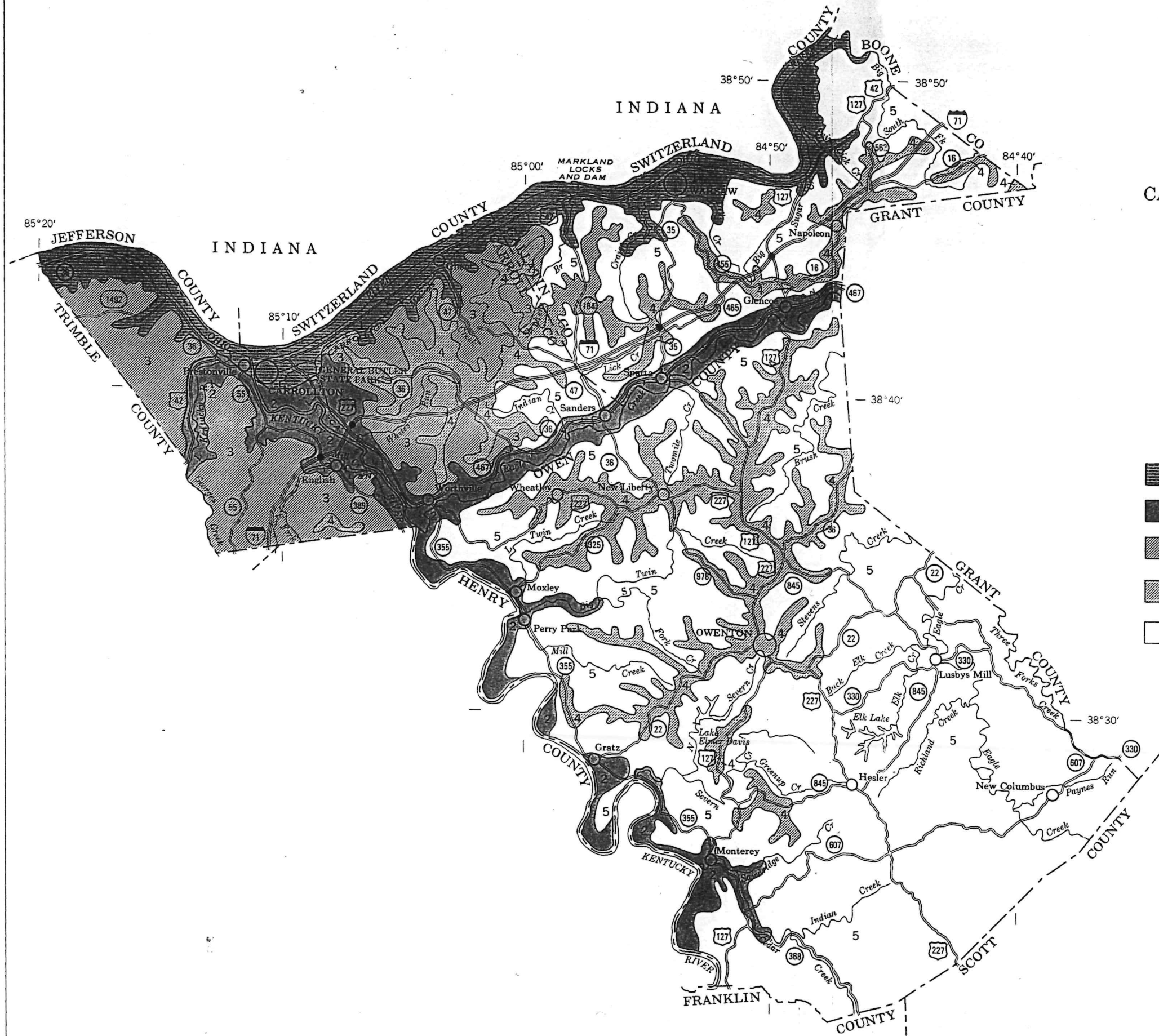
IF YOU HAVE ANY QUESTIONS ABOUT THIS FORM, PLEASE CONTACT HEIDI VAN KEUREN OR PAUL GARDNER AT (606) 283-1885.

PLEASE MAIL OR FAX THE COMPLETED SURVEY TO THE NORTHERN KENTUCKY AREA DEVELOPMENT DISTRICT (NKADD).

NKADD
P.O. BOX 668
FLORENCE, KY 41022-0668
ATTN: PAUL GARDNER

FAX #: (606) 283-8178

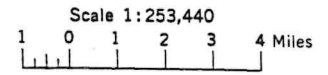
Appendix E: Soil Map



U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
KENTUCKY AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

CARROLL, GALLATIN, AND OWEN COUNTIES, KENTUCKY



SOIL ASSOCIATIONS

- Wheeling-Huntington-Alluvial land association: Nearly level to steep soils that have a loamy subsoil; on stream terraces and flood plains
- Otwell-Nolin-Markland association: Nearly level to steep soils that have a loamy and clayey subsoil; on stream terraces and flood plains
- Fairmount-Rock outcrop-Lowell association: Steep to gently sloping soils that have a clayey subsoil; on hillsides and narrow ridges
- Lowell-Nicholson association: Strongly sloping to gently sloping soils that have a loamy and clayey subsoil; on upper hillsides and fairly broad ridges
- Eden association: Moderately steep and strongly sloping soils that have a clayey subsoil; on hillsides and narrow ridges

Compiled 1974

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

Appendix F: Obstacles to the Planning Process

APPENDIX F

OBSTACLES TO THE PLANNING PROCESS

Carroll County began the planning process in 1994 and has been very proactive, as evidenced by the USGS study and development of the groundwater flow process. However, the USGS study, scheduled for completion in 1996, was completed in March of 1999. The USGS study was supposed to provide all the necessary calculations for the source assessment and the supply adequacy assessment; however, to date, that has not been the case. Therefore, it has been necessary to try to obtain the data from the water suppliers themselves, which has been somewhat difficult.

The USGS also approached NKADD regarding providing mapping services, in correspondence dated August 9, 1994. A meeting regarding mapping services was held in the spring of 1995; however, after repeated follow-ups, it became apparent that the USGS was not interested in providing this service. Fortunately, in 1998, NKADD hired a GIS person who has been able to provide mapping services.

Finally, the lengthy Phase I Planning Process has created considerable additional work. The water demand forecasts, utilizing IWR-MAIN, have been generated three times in an effort to keep the plan as current as possible while waiting for the USGS study.

Appendix G: Paying for the Planning Process

APPENDIX G

PAYING FOR THE PLANNING PROCESS

Carroll County received \$6,500 in grant funds from the Division of Water for the Phase I plan. In addition, NKADD entered into a contract with the Carroll County Water Supply Council for an additional \$3,500 for Phase I planning activities. Carroll County also received \$3,500 in grant funds from the Division of Water for Phase II planning activities.

Appendix H: Protection Measures

**CARROLL COUNTY, KENTUCKY
ORDINANCE NO.**

AN ORDINANCE PERTAINING TO THE PUBLIC HEALTH, SAFETY, AND WELFARE: REGULATING THE STORAGE, COLLECTION, TRANSPORTATION, PROCESSING AND DISPOSAL OF SOLID WASTE; AUTHORIZING THE ADVERTISEMENT, SELECTION, AND AWARDED OF A FRANCHISE FOR THE COLLECTION AND DISPOSAL OF SOLID WASTE: AND PROVIDING A PENALTY FOR VIOLATION OF THE PROVISIONS OF THIS ORDINANCE.

WHEREAS, the Fiscal Court of Carroll County, Kentucky is aware of an ever increasing volume of solid waste being generated within the County making it more difficult to facilitate the proper collection and disposal of solid waste: and

WHEREAS, the collection and disposal of solid waste, at present, does not facilitate the efficient collection or disposal of same; and

WHEREAS, it appears that the present collection system does not adequately serve the citizens of Carroll County and cannot serve the future needs of this county as it pertains to the protection of our environment, as well as the protection of the public health and welfare of the citizens residing therein; and

WHEREAS, it has been determined by Carroll Fiscal Court that is necessary to implement a comprehensive and efficient method providing for adequate solid waste collection, management and disposal.

NOW THEREFORE, be it duly ordained as follows:

TITLE

1. This Ordinance shall be known as the Carroll County Solid Waste Management Ordinance.

FRANCHISE AUTHORIZATION

2. The Fiscal Court of Carroll County may at any time, and from time to time, advertise in any manner which it deems fit for bids to be made by companies interested in providing the collection, transportation, and disposal of solid waste located within the unincorporated areas of Carroll County, Kentucky.

3. Following the submission of bids from interested parties desiring to be granted a franchise within the unincorporated areas of Carroll County, Kentucky for the provision of the collection, transportation, and disposal of solid waste, thereafter, a public hearing shall be held concerning the application or bids of those interested in providing the services that are described herein.

4. All bidders must be willing to pay, and by their acceptance of any franchise, will expressly agree to pay all damages and penalties which the Fiscal Court of Carroll County, Kentucky may legally be required to pay as a result of the franchisee company's negligence in the collection, transportation, or disposal of solid waste and shall further carry and pay the cost of liability insurance in support of its undertaking to hold Carroll County, Kentucky and Carroll Fiscal Court harmless from any loss sustained as a result of either negligence of the company so receiving a franchise or any actions on behalf of the company pursuant to a franchise grant which may be suffered by Carroll County, Kentucky, Carroll Fiscal Court, or its members. Any company so receiving a franchise shall maintain liability insurance in amounts so designated by the County from time to time.

5. The franchisee shall be an independent agent and not the agent, servant, or employee of Carroll County, Kentucky, and shall be required to be exclusively responsible for all the provisions of Workman's Compensation Laws of the Commonwealth of Kentucky, as well as any and all other regulations, statutes, or provisions adopted by the Federal Government, State Government or County of Carroll.

6. The franchise area for the collection, transportation, and disposal of solid waste shall be within the unincorporated areas of Carroll County, Kentucky. This shall be known as the "service area".

7. Franchises will only be granted upon a finding by the Carroll Fiscal Court that the bidder will render prompt, efficient, and continuing service to the service area described herein, and that the bidder has sufficient equipment and personnel to render service to all persons generating solid waste within the service area defined above.

8. Vehicles used for the collection and transportation of any solid waste shall be covered, leak proof, and have an enclosed body, be durable and be of easily cleanable construction.

9. The Fiscal Court of Carroll County, Kentucky shall set and approve all fees charged by the franchise holders. All franchises shall be for a term of two (2) years.

10. Any franchise holder shall provide at least weekly waste collection to any resident requesting service, except where the customer is more than thirty (30) days in arrears concerning the payment of approved collection fees.

11. No franchise agreement shall be assignable without the prior written consent of the Carroll Fiscal Court.

12. The franchise holder may refuse to accept for collection radioactive waste and hazardous waste.

13. The franchise holder shall obtain and keep continuously in effect public liability and property damage insurance in amounts not less than One Million Dollars (\$1,000,000.00) single limit coverage.

14. Any franchise holder shall furnish a performance bond for the faithful performance of the agreement and franchise grant in an amount to be set by Carroll Fiscal Court, and the bond shall be continued as long as the agreement is in effect.

15. Carroll Fiscal Court may terminate or suspend all or any portion of a franchise for any of the following reasons:

A. Failure of the franchise to comply with the authorized fees schedules:

B. Failure to collect all waste in excess of two (2) consecutive weeks: or

C. Failure of the franchise to dispose of the collected waste in a sanitary landfill permitted by the Commonwealth of Kentucky.

16. No person, business, nor legal entity may engage in the business of solid waste collection unless the person, business, or legal entity holds a franchise issued by the Fiscal Court of Carroll County, Kentucky pursuant to this Ordinance authorizing said individual, business, or legal entity to collect, transport, and dispose of solid waste within the unincorporated areas of Carroll County, Kentucky.

17. Any person engaging in the business of solid waste collection in the service area defined herein without obtaining the franchise issued by the Carroll Fiscal Court shall be guilty of a misdemeanor punishable by a fine not to exceed \$250.00 or imprisonment for not more than ninety (90) days, or both. Each day's violation shall be treated and considered a separate offense.

18. Carroll County, Kentucky shall be entitled to a fee upon awarding of a franchise to collect, transport, and dispose of solid waste, either commercial, industrial, or residential, in an amount or manner to be determined by the County. The fee may be charged on a percentage basis of gross subscriber revenues or on a fee per collection basis.

DEFINITION

19. Solid waste shall be defined as follows: any garbage, refuse, or discarded material generated by commercial, industrial, residential, or community activities.

SOLID WASTE STORAGE

20. That the occupant or owner of every dwelling unit and every institutional, commercial, business, industrial or agricultural establishment producing solid waste within the legal limits of Carroll County, Kentucky shall provide sufficient and adequate containers for the storage of all solid waste, except bulky rubbish and demolition and construction waste to serve each such dwelling unit and/or establishment; and to maintain such solid waste containers at all time in good repair.

21. The occupant or owner of every dwelling unit and of every institutional, commercial, industrial, agricultural, or business establishment shall place all solid waste to be collected in a proper solid waste container or containers, except as otherwise provided herein, and shall maintain such solid waste containers and the area surrounding them in a clean, neat and sanitary condition at all times. Solid waste shall be stored in a manner that will not provide harborage to rodents and vermin, and will not create a fire hazard.

22. Residential solid waste shall be stored in containers of not more than thirty five (35) gallons nor less than ten (10) gallons in nominal capacity. Containers shall be leakproof, waterproof, and fitted with a fly-tight lid, and shall be properly covered at all times except when disposing waste therein or removing the contents thereof. The containers shall have handles, rails or other suitable lifting devices or features. The weight of any individual container and contents shall not exceed seventy five (75) pounds. Galvanized metal containers, or rubber, fiberglass, or plastic containers which do not become brittle in cold weather, may be used pursuant to this Ordinance. Disposable solid waste containers with suitable frames or containers may also be used for storage of residential solid waste.

SOLID WASTE COLLECTION

23. Within a reasonable time from the effective date of this Ordinance, Carroll County shall make available to every residence and commercial establishment within the unincorporated areas of Carroll County, Kentucky, solid waste collection and disposal service through the awarding of a franchise or franchises which shall pick up solid waste within five (5) feet of the nearest public road to the residence or commercial establishment.

24. All payment of collected fees shall be made by individuals or business directly to the franchise holder pursuant to a franchise agreement to be issued by the County.

25. Solid waste collectors, acting pursuant to a franchise agreement granted by the County pursuant to this Ordinance, are hereby authorized to enter upon private property for the limited purpose of collecting waste therefrom as required by this ordinance. Solid waste collectors shall not enter the dwelling units or other residential buildings for the purpose of collecting residential solid waste.

26. No person shall be allowed to separate, carry off or dispose of garbage without the written permission of the franchise holder, its agent or representative.

PROHIBITED PRACTICES

27. It shall be unlawful for any person to:

A. Dump or permit the dumping of garbage, refuse, rubbish and debris on any property within the unincorporated areas of Carroll County, Kentucky, unless otherwise authorized by the Ordinance.

B. Deposit solid waste in any solid waste container other than his own, without written consent of the owner of such container and/or with the intent of avoiding payment of the service charge relative to solid waste collection and disposal which may be assessed by a franchise holder as previously described herein.

C. Interfere in any manner with solid waste collection and transportation equipment, or with solid waste collectors in the lawful performance of its duties as such, pursuant to a franchise granted by the County pursuant to this Ordinance.

D. Dispose of dead animals in any container to be collected by a franchise holder.

E. Own or operate a dump without benefit of a permit issued by the Commonwealth of Kentucky or the United States Government.

F. Dispose of solid waste in any facility location which is not approved by Carroll County, Kentucky and the Kentucky Department for Environmental Protection.

G. Engage in the business of collecting, transporting, processing, or disposing of solid waste within the unincorporated areas of Carroll County, Kentucky without a franchise grant from Carroll County, or operate under an expired permit or franchise grant or operate after a grant or permit has been suspended or revoked by the County.

H. Violate any section of this Ordinance.

PENALTIES

28. The violation of any provision of this Ordinance shall be punishable, upon conviction, by a fine of not less than \$250.00, thirty (30) days imprisonment, or both. Each day that a violation continues to exist shall be considered a separate and distinct violation. The provisions for this section are in addition to and not in lieu of any criminal prosecutions or penalties provided by the Commonwealth of Kentucky or the Federal Government

SEVERABILITY

29. If any section, subsection, sentence, clause, phrase, or portion of this Ordinance is for any reason held invalid or unconstitutional by any Court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provision, and such holding shall not effect the validity of the remaining portions hereof.

CONFLICTS

30. Any and all Ordinances or parts thereof in conflict with the provisions of this Ordinance are hereby repealed.

EFFECTIVE DATE

31. This Ordinance shall become effective as of the second reading and publication.

APPROVED AFTER A FIRST READING ON JULY 28, 1992 FOLLOWED BY A SECOND READING ON AUGUST 11, 1992.

ATTEST:

Billy R. Lyle

Harold "Shorty" Thomlinson
HAROLD "SHORTY" THOMLINSON
Carroll County Judge/Executive

GHENT
ZONING ORDINANCE

Section 922

Visibility at Intersections

The following shall apply to all districts. Within the area defined by the intersection of any two right-of-way lines of streets (including the intersection of the right-of-ways of a street and an alley, but excluding the intersection of the right-of-ways of two alleys) or of streets and railroads, and a straight line intersecting those right-of-way lines at points thirty (30) feet from their intersection, no obstructions to vision may be placed, planted, erected, or allowed to grow between two and one-half (2 1/2) feet and ten (10) feet above the imaginary plane defined by those three points of intersection.

Within the area defined by the intersection of any two right-of-way lines of alleys, and a straight line intersecting those right-of-way lines at points six (6) feet from their intersection, no obstruction to vision may be placed, planted, erected, or allowed to grow between two and one-half (2 1/2) feet and ten (10) feet above the imaginary plane defined by those three points of intersection.

Section 923

Architectural Projections

Open structures such as porches, canopies, balconies, platforms, carports, covered patios, and similar architectural projections shall be considered parts of the building to which attached and shall not project into the required minimum front, side, or rear yard. Chimneys, overhangs, and gutters may extend up to two and one-half (2 1/2) feet into a required front, side, or rear yard.

Section 924

Exceptions to Height Regulations

Height limitations do not apply to spires, belfries, cupolas, antennas, water tanks, ventilators, chimneys, or other appurtenances usually required to be placed above the roof level and not intended for human occupancy.

Section 930

Environmental Provisions

No use, building, structure, alteration, or improvement of land shall cause hazard or degradation, or otherwise abuse the environment of its own land or adjacent land or the value of benefit of the environment to the public at large. The following provisions of Sections 931-934 inclusive shall determine the capability, suitability or general compliance of a proposed use, building, structure, alteration, or improvement of land with the environmental objectives of this ordinance.

Section 931

Surface Drainage

All surface runoff created by development of land must be adequately and safely handled by existing natural drainage, storm sewers, culverts, or other drainage improvements, taking into consideration additional runoff anticipated from upstream drainage areas and the impact of the development downstream.

Section 932

Flood Hazards

No development shall occur which is not in conformance with local flood protection control regulations adopted pursuant to the U.S. Department of Housing and Urban Development Federal Flood Insurance Program.

Section 933

Water Supply and Sewage Disposal

No use, building, or structure shall be conducted or constructed without the infrastructure to insure that sufficient water supply and sewage disposal capacity is available to meet the needs of the particular site's users and to protect the environment.

Section 934

Radioactivity or Electrical Disturbance

No activity shall emit dangerous radioactivity at any point, or electrical disturbance adversely affecting the operation of any equipment at any point other than that of the creator of such disturbance.

Section 935

Vibration

No activity shall cause a vibration which is discernible without instruments on any adjoining lot or property.

Section 936

Glare

No activity shall cause direct or reflected glare which is visible from any street or property outside a commercial district or a planned unit development district. Wherever the placement of parking spaces in a non-residential district may cause headlight glare directly onto a public street, suitable plantings or screening may be required, except that such planting or screening may not interfere with visibility for traffic entering or exiting the site.

Section 940

Other General Provisions

The purpose of these supplementary district regulations is to set specific conditions for various uses, classification of uses, or areas where problems are frequently encountered.

Section 941

Home Occupations

Occupations of personal services, professional office or studios which are maintained or conducted solely within a dwelling will be permitted only if they meet all of the following performance standards:

1. The use is clearly incidental to the principal residential use;

CHAPTER 92: NUISANCES

Section

General Provisions

- 92.01 Definitions
- 92.02 Common law and statutory nuisances
- 92.03 Certain conditions declared a nuisance
- 92.04 Abatement procedure
- 92.05 Nuisance created by others

Noise Control

- 92.20 Definitions
- 92.21 Exceeding established sound levels prohibited
- 92.22 Determination of violation
- 92.23 Exceptions
- 92.24 Variances
- 92.99 Penalty

Cross-reference:

Noisy animals, see § 90.02

Statutory-reference:

Private nuisances, see KRS 411.500 - 411.570

GENERAL PROVISIONS

§ 92.01 DEFINITIONS.

For the purpose of this subchapter the following definitions shall apply unless the context clearly indicates or requires a different meaning.

"AUTOMOBILE PARTS." Any portion or parts of any motor driven vehicle as detached from the vehicle as a whole.

"MOTOR VEHICLE IN AN INOPERATIVE CONDITION." Those motor vehicles which are unable to move under its own power due to defective or missing parts, which lack parts or equipment necessary to make that vehicle readily operable, and/or that cannot be safely operated on the public roads and highways by virtue of defective, missing or improper parts or equipment and/or not properly registered or insured as required by state statutes.

"MOTOR VEHICLE." Any style or type of motor driven vehicle used for the conveyance of persons or property.

"NUISANCE." Public nuisance.

"SCRAP METAL." Pieces or parts of steel, iron, tin, zinc, copper, aluminum, or any alloy thereof, whether covered with porcelain or any

other material, whether intact or in parts, which has served its usefulness in its original form and can no longer be used for its originally intended purpose.

"UNFIT FOR FURTHER USE." In a dangerous condition; having defective or missing parts; or in such a condition generally as to be unfit for further use as a conveyance.
(Am. Ord. 96-22, passed 7-8-96)

§ 92.02 COMMON LAW AND STATUTORY NUISANCES.

In addition to what is declared in this chapter to be a public nuisance, those offenses which are known to the common law and statutes of Kentucky as public nuisances may be treated as such and be proceeded against as is provided in this chapter or in accordance with any other provision of law.
Penalty, see § 92.99

§ 92.03 CERTAIN CONDITIONS DECLARED A NUISANCE.

It shall be unlawful for the owner, occupant, or person having control or management of any land within the city to permit a public nuisance to develop thereon. The following conditions are declared to be public nuisances:

(A) Dangerous trees or other objects adjoining street. Any tree, stack, or other object standing in such a condition that it will, if the condition is allowed to continue, endanger the life, limb, or property of, or cause hurt, damage, or injury to persons or property upon the public streets or public ways adjacent thereto, by the falling thereof or of parts thereof.

(B) Accumulation of rubbish. An accumulation on any premises of filth, refuse, trash, garbage, or other waste material which endangers the public health, welfare, or safety, or materially interferes with the peaceful enjoyment by owners or occupants of adjacent property because of the danger that it will catch or communicate fire, attract and propagate vermin, rodents, or insects, or blow rubbish into any street, sidewalk, or property of another.

(C) Noxious odors or smoke. Emission into the surrounding atmosphere of odor, dust, smoke, or other matter which renders ordinary use or physical occupation of other property in the vicinity uncomfortable or impossible.

(D) Storage of explosives. The storage of explosive material which creates a safety hazard to other property or persons in the vicinity.

(E) Weeds. The existence of thistles, burdock, jimson weeds, ragweeds, milkweeds, poison ivy, poison oak, iron weeds, and all other noxious weeds and rank vegetation in excess of a height of 12 inches.

(F) Open wells. The maintenance of any open, uncovered, or insecurely covered cistern, cellar, well, pit, excavation, or vault situated upon private premises in any open or unfenced lot or place.

(G) Trees and shrubbery obstructing streets and sidewalks. The growing and maintenance of trees with less than 14 feet clearance over streets or less than eight feet over sidewalks, or the growing and maintenance of shrubbery in excess of three feet in height within the radius of 20 feet from the point where the curb line of

any street intersects the curb line of another street. No shrub shall be planted between the curb line and the property line of any street within a radius of 20 feet from the point where the curb line of any street intersects with the curb line of another street.

(H) Keeping of animals. The failure to keep an animal's pen, yard, lot, or other enclosure in a sanitary condition and free from preventable offensive odors.

(I) Junk; scrap metal; motor vehicles. The storage of motor vehicles in an inoperative condition, motor vehicles unfit for further use, automobile parts, or scrap metal within the city limits except on premises authorized by the city for such purposes. Penalty, see § 92.99

Cross-reference:

Tree Commission, see §§ 35.125 - 35.129

§ 92.04 ABATEMENT PROCEDURE.

(A) It shall be the duty of the Building Inspector to serve or cause to be served a notice upon the owner or occupant of any premises on which there is kept or maintained any nuisance in violation of the provisions of this chapter and to demand the abatement of the nuisance within five days unless the nuisance constitutes an immediate danger to the health and well-being of the community. If such danger is present, the nuisance may be abated immediately by the city. Absent such immediate danger, and prior to the abatement of any nuisance and/or demolition of any structure which has been deemed to be unfit or unsafe by the Building Inspector as set forth in § 154.29 of this Code, the following procedural process shall be followed:

(1) Notice shall be served upon persons by certified mail, but if the whereabouts of the persons is unknown and cannot be ascertained in the exercise of reasonable diligence, the city shall make an affidavit to that effect, and the serving of notice may be made by publication in a newspaper of general circulation for two consecutive publications.

(2) A copy of the notice shall be posted in a conspicuous place on the premises affected by the notice and it shall be recorded in the office of the Carroll County Court Clerk.

(3) Pursuant to K.R.S. 381.770, the property owner shall be afforded a public hearing prior to the abatement of any nuisance and/or demolition of any unfit or unsafe structure. Provided, however, that such hearing must be requested in writing by the property owner themselves, a copy of which shall be served in the City Clerk/Treasurer not later than seven working days following receipt of notice as set forth above. The City Clerk/Treasurer shall thereafter fix the time and place for a hearing which shall be held not later than two weeks thereafter, with notice of said hearing to be immediately provided to the property owner. The Clerk/Treasurer shall notify the Mayor and all

CHAPTER 94: LITTERING

Section

- 94.01 Throwing litter from vehicle
- 94.02 Tracking foreign matter on streets
- 94.03 Hauling loose material
- 94.04 Sweeping litter into gutters
- 94.05 Litter on private property
- 94.99 Penalty

§ 94.01 THROWING LITTER FROM VEHICLE.

No person while a driver or passenger in a vehicle shall throw or deposit litter upon any street or other public place within the city or upon private property.
Penalty, see § 94.99

§ 94.02 TRACKING FOREIGN MATTER ON STREETS.

No person shall drive or move any vehicle or truck within the city, the wheels or tires of which carry onto or deposit upon any street, alley, or other public place, mud, dirt, sticky substances, litter, or foreign matter of any kind.
Penalty, see § 94.99

§ 94.03 HAULING LOOSE MATERIAL.

Every person hauling or causing to be hauled dirt, sand, gravel, cement, fill dirt, or loose material of any kind in or upon any street, alley, sidewalk, or other public place shall haul it, or cause it to be hauled in vehicles provided with tight boxes or beds so constructed or loaded as to prevent any of the contents from falling or being thrown, blown, or deposited upon any street, alley, sidewalk, or other public place. Any materials which fall from, or which are thrown, blown, or deposited from any vehicle upon any street, alley, sidewalk, or other public place, shall be removed immediately by the person in charge of the vehicle.
Penalty, see § 94.99

§ 94.04 SWEEPING LITTER INTO GUTTERS.

No person shall sweep into or deposit in any gutter, street, or other public place within the city the accumulation of litter from any building or lot or from any public or private sidewalk or driveway. Persons owning or occupying property shall keep the sidewalk in front of their premises free of litter.
Penalty, see § 94.99

§ 94.05 LITTER ON PRIVATE PROPERTY.

(A) No person shall throw or deposit litter on any occupied private property within the city, whether owned by that person or