# CAMPBELL COUNTY WATER SUPPLY PLAN

1998

# Prepared By:

Campbell-Kenton Water Supply Planning Council and the
Northern Kentucky Area Development District

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# CHAPTER 1 DESCRIPTION OF THE PLANNING UNIT

#### I. INTRODUCTION

The joint planning unit, composed of Campbell and Kenton Counties, is located in the northernmost portion of Kentucky and is a part of the Greater Cincinnati metropolitan area. The county seats of Campbell and Kenton Counties are Newport and Covington.

Since 1990, Campbell and Kenton Counties have experienced relatively slow population growth compared to neighboring counties with increases during the period (1990-1996) of 4.0 percent and 2.5 percent respectively. However, there are areas of rapid growth within the planning unit including: Alexandria, Cold Spring, Highland Heights, Wilder, Crescent Springs, Taylor Mill, and Independence. Figure 1.1 shows projected growth in the planning unit through 2020. Approximately, 72,000 people were employed in the planning unit in 1996.

Map 1 shows the location of the planning unit in the state. Map 2 shows the Campbell County portion of the planning unit map.

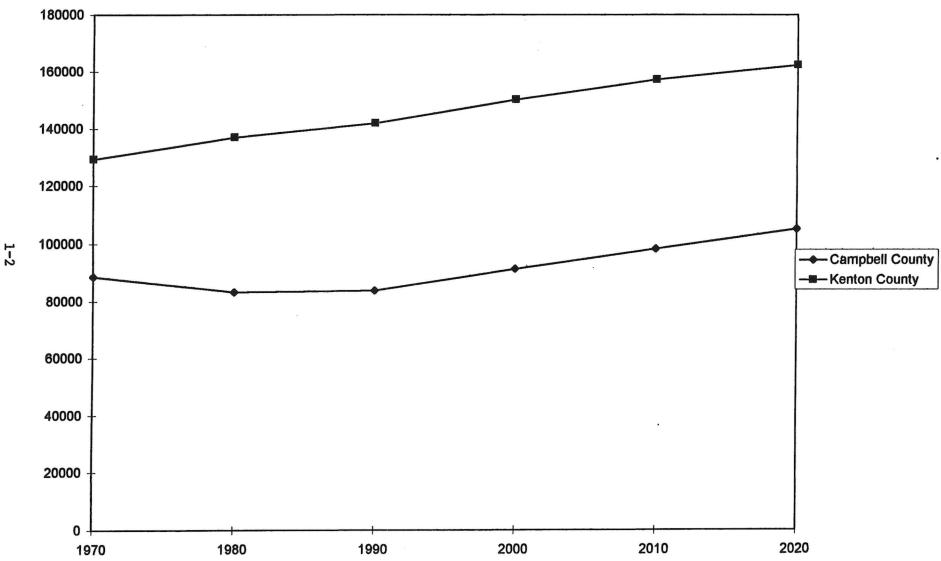
#### II. PHYSIOGRAPHY

The Northern Kentucky area is characterized by ridges and steep narrow valleys. Elevations in the planning unit range from 200 to 900 Mean Sea Level (MSL). Landforms in Campbell and Kenton Counties consist of four basic groups: glacial outwash terraces, alluviated valleys, limestone plateaus, and shale uplands. Glacial terraces can be found in those areas closest to the Ohio River. The Ohio and Licking Rivers flow through the alluviated valleys which are filled with silt, sand, and gravel. The northern part of the planning unit is characterized by limestone plateaus with flat tops and steep sides. Finally, shale uplands are found in the southern portions of Campbell and Kenton Counties.

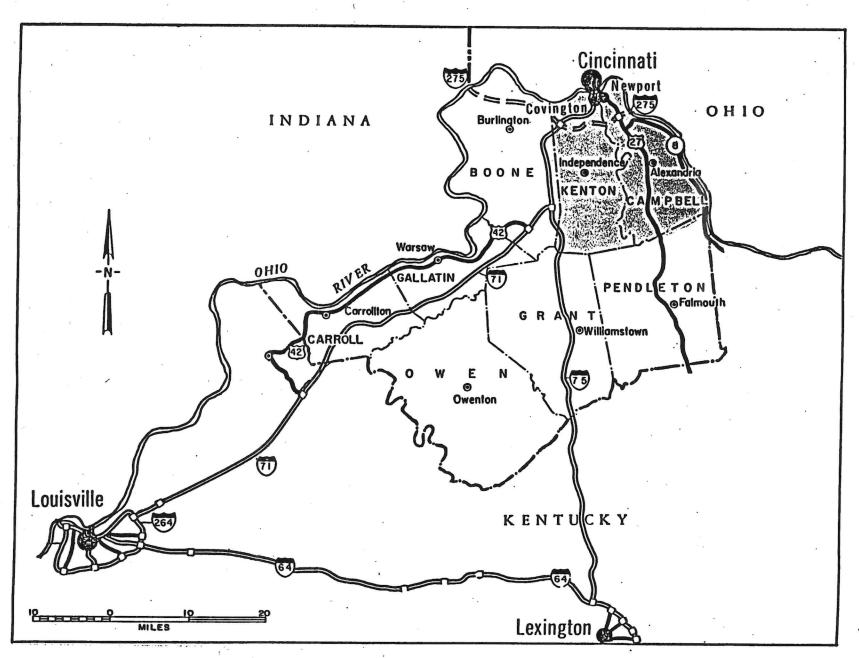
Depth to bedrock is generally greater in Kenton County than in Campbell County with the greatest depths to bedrock in the extreme northwest portion of Kenton County, along the Licking River, and in the Alexandria area. Other small localized areas with large depths to bedrock can be found in Campbell County (Northern Kentucky Area Planning Commission, 1981, p. 3-3).

Figure 1.1

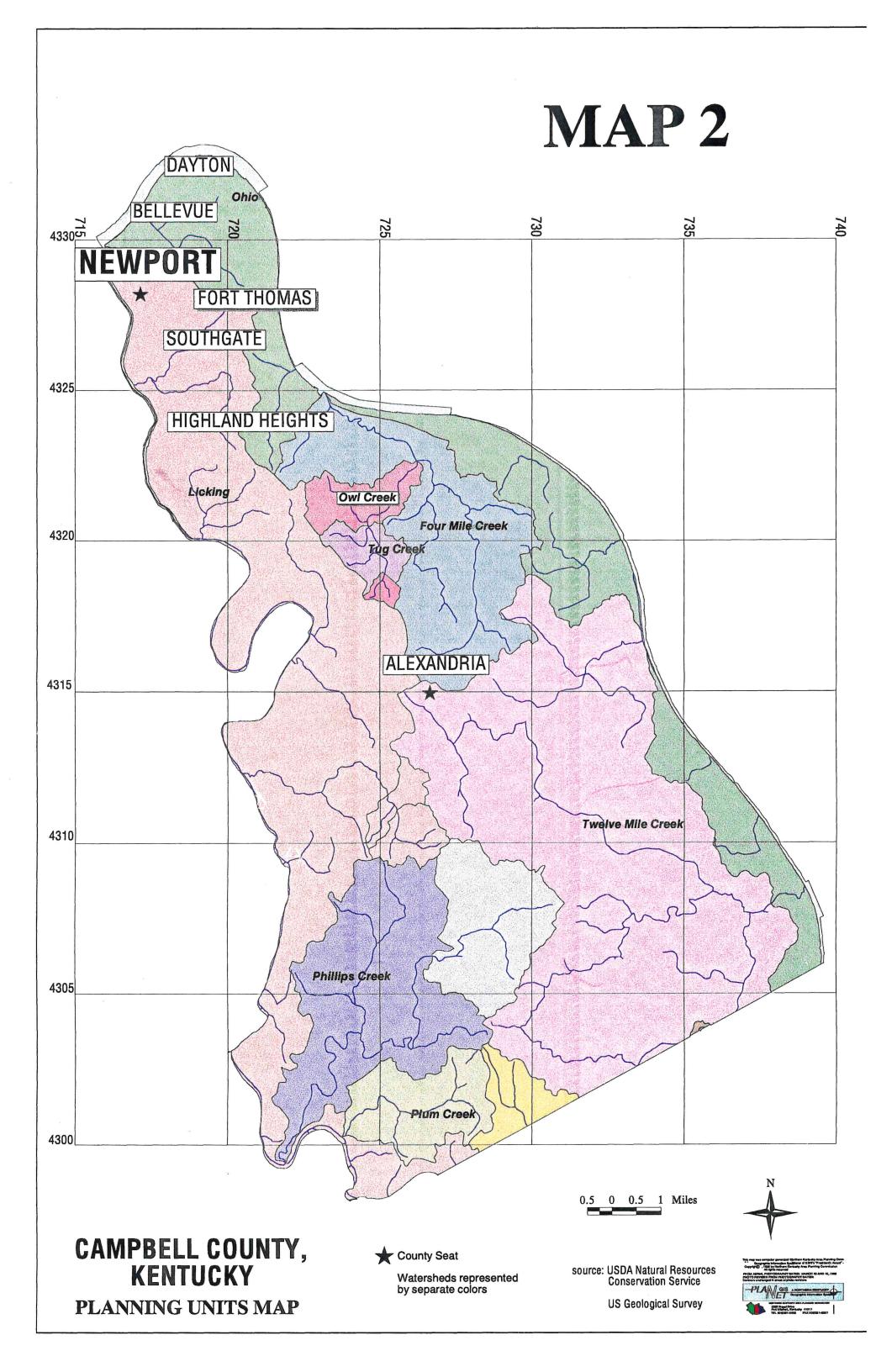
Planning Unit Population Growth: 1970-2020



# PLANNING UNIT LOCATION



<sup>\*</sup>Shaded Area = Planning Unit



# CHAPTER 2 PLANNING COUNCIL

#### I. FORMATION OF THE PLANNING UNIT

Dennis Willaman, of the Northern Kentucky Water Service District, initiated the water supply planning process. On March 13, 1997, representatives of Campbell and Kenton Counties, as outlined by water supply planning regulations, met to vote on the proposed joint planning unit. The letter notifying participants of the meeting stated that lack of attendance would be regarded as support of a joint Campbell-Kenton planning unit.

The following representatives from each county voted unanimously to form a joint planning unit:

#### Campbell County

Naguanda Deaton - Campbell County Fiscal Court
David Dezeeuw - Newport Water Works
Dennis Willaman - Northern Kentucky Water Service District
Steve Trauth - Louis Trauth Dairy
Sister Marilene Cullen - St. Anne Convent
Reverend Joseph Boschert - St. Peter & Paul Elementary
Kirtley Fillhardt - Green Valley Trailer Park

#### **Kenton County**

Ralph Bailey - Kenton County Fiscal Court
Dennis Willaman - Northern Kentucky Water Service District

Also in attendance were Heidi Van Keuren, NKADD, and Mark Pfefferman, St. Peter & Paul Elementary School.

#### II. PLANNING COUNCIL AND PLANNING COUNCIL REPRESENTATIVE

The following is a list of members of the Campbell-Kenton Water Supply Planning Council and their affiliations:

Ralph Bailey - Kenton County Fiscal Court
Sister Marilene Cullen - St. Anne Convent
Naguanda Deaton - Campbell County Fiscal Court
David Dezeeuw - Newport Water Works
Jeff Earlywine - City of Ft. Thomas
Kirtley Fillhardt - Green Valley Trailer Park
Phil Kloenne - Northern Kentucky District Health Department
Clark Millard - City of Wilder

Mark Pfefferman - St. Peter & Paul Elementary
Bob Reis - St. Peter & Paul Elementary
Steve Trauth, Louis Trauth Dairy
Dennis Willaman, Council Chair - Northern Kentucky Water Service District

Mike Robke of the Taylor Mill Water Commission elected not to serve; however, he will receive minutes of the meetings. Judge Middleton also declined the appointment of representatives of 4th and 5th class cities because they are all served by the Northern Kentucky Water Service District. The Winston Park Water Commission decided not to serve because they are going to be taken over by the Northern Kentucky Water Service District.

Several potential council members did not respond to invitations to participate including: Lally Pipe & Tube, City of Covington, Bromley Water Works, Bullock Pen Water District, Ludlow Water Works, Ross Resorts, Pendleton County Water District, East Pendleton County Water District, and Visalia Elementary School.

Minutes of Planning Council meetings can be found in Appendix A.

#### PLANNING REPRESENTATIVE

The Northern Kentucky Area Development District (NKADD) was selected as the planning representative because of NKADD's past and present work on water supply plans for other counties including: Boone, Carroll, Grant, Pendleton, and Owen. Primary responsible NKADD staff members include Richard Bragg and Heidi Van Keuren.

The Northern Kentucky Water Service District is funding the planning process through a contractual agreement with NKADD since no grant funds were available. No other potential candidates for planning representative were considered.

#### III. NOTIFICATIONS

401 KAR 4:220 subsection 5.3(a) requires extensive notifications regarding the water supply planning process including mayors, county judge-executives, water suppliers in both planning unit counties and adjacent counties as well as 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 Thursday, May 15, 1997 to consider the planning objectives and to obtain the input of citizens. The meeting was advertised in the <u>Kentucky Post</u>. No members of the public attended. The objectives were adopted by the council at the meeting immediately following the hearing.

#### **Planning Objectives**

Planning objectives are as follows:

- 1. Encourage conservation to the maximum extent practical;
- 2. Provide a continuous level of supply under all conditions;
- 3. Compatibility with existing plans or offer recommendations to alter those plans;
- 4. Preservation and use of natural water storage and retention systems, whenever cost and data constraints permit;
- 5. Protection and enhancement of the overall quality of the environment;
- Cost effectiveness;
- 7. Social and political acceptability, and community cohesion; and
- 8. Encourage expansion where feasible.

A copy of the work plan can be found in Appendix C.

#### **Water Supply Planning Conflicts**

No conflicts have been identified.

#### II. Review of Existing Plans

Northern Kentucky's Future: A Comprehensive Plan for Development (1995 Update)

This plan is the five year update of the comprehensive plan for Kenton County, however, the plan does provide some information regarding Campbell County as well. There is a chapter devoted specifically to water supply and waste management which has a great deal of useful information,

particularly regarding infrastructure and planned improvements. There is also information about potential pollutants to the water supply in a section on combined sewer overflows in the area.

In addition, the plan makes recommendations regarding the extension of waterlines. Summarily, infrastructure should precede development to ensure orderly growth and development. Areas recommended for development should have the ability to be provided with economical and adequate water system facilities. Finally, concerns about the extension of water to non-urban service areas are noted. These rural areas rely on on-site waste disposal facilities which may be overloaded by provision of centralized water systems. Therefore, this situation should be monitored closely and it may be necessary to adopt and enforce more stringent subdivision regulations.

#### Licking River Basin Study Summary

The <u>Licking River Basin Study</u> was a reconnaissance level investigation of water resource problems existing in the Licking River Basin of Kentucky, conducted the U.S. Army Corps of Engineers. This study was conducted subsequent to a resolution adopted by the Committee on Environment and Public Works of the U.S. Senate in January of 1987. The study was carried out to predict and help facilitate the resolution of water resource problems in the Licking River Basin area.

This investigation was performed in accordance with various regulations governing environmental and water resource policy. These regulatory documents dictated a two phase project, the first of which, the reconnaissance phase, was federally funded. In this portion of the study, several plans were examined resulting in the selection of a minimal number with which to work. The second phase, the feasibility phase, was equally funded by the federal government and local sponsors. This portion of the project, as opposed to the reconnaissance study, was aimed at the identification of a single recommended plan.

Data were collected from several sources for this study to evaluate current and projected water demand in order to assess the efficiency of current and projected water supplies. If demands on water sources were found to exceed that of their supplies, the time, location, and degree of these deficits would have to be calculated to adequately prepare for such shortages.

The methodology for the <u>Licking River Basin Study</u> involved two components, the first of which was related to predictions of water demand and the second to water supplies. This methodology was applied to two specific flow scenarios, the 7Q10 low flow period, which is the minimum average discharge of seven days for a ten year frequency event, and the 1930 drought of record. Due to the size and nature of the basin, it was divided into fifteen water service areas, defined by certain commonalities regarding water supply. Fourteen of these water service areas were evaluated during this study.

### Licking River Basin Study - Projected Demands Analysis

For the projected water demand, estimates were made using the IWR-MAIN computer model which is maintained by the U.S. Army Corps of Engineers' Institute for Water Resources. This program makes predictions based on various socioeconomic characteristics of a given study area including: 1) population; 2) number, market value, and type of housing units; 3) employment in commercial and manufacturing industries; 4) water and wastewater rates; 5) residential lawn and garden watering; 6) weather conditions; and various other demographic variables.

Data for this portion of the study were collected from various sources such as the U.S. Bureaus of the Census and Economic Analysis, the <u>Kentucky Directory of Manufacturers</u>, <u>County Business Patterns</u>, the Urban Studies Center of the University of Louisville, and materials published by OBERS Bureau of Economic Analysis. After this information was gathered, projections were made for water demands of the fourteen studied segments of the Licking River Basin.

#### Licking River Basin - Projected Supplies Analysis

In assessing current and future water supply conditions, flow rates were calculated at each point of withdrawal for various flow conditions. As with the water demand estimation, the two scenarios that were evaluated for supply projections were the ten year drought using the 7Q10 flow rates and the 1930 drought. The primary points of interest for this portion of the study were those from which water is withdrawn for treatment and subsequent sale or distribution. These points were determined in the demand analysis survey. Data for these areas were collected primarily from reports of the U.S.Geological Survey which has gaging stations across the state of Kentucky. Thus, stream flows were developed for the two conditions at each of the intake facilities.

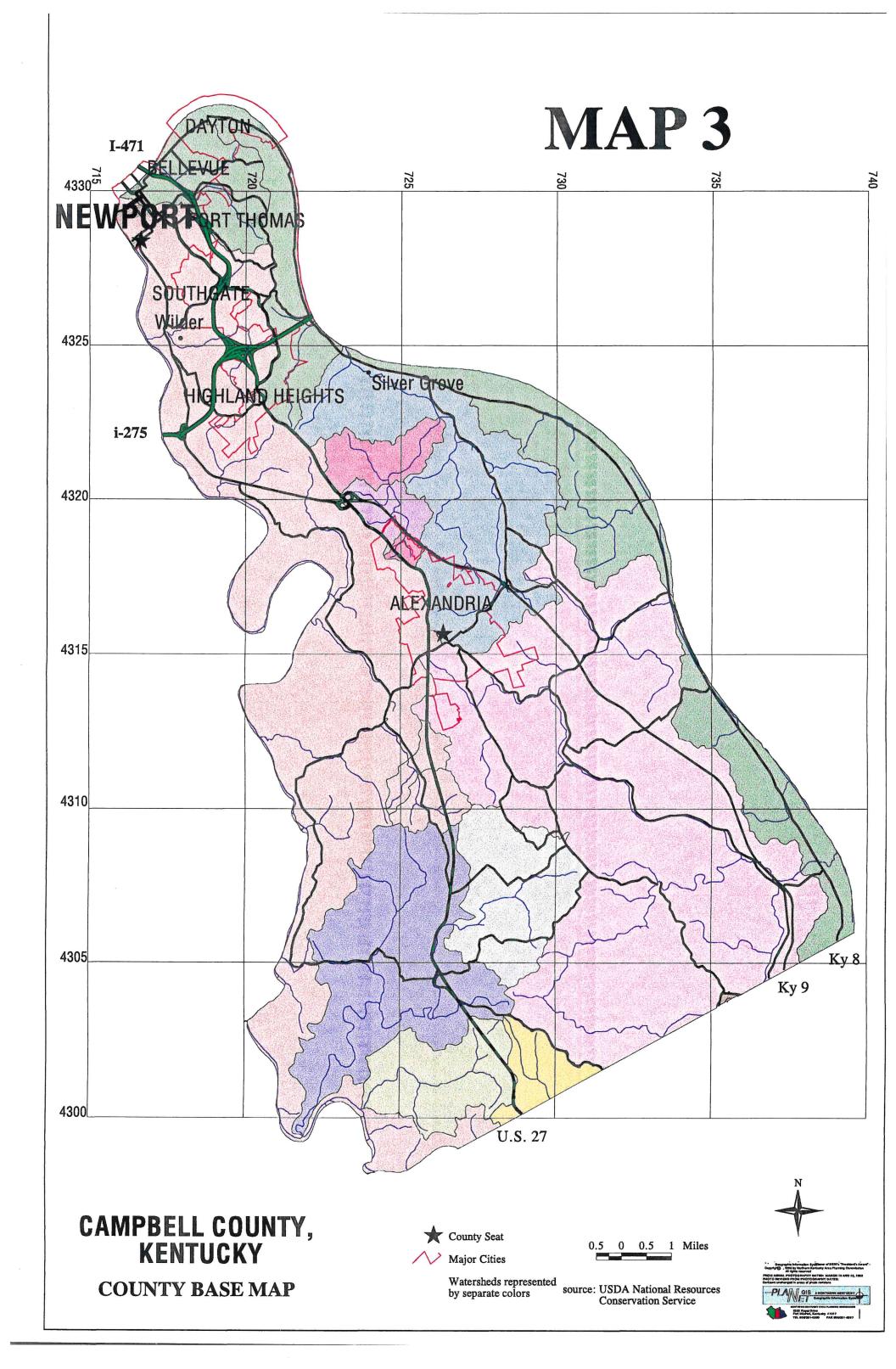
Once flow rates had been determined for each of the intake facilities, the estimated supplies were compared to the projected demands for the corresponding withdrawal points to calculate the magnitude of potential surpluses and/or deficits.

#### **Boone-Kenton Water Service Area**

The study combined these two counties into one service area because the majority of the water-served population was supplied by the Kenton County Water District No. 1 either directly or through wholesale sales to distributors. The study concluded that the water supply source was more than adequate and that any future water supply problems were more likely to be related to treatment capacity or transmission/distribution problems.

#### Campbell Water Service Area

This service area was denoted as the most difficult to forecast future demand accurately in the northern Kentucky region. The primary reason cited was significant gaps in available data from water suppliers and distributors. The study concluded that since the majority of water used in this service area was from the Ohio River, the water supply was adequate for the planning period (1990-2020).



# CHAPTER 5 WATER USE AND WATER USE ASSESSMENT

#### A. Water Use Assessment

The following pages contain an informational profile for Campbell County water suppliers and distributors that completed a water use survey. A copy of the survey can be found in Appendix D.

### Water Supplier

# NORTHERN KENTUCKY WATER SERVICE DISTRICT

Address:

P.O. Box 17010

Covington, KY 41017

Phone:

578-9898

Raw Water Sources: Ohio River and Licking River

#### **Treatment Plants:**

Location:

Ft. Thomas

Taylor Mill

Capacity (mgd):

1936

44

10 1954

Date Built: Condition:

Good

Good

Type Treatment:

Coagulation

Coagulation

Sedimentation

Sedimentation Filtration

Filtration
Cl2 Disinfection

Cl2 Disinfection

## **Treated Water Storage:**

Location	Type	Capacity (mg)
Ft. Thomas Plant	Clearwell	3
Ft. Thomas Plant	Clearwell	3.5
Bromley	Ground Storage	3
Devou Park	Standpipe	.475
Ida Spence	Elevated Tank	.500
Taylor Mill Plant	Clearwell	1
Dudley Pike	Ground Storage	5
Dudley Pike	Ground Storage	5
Kenton Lands Rd.	Elevated Tank	.500
Industrial Park	Hydropillar	.500
Independence	Hydropillar	.500
Barrington Rd.	Hydropillar	1
Devon	Hydropillar	2
Dayton	Ground Storage	.500
Harrison Rd.	Ground Storage	.600
Rossford	Elevated Tank	.300
Lumley	Elevated Tank	.275

Johns Hill Rd.	Elevated Tank	.500
Aqua Drive	Hydropillar	2
Main Street	Elevated Tank	.300
Old. St. Rd #4	Elevated Tank	1
Taylor Mill	Standpipe	.329
Oblique St.	Elevated Tank	.5
Florence Mall	Hydropillar	1
Hebron	Elevated Tank	.5
Frogtown Rd.	Elevated Tank	.5

#### Major Users (1996 Average GPD):

#### **Industrial**

Newport Steel (538,500) Kahn's/Consolidated Foods (363,096) A.O. Smith (207,200) SSE Manufacturing (199,700)

#### **Commercial**

Boone County Water (3,487,400) Florence Water & Sewer Commission (3,128,400) Taylor Mill Water Commission (903,600) Pendleton County Water District (147,860)

#### Institutional

St. Elizabeth Hospitals North + South (409,900) Northern Kentucky University (121,379) Allied Health (58,805) St. Luke Hospital (49,054)

#### Residential

Fath Management (70,800) A & K (63,600) SSK Co. (44,900) Highland Meadows (42,242)

#### Other

Northern Kentucky/Greater Cincinnati Intl. Airport (478,200) Kenton County Golf (131,700) Covington Parks, Pools, etc (56,400)

Leak Detection Measures: Walk cross-country lines during dry weather. Investigate all reports of possible main breaks.

Current Conservation Measures: Pamphlets in lobby. Phone messages while "on hold" and outdoor sign. In the future, it is possible that revised rates will be instituted to discourage excessive use.

Planned Improvements: A 20 mgd treatment plant is planned in the next five years.

Anticipated Growth: Growth is anticipated because area is growing.

#### Water Supplier

#### NEWPORT WATER WORKS

Address:

2055 Memorial Parkway

Ft. Thomas, KY 41075

Phone:

292-3618

Raw Water Source: Ohio River

**Treatment Plant:** 

Location:

2055 Memorial Parkway

Capacity:

12.5 mgd

Date Built:

1962

**Type Treatment:** 

Conventional Dual Media

**Treated Water Storage:** 

Location

**Type** 

Capacity(mg)

Memorial Pkwy

Tank at Grade

3

Grandview

Elevated Tank

1

Leak Detection Methods: Sonic node analyses with computer interface.

Current Conservation Measures: Low rate backwash with air scour by end of September.

Planned Improvements: Ballasted flocculation, air scour filtration, sludge treatment, lagoon rehabilitation, and booster station renovation.

Anticipated Growth: Total number of customers will not increase. However, volume will increase as a result of commercial development and redevelopment.

#### Water Distributor

#### ST. PETER & PAUL ELEMENTARY

Address:

Rt. # 2, Box 135

California, KY 41007

Phone:

635-4382

Contact:

Mark W. Pfefferman

Raw Water Source: Rain water collected in a cistern.

Additional Water Source: Water hauling service.

Water Treatment: As rain water runs off the roof, it passes through wire mesh screens and a settling barrel, then into the cistern. The water is treated with chlorine as it is pumped from the cistern. The water is further filtered through a micropore filter and into a holding tank.

Treated Water Storage: 300 gallon holding tank

Anticipated Growth: The student/staff population will increase from 123 (1996-1997 school year) to 137 (1997-1998). In addition, a gym/multi-purpose building will be added. The building, in addition to serving as a gym, will be used for wedding receptions and other social functions.

#### Water Distributor

#### TRAUTH DAIRY

Address: 16 East 11th Street

P.O. Box 1770 Newport, KY 41071

Phone:

(606)431-7553

Contact:

Steve Trauth

Treated Water Source: City of Newport

Comments: Water purchased from Newport is distilled and bottled. Spring water is obtained from springs located in Indiana.

#### Water Supplier

#### ST. ANNE CONVENT

Address:

1000 St. Anne Drive

Melbourne, KY 41059-9601

Phone:

(606)781-0610

Contact:

Kirt Fillhardt

Raw Water Source: Groundwater

#### **Permitted Withdrawal Limits:**

20,000 gpd - January

22,000 gpd - February, March, April, May

23,000 gpd - August

24,000 gpd - June, October, December

26,000 gpd - November

28,000 gpd - September

32,000 gpd - July

#### **Treatment Plant:**

Location:

Rt. 8, Mary Ingles Highway

Capacity:

21,700 gpd

Date Built:

1918, repaired in 1955

Type Treatment:

Sodium Hypochlorite

Treated Water Storage: 2 elevated tanks, each with a capacity of 20,000 gallons.

Leak Detection Methods: Water meter and checking for leaks if the pump is running constantly.

Current Conservation Measures: Converting water coolant refrigerators and freezers to air coolant. Replacing obsolete plumbing fixtures with new low-flow models.

Planned Improvements: None other than routine maintenance.

# Water Supplier

### **GREEN VALLEY TRAILER PARK**

Address: 289 Four Mile Pike

Melbourne, KY 41059

**Phone:** (606)781-5030

Contact: Kirt Fillhardt

Raw Water Source: Groundwater

No additional information was provided.

#### Water Distributor

#### PENDLETON COUNTY WATER DISTRICT

Address: P.O. Box 232

Falmouth, KY 41040

**Phone:** (606)654-6964

Contact: Alan Schafer

Number of Campbell County Customers: 399

#### **Treated Water Sources:**

Northern Kentucky Water Service District - Unlimited City of Falmouth - 5 mg monthly limit

#### **Treated Water Storage:**

Location	<u>Type</u>	Capacity
US 27 & KY17	Elevated Tank	150,000 gallons
Hogg Ridge Rd.	Standpipe	106,000 gallons
Boston	Standpipe	60,000 gallons
Butler	Standpipe	60,000 gallons

Leak Detection Methods: Monitoring master meter readings, valve down lines, and walk lines.

**Planned Improvements:** Loop 6" main on KY 1054 which will create two feeds from storage tanks. Possibly adding a new storage tank in the Butler/US 27 area. Looking into an interconnection with the City of Williamstown for emergency purposes.

Anticipated Growth: The northern portion of the county is continually growing. Also, the flood in Falmouth has caused some relocation to this service area.

#### Water Distributor

### EAST PENDLETON COUNTY WATER DISTRICT

Address: P.O. Box 29

Falmouth, KY 41040

Phone:

(606)654-2100

Contact:

Roscoe Antrobus

Treated Water Source: City of Falmouth

Treated Water Storage:

LocationTypeCapacityHighway 22Elevated Tank100,000 gallonsHightowerElevated Tank100,000 gallonsMt. AuburnElevated Tank150,000 gallonsPeach GroveElevated Tank100,000 gallons

**Number of Campbell County Customers: 88** 

Leak Detection Methods: Daily master meter readings and walking main lines.

Planned Improvements: Add 25 miles of lines and increase customers by 188

Anticipated Growth: Growth is anticipated. The Flood of 1997 has increased the customer base as people relocate.

#### Other Public Water Systems

There are several other public water systems in the county; however, little information is available. The majority are semi-public water systems which are not considered as suppliers or distributors under the water supply planning regulations.

#### Grove Trailer Court (Semi-Public)

2109 Anderson Lane Melbourne, KY 41059 Population Served: 12

#### Wren Road Campsites (Semi-Public)

59 Woodland Ft. Thomas, KY 41075 Population Served: 24

#### Nienaber Property Public Water (Semi-Public)

Box 86B Melbourne, KY 41059 Population Served: 9

#### The Roost Mobile Home Park (Semi-Public)

P.O. Box 75 Melbourne, KY 41059 Population Served: 23

#### H and H Farms (Semi-Public)

37 Covert Place Ft. Thomas, KY 41075 Population Served: 15

#### Tiemeier Fishing Lakes (Semi-Public)

P.O. Box 19 Silver Grove, KY 41085 Population Served: 24

#### **Ross Resorts**

2047 Alexandria Pike Highland Heights, KY 41076 Population Served: 89

#### **Doyle Club and Camp**

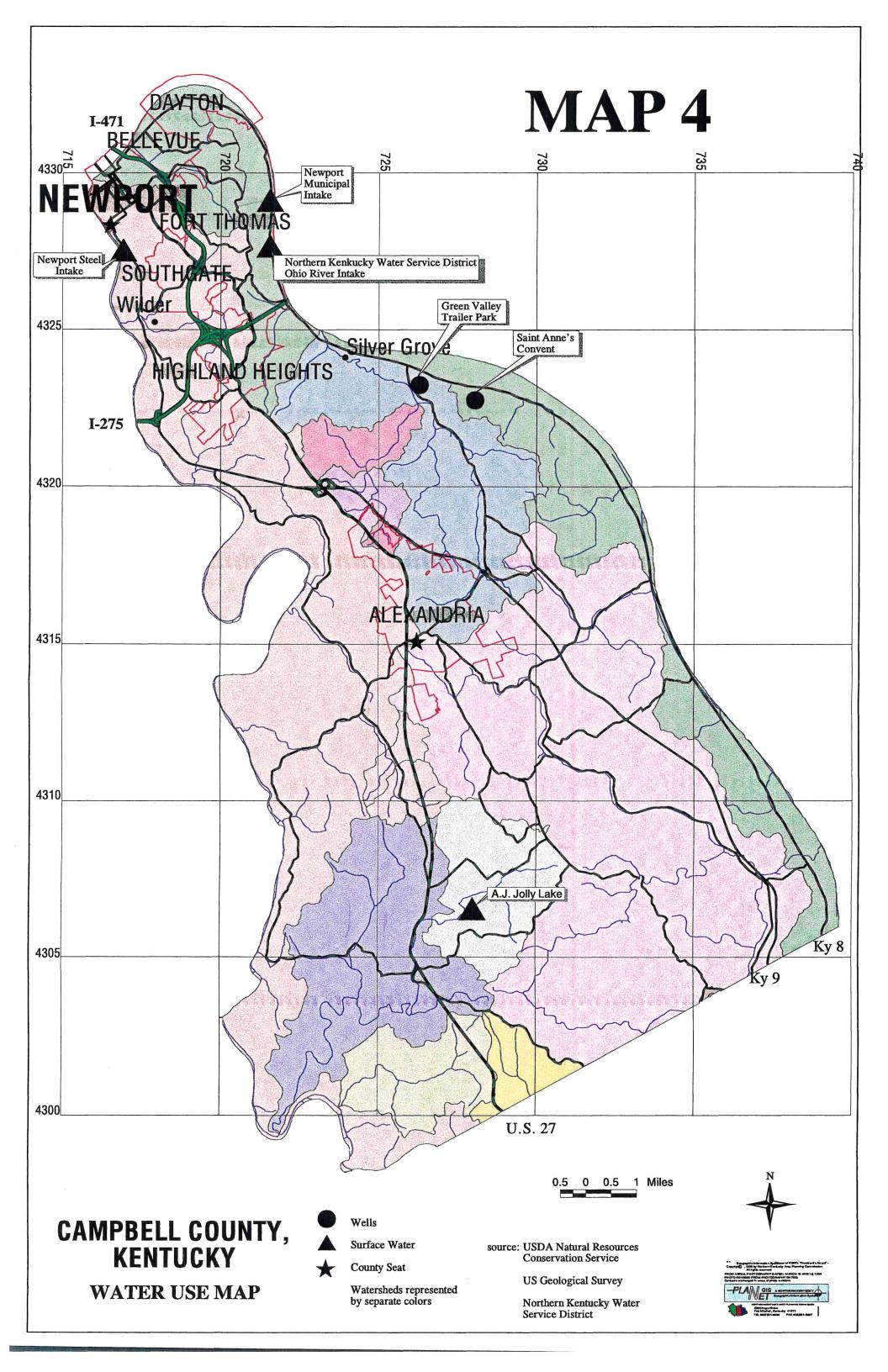
239 Linden Ave. Southgate, KY 40171 Population Served: 52

#### Permitted Withdrawals

In addition to public water suppliers, a water withdrawal permit is required for any user who withdraws more than 10,000 gallons per day. In Campbell County, there are several permitted users including the Campbell County Fiscal Court and Newport Steel. The Fiscal Court withdraws water from A.J. Jolly Lake to water the golf course from May through October with average daily withdrawals ranging from 9,000 gpd to 124,000 gpd. The permitted withdrawal limit varies by month with a low of 80,000 gpd and a maximum of 165,000 gpd. Newport Steel withdraws water from the Licking River for industrial processes. Their permit limit is 3 mg and average usage is 633,000 gpd. Map 4 shows water withdrawal sites in Campbell County.

#### Agricultural Water Use

Agricultural users who withdraw water are exempt from the permit requirement. However, it is very difficult to quantify their water use. According to the 1992 <u>Census of Agriculture</u>, Campbell County has 533 farms with 43,477 total acres in farm land. Only 87 acres, or .2 percent of the land is irrigated.



#### B. Water Use Forecast

The water supply forecasting model, IWR-MAIN, discussed previously in the review of existing plans, was used to forecast future demand for the two largest water suppliers, Newport Water Works and the Northern Kentucky Water Service District. Projections are intended to serve as a planning tool, not as an absolute measure of future demand.

#### **NEWPORT WATER WORKS**

Newport Water Works serves the Cities of Newport, Ft. Thomas, Southgate, Woodlawn, and part of Wilder. Newport also sells water to the Northern Kentucky Water Service District. The raw water source is the Ohio River.

#### **Assumptions Used in the Modeling Process**

A number of assumptions were used in the modeling process.

- 1. There are several variables that will influence the future demand for water that are impossible to predict. Currently, there is a proposal to run a pipeline under the Ohio River to connect Northern Kentucky with the City of Cincinnati. Cincinnati has a lot of excess capacity and could provide water at an attractive rate. If this scenario should occur, Newport's water sales will remain relatively flat. However, assuming the connection with Cincinnati does not occur, Newport can easily (and relatively cheaply) expand its treatment capacity which may allow the city to increase water sales considerably. Therefore, for planning purposes, it is assumed that treatment plant capacity will be expanded and the demand for water will be maximized.
- 2. Newport is an older city with very little land available for development. Therefore, increased demand for water will probably result primarily from commercial redevelopment and wholesale water sales.
- 3. As a result of the computerization of the Water Works information base and the isolation of the water utility from the billing process (which is handled by the Finance Department), virtually no historical information about water use by sector is available. Therefore, while projections of the total demand for water are believed to be reasonably accurate, sectoral projections are "guesstimates".
- 4. Water losses and public/unaccounted for water will decrease as result of main replacements throughout the planning period.

#### **Data Sources**

The following data sources were used for the IWR-MAIN model.

- 1. 1990 Census of Population and Housing.
- Unemployment insurance data was used to estimate employment by sector for the county and then extrapolated for the City of Newport.

3. Manufacturing data was compiled from the <u>Kentucky Directory of Manufacturers</u>. Surveys completed by the water suppliers and distributors were used for calibration of the model and to verify accuracy. A copy of the survey can be found in Appendix D.

#### **Verification of Estimates and Conclusions**

With so little data available from the utility, it is difficult to verify the accuracy of the projections. After comparing projections of total demand with the actual demand of 1990 and 1995, the model appears to be fairly accurate; however, it may be overstating demand somewhat in the future. Figure 5.1 shows two demand scenarios. Scenario 1 assumes that the treatment plant will be expanded in 2010 to meet an increased wholesale demand. For planning purposes, it is important to consider the maximum average daily demand that may reasonably occur. However, Scenario 2 shows the relatively flat demand that is possible if the region's water needs are served through other means, such as an interconnection with Cincinnati.

Figures 5.2 through 5.8 show the projected demand by sector for the planning period. Again, the utility was unable to provide disaggregated demand data and therefore, it is impossible to verify the accuracy of the projections.

Figure 5.1

Newport Water Works: Actual Vs. Projected Water Use

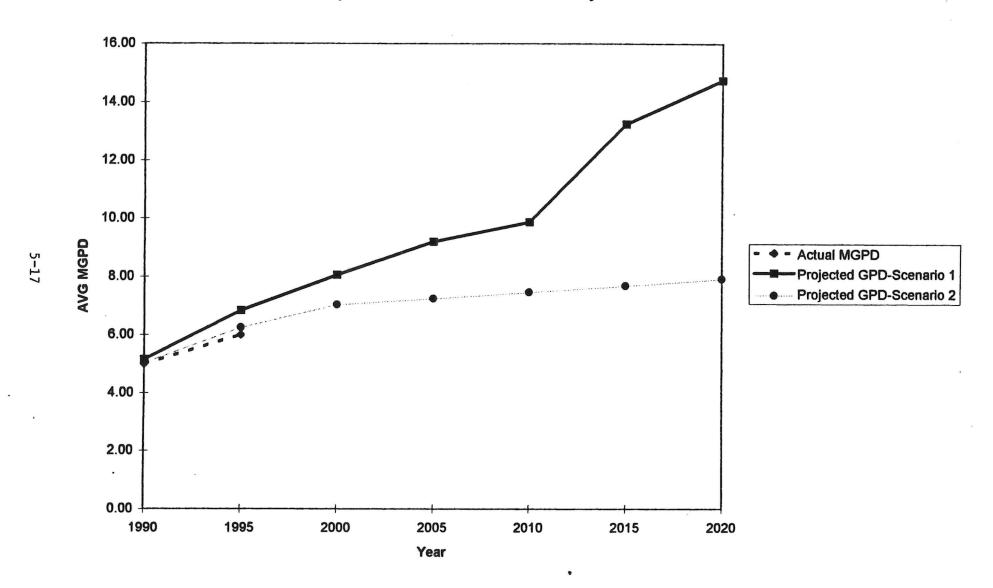


Figure 5.2

Newport Water Works: 1990 Projected Water Use

■ Residential

Industrial

☐ Commercial/Instit.

■ Public/Unaccounted

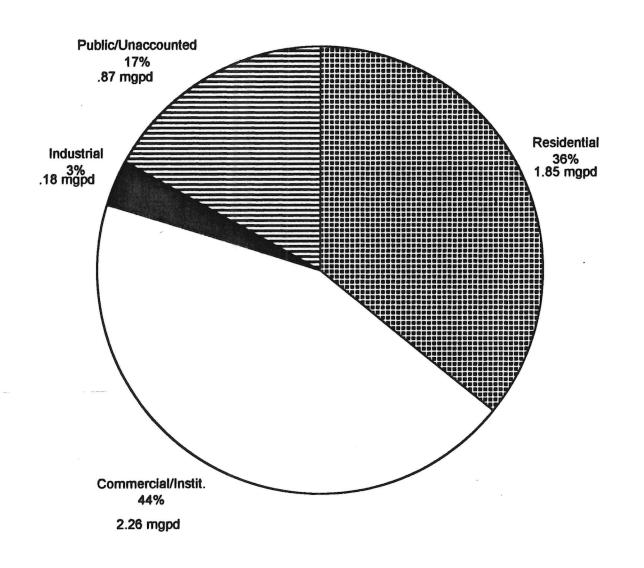
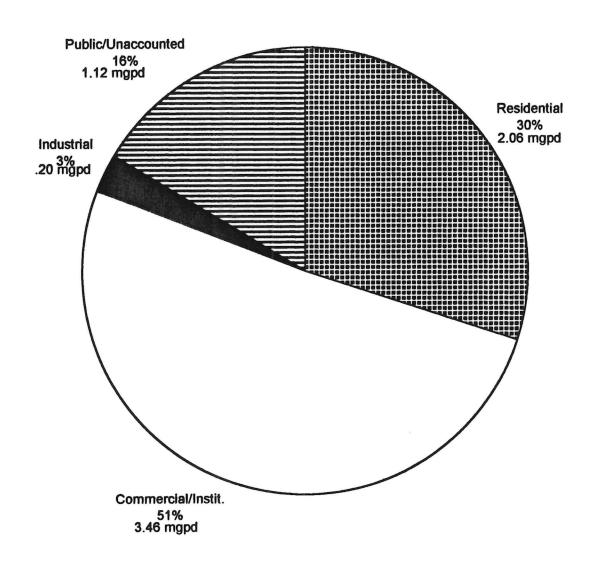


Figure 5.3

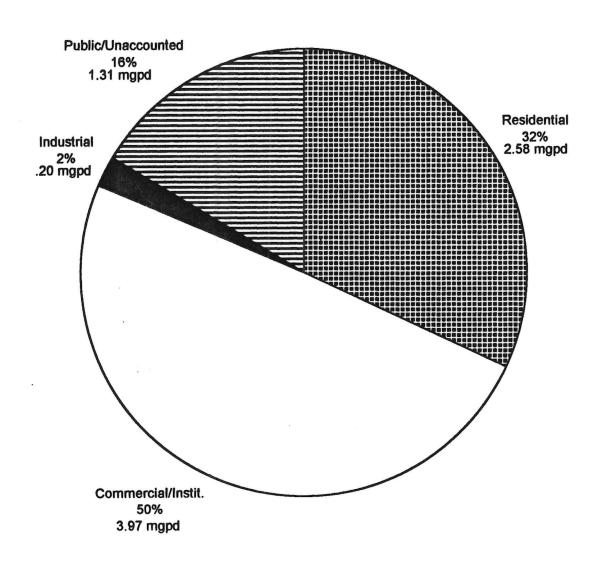
Newport Water Works: 1995 Projected Water Use



■ Residential
□ Commercial/Instit.
■ Industrial
□ Public/Unaccounted

Figure 5.4

Newport Water Works: 2000 Projected Water Use



■ Residential□ Commercial/Instit.■ Industrial

■ Public/Unaccounted

Figure 5.5

Newport Water Works: 2005 Projected Water Use

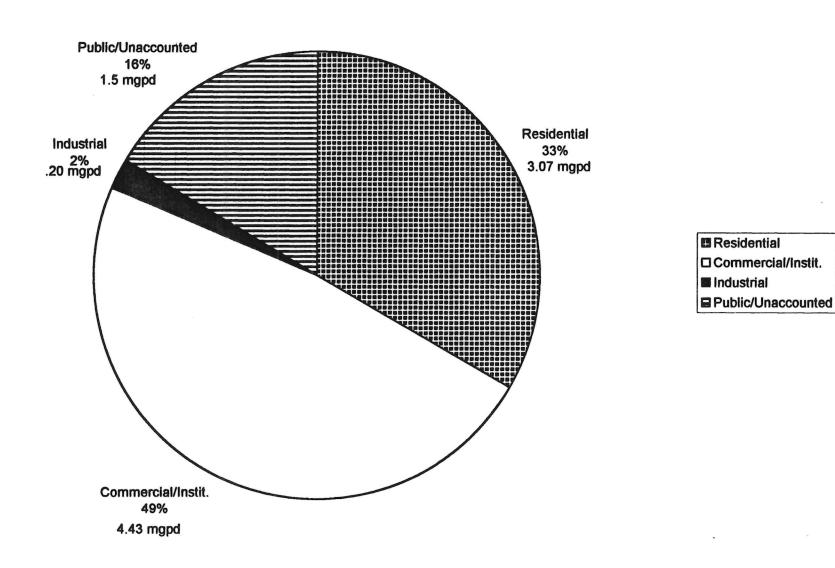
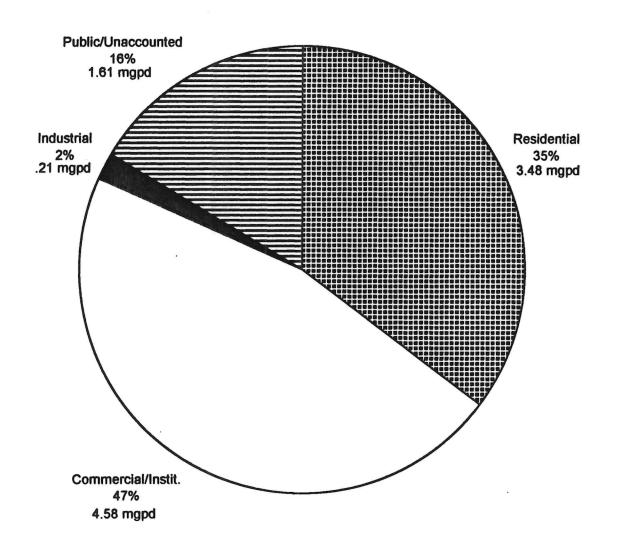


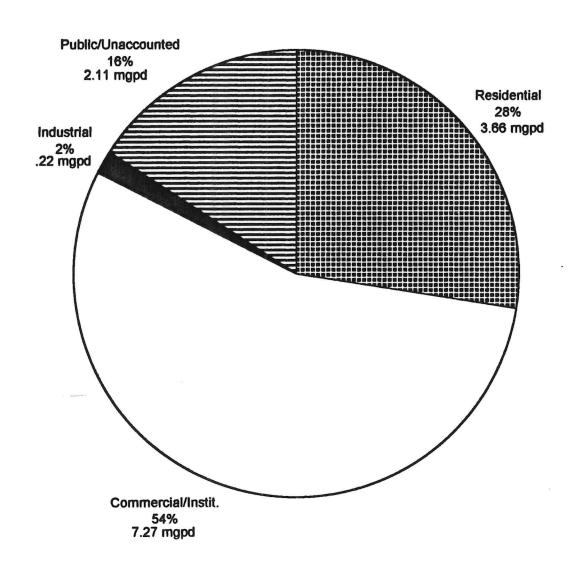
Figure 5.6

Newport Water Works: 2010 Projected Water Use



- Residential
  □ Commercial/Instit.
   Industrial
- Public/Unaccounted

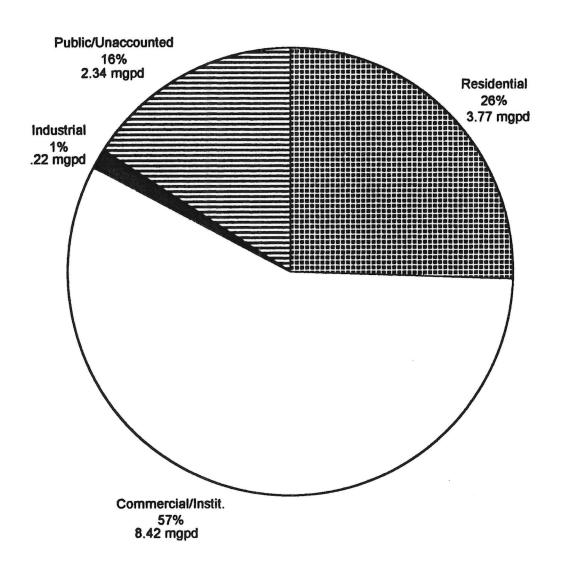
Figure 5.7
Newport Water Works: 2015 Projected Water Use



- Residential
  □ Commercial/Instit.
   Industrial
- Public/Unaccounted

Figure 5.8

Newport Water Works: 2020 Projected Water Use



- Residential
- ☐ Commercial/Instit.
- Industrial
- Public/Unaccounted

#### NORTHERN KENTUCKY WATER SERVICE DISTRICT

The Northern Kentucky Water Service District supplies almost all of the water-served areas in Boone, Campbell, and Kenton Counties (with the exception of the Cities of Newport, Ft. Thomas, Southgate, Woodlawn, and part of Wilder), either directly or through wholesale sales. Raw water sources include the Ohio and Licking Rivers.

#### Assumptions Used in the Modeling Process

- 1. The demand projections prepared by the Water District's consulting engineering firm were given considerable weight in the verification and calibration of the model.
- 2. Wholesale demand will continue to increase throughout the planning period.

#### **Data Sources**

- 1. 1990 <u>Census of Population and Housing</u>.
- 2. Unemployment insurance data was used to estimate employment by sector for the planning unit.
- 3. Manufacturing data was compiled from the Kentucky Directory of Manufacturers.
- 4. The high-growth series of population projections from <u>How Many Kentuckians: 1995</u> <u>Edition</u> was utilized.

#### **Verification of Estimates and Conclusions**

Figure 5.9 compares actual water use, IWR-MAIN projected water use, and water district projections. In 1990, IWR-MAIN projections and actual water use were quite close with actual use exceeding projected use by only .7 percent. In 1995, actual use was 7.2 percent higher than projected use. IWR-MAIN projected use and water district projections are quite close through 2010. Therefore, no further calibrations were made.

Figures 5.10 through 5.18 show projected demand by sector. In 1990, projected industrial use was considerably lower than actual use; however, since 1995 projected industrial use was fairly accurate, no calibrations were made. Overall, the projections are considered to be fairly accurate, particularly for total demand.

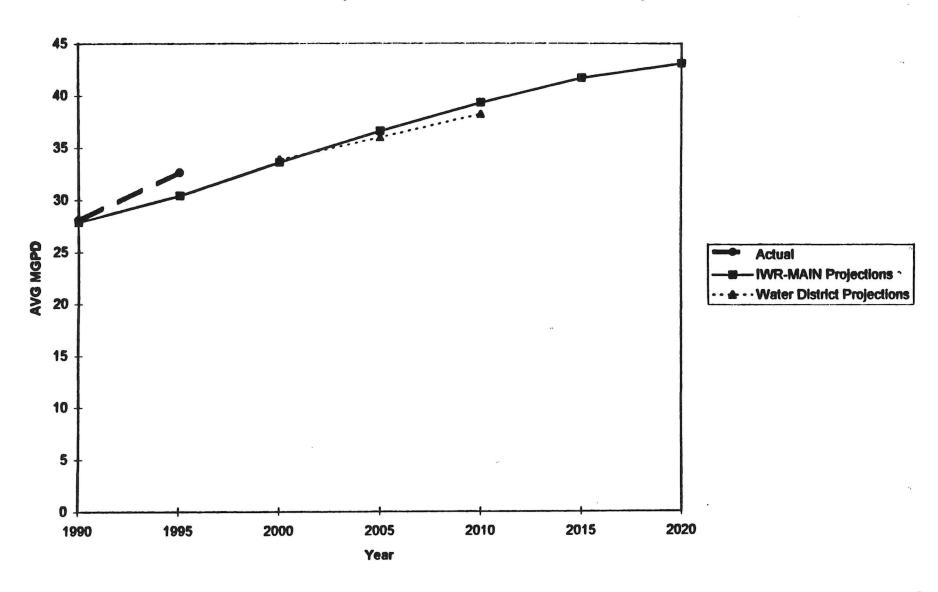


Figure 5.10

Northern Kentucky Water Service District: 1990 Actual Use (Avg Mgpd)

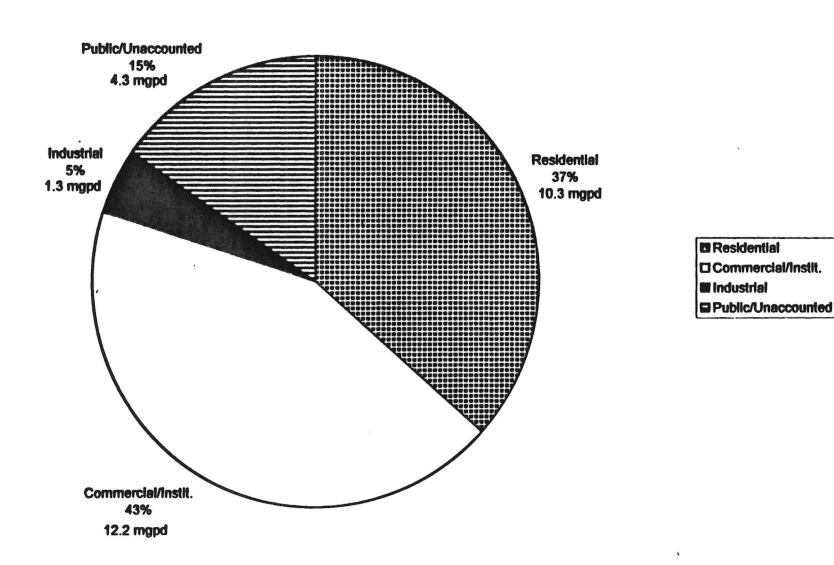


Figure 5.11

Northern Kentucky Water Service District: 1990 Projected Use (Avg Mgpd)

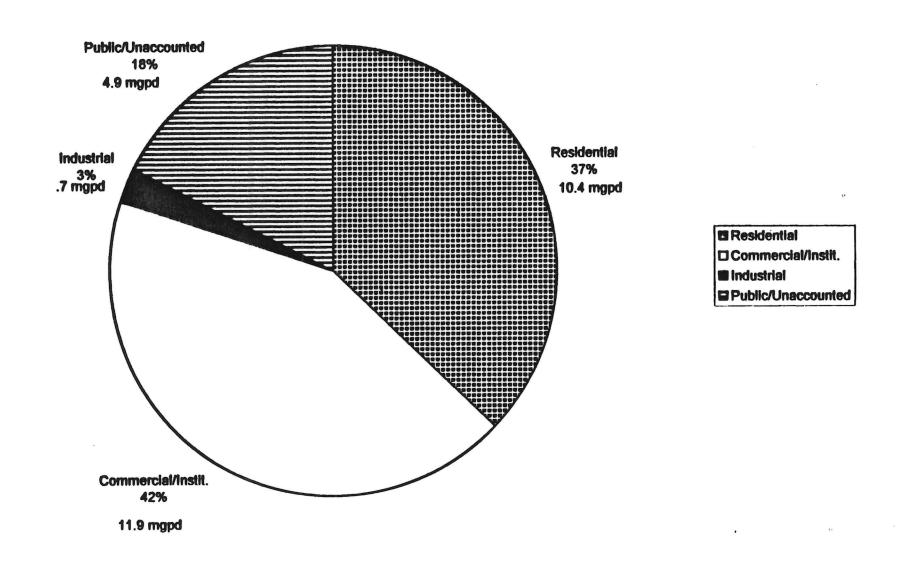


Figure 5.12
Northern Kentucky Water Service District: 1995 Actual Use (Avg Mgpd)

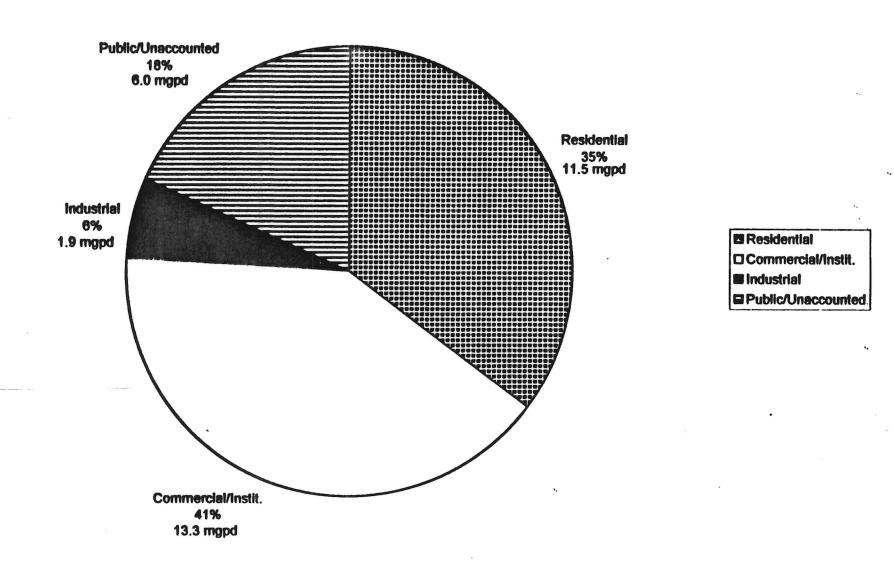


Figure 5.13
Northern Kentucky Water Service District: 1995 Projected Use (Avg Mgpd)

Residential

Industrial

☐ Commercial/Instit.

☐ Public/Unaccounted

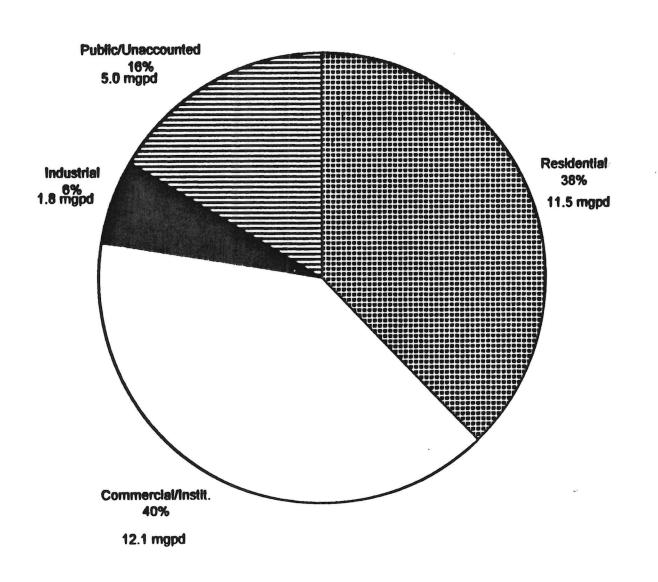


Figure 5.14
Northern Kentucky Water Service District: 2000 Projected Use (Avg Mgpd)

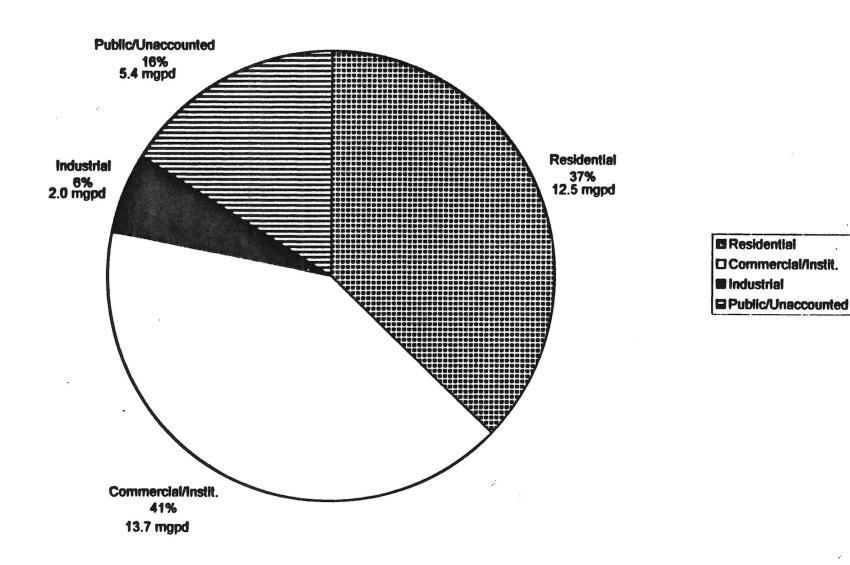


Figure 5.15
Northern Kentucky Water Service District: 2005 Projected Use (Avg Mgpd)

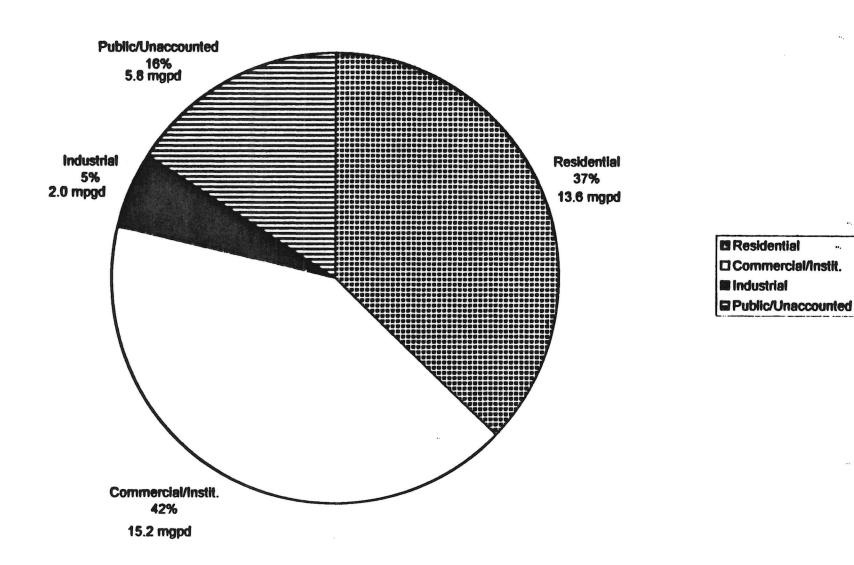


Figure 5.16

Northern Kentucky Water Service District: 2010 Projected Use (Avg Mgpd)

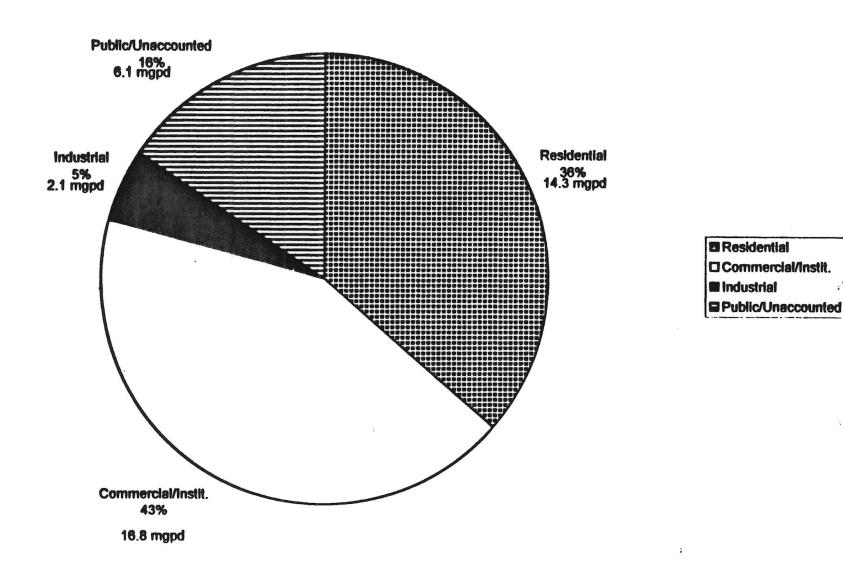


Figure 5.17

Northern Kentucky Water Service District: 2015 Projected Use (Avg Mgpd)

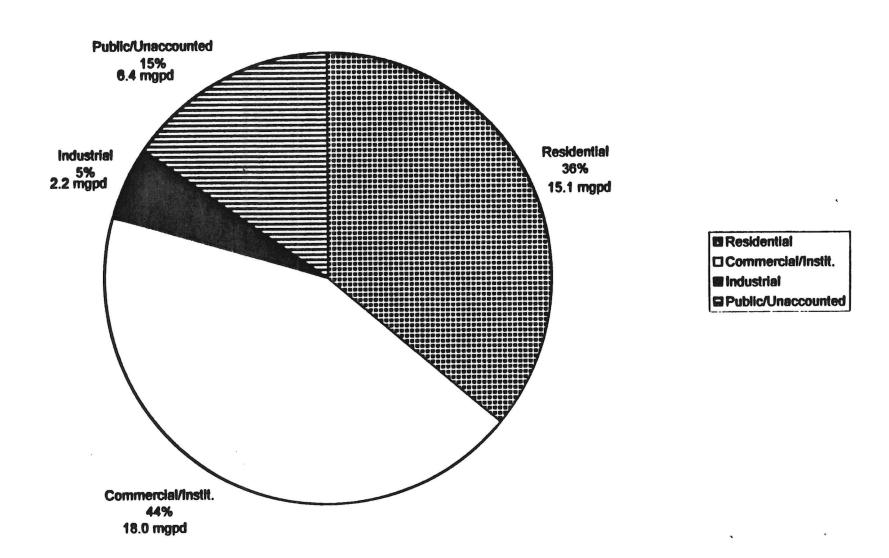
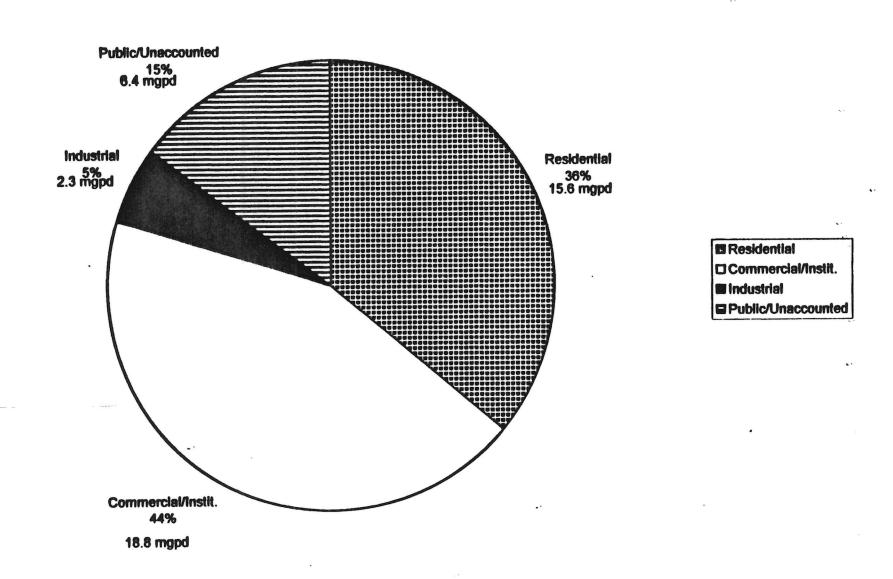


Figure 5.18

Northern Kentucky Water Service District: 2020 Projected Use (Avg Mgpd)



#### C. Infrastructure Assessment

This section provides a general assessment of the infrastructure capacity of the water suppliers and distributors in Campbell County. Map 5 shows the areas currently served by the major suppliers and distributors. Please note that there may be some roads within the service areas that may not be water-served.

#### Northern Kentucky Water Service District

The Northern Kentucky Water Service District currently has two treatment plants. The Ft. Thomas plant, constructed in 1936, has a capacity of 44 mgd. It is in good condition and treatment processes include: coagulation, sedimentation, filtration, and chlorine disinfection. The Taylor Mill plant, constructed in 1954, is in good condition and has a capacity of 10 mgd. Treatment processes include coagulation, sedimentation, filtration, and chlorine disinfection. Figure 5.19 shows that treatment capacity is adequate through the planning period. A new 20 mgd treatment plant, in western Boone County, is currently under consideration.

A new water intake on the Ohio River, adjacent to the existing intake, began operation in November 1997. Both intakes will operate initially; however, the old intake will be phased out. There are no problems with either elevation of the intake or pump capacity.

The storage capacity is 34.3 mg at locations noted previously. The storage system is in good condition. The Water District has approximately 800 miles of lines which are considered to be in satisfactory condition. Some of the very old water mains in the system occasionally cause discolored water. In rural southern Campbell and Kenton Counties, there are some small diameter lines. The Water District has \$500,000 budgeted annually for main replacement, but would be able to spend at least \$2 million per year, if funds were available. A hydraulic study will be conducted this year to determine which lines need to be replaced.

Water losses are estimated at 15 percent. Leak detection methods include walking cross-country lines during dry weather and investigating all reports of possible main breaks. The system is metered.

#### Newport Water Works

The Newport treatment plant, constructed in 1962, has a DOW- rated capacity of 10.5 mgd. Treatment processes consist of conventional dual media. The clarification portion of the plant is scheduled for a comprehensive modernization, estimated to cost \$1.5 million, scheduled for completion by mid-summer of 1998. As a result of improvements, the plant clarification potential will be 15.75 mgd; however, the lagoon pumping station will require expansion to provide 15.74 mgd of pre-settled water to clarification. Figure 5.20 compares current and expanded treatment capacity to projected demand. As mentioned previously, planned treatment plant improvements, including expansion of the lagoon pumping station, will allow treatment capacity to be expanded to 15.75 mgd, if necessary. Existing treatment capacity is adequate for Demand Scenario 2. If

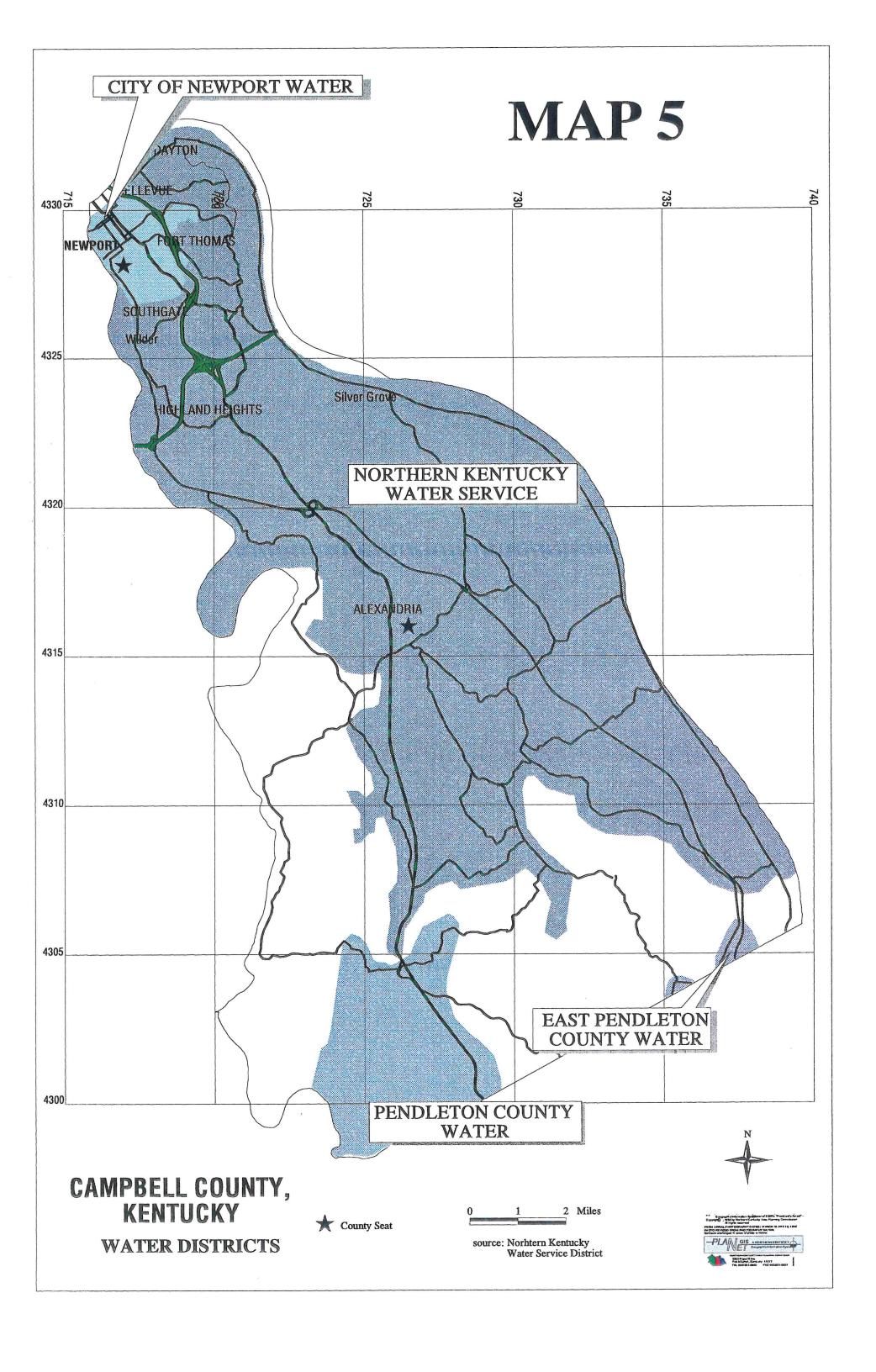


Figure 5.19

Northern Kentucky Water Service District: Projected Demand Vs. Treatment Capacity

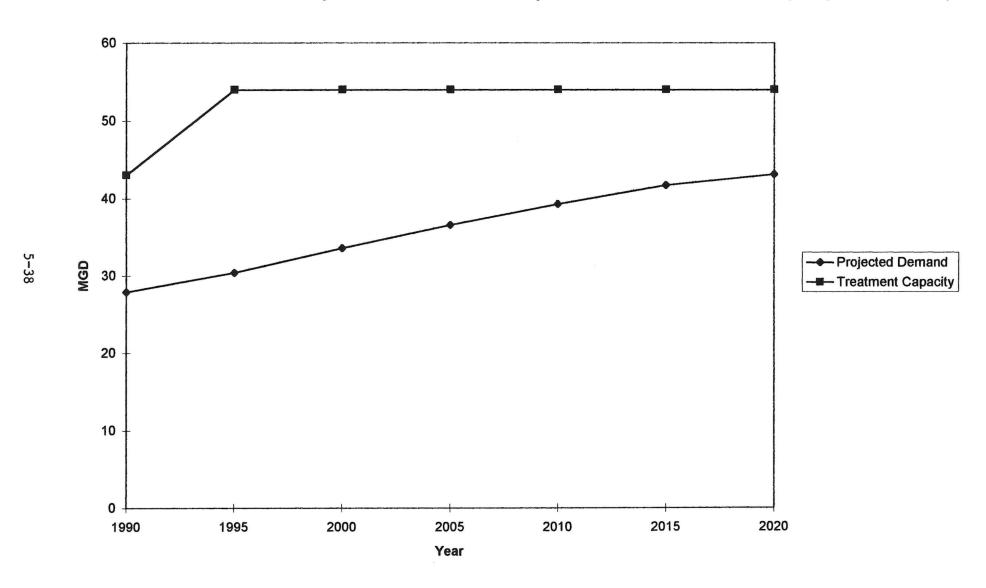
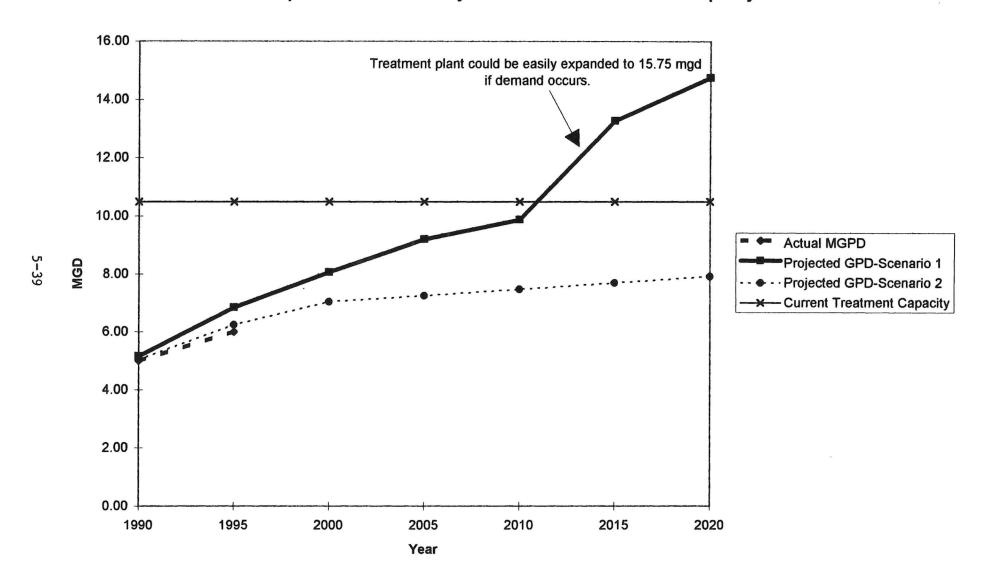


Figure 5.20

Newport Water Works: Projected Demand Vs. Treatment Capacity



Demand Scenario 1 occurs, all necessary improvements to the treatment plant will need to be made.

Storage capacity is 4 mg at locations noted previously. The storage system is in good condition and both tanks are scheduled for cleaning and rehabilitation in 1997. The system has approximately 50 miles of water lines. Many of the lines are close to 100 years old and are cast iron. They are being replaced with ductile iron or plastic as necessary. A main replacement program, with an annual budget of \$250,000, is currently being implemented in Newport's redevelopment area along the riverfront. Water losses are estimated at 17 percent. Leak detection methods include sonic node analyses with a computer interface.

There are a number of planned improvements. A \$1.5 million sludge treatment facility will be operational in early 1998. This will free-up a lagoon for raw water storage to be used in case of a spill on the Ohio River. The Newport booster station is being renovated with the addition of new pumps, valves, and surge anticipation to prevent water hammer. Water hammer is a contributing factor to main breaks in the old cast iron lines. Three new filters will be added to the air scour filtration system for an increased capacity of 10 mg. This will improve water quality. Finally, the vertical turbine at the river intake is being replaced which will maximize energy efficiency and allow Newport to keep water rates affordable.

#### **Pendleton County Water District**

The Pendleton County Water District (PCWD), established in the early 1960s, serves approximately 1,400 customers in western and northern Pendleton County and southern Campbell County. PCWD purchases water from the Northern Kentucky Water Service District through a 6" connection on US 27. The monthly amount is unlimited and currently accounts for approximately 60 percent of the PCWD's supply. The other 40 percent is purchased from the City of Falmouth. The current contract with Falmouth limits water sales to 5 mg monthly.

PCWD has 376,000 gallons of storage in locations noted previously. The US 27 & KY 17 tank was repaired and repainted in September of 1997. The storage system is in good condition.

The system has approximately 63 miles of water lines and lines are in good condition. In 1996, water losses were estimated at 7 percent. Leak detection methods include monitoring master meters, valving down lines, and walking lines. A project completed this fall extended an 8" ductile iron main from the Boston area of Pendleton County to an existing 6" main at the Licking River near Butler. The new 8" main replaced old, smaller water lines and provided more consistent pressure and increased flows to customers in the northern portion of the service area. Another planned improvement includes looping a 6" main on KY 1054 which will create two feeds from storage tanks. The District is also working with the City of Williamstown on an interconnection for emergency purposes.

The Pendleton County Water District and the City of Butler are in the process of applying for funding from the Economic Development Administration and HUD for an interconnection with the Northern Kentucky Water Service District. The proposed project calls for the installation of a

master meter at the Pendleton/Kenton County line, the extension of a 12" main along KY 17, KY 467 and KY 177 to the Butler storage tank and then along Meridian Road to the PCWD 8" ductile iron main on US 27. Also included in the project are a 200,000 gallon storage tank, radio telemetry upgrades, and the installation of a master meter vault and controls at the Butler tank. This project would ensure an adequate and dependable water supply for the Pendleton County Water District and the City of Butler.

#### East Pendleton County Water District

The East Pendleton County Water District, serving approximately 1,100 customers in Pendleton and southern Campbell Counties, purchases water from the City of Falmouth. The utility has 450,000 gallons of storage in locations noted previously. The storage system is relatively new with two tanks constructed in 1989 and two in 1994.

East Pendleton has approximately 88 miles of water lines. The lines are in good condition. 1996 water losses were estimated at 11 percent. Leak detection methods include daily master meter readings and walking main lines. Planned improvements include adding 25 miles of water lines to serve an additional 188 customers.

#### St. Peter & Paul Elementary

The school has a cistern to collect rainwater. As rainwater runs off the roof, it passes through wire mesh screens and a settling barrel, then into the cistern. The water is treated with chlorine as it is pumped from the cistern. The water is further filtered through a micropore filter and into a 300 gallon holding tank. The school also purchases water from a water hauler to meet demand.

#### St. Anne Convent

The water treatment plant, constructed in 1918 and repaired in 1955, has a capacity of 21,700 gpd. Groundwater is treated with sodium hypochlorite. Total storage capacity is 40,000 gallons in two elevated tanks. Leak detection methods include monitoring the water meter and checking for leaks if the pump is running constantly.

#### **Green Valley Trailer Park**

No information was provided.

# CHAPTER 6 WATER SUPPLIER SOURCE ASSESSMENT

#### I. INTRODUCTION

The two major water suppliers in the county, Newport Water Works and the Northern Kentucky Water Service District, rely on Ohio River as their primary water source. The Northern Kentucky Water Service District also has an intake on the Licking River in Kenton County. The small water suppliers, Green Valley Trailer Park and St. Anne Convent, use groundwater. This chapter is an assessment of the amount of water available to each supplier under normal and drought conditions.

#### II. GEOLOGIC AND SOIL CONDITIONS

#### Geology

Land forms in Campbell County can be divided into four major groups. Glacial outwash terraces are found in those areas immediately adjacent to the Ohio River and consist of deposits of silt, sand, and gravel that accumulated from melt waters off the glacial ice. The Licking and Ohio Rivers flow through alluviated valleys which are filled with consolidated silt, sand, and gravel that were deposited by these streams. The northern portion of the County is characterized by limestone plateaus. The plateaus are upland areas with relatively flat slopes and steep side slopes whose rock formations have resisted weathering and erosion. Shale uplands are found in the southern portion of the County.

#### Soils

There are five major soil associations in Campbell County: Eden-Cynthiana, Faywood-Nicholson, Licking-Captina, Wheeling-Huntington-Alluvial, and Rossmoyne-Jessup. A generalized soils map can be found in Appendix E.

Approximately 61 percent of Campbell County soils are Eden-Cynthiana. This association occupies steep, highly dissected, hilly areas in the southern part of the county and very steep hillsides bordering the Ohio and Licking Rivers. These are dominantly steep to very steep soils with a clayey subsoil.

The other dominant soil association in the County is Faywood-Nicholson, comprising 18 percent of the soils. These soils are found mostly in large rolling areas in the central part of the County. Faywood-Nicholson soils are dominantly gently sloping to moderately steep soils that have a loamy to clayey subsoil. They are found on ridgetops and side slopes of the limestone and shale uplands.

Licking-Captina soils comprise 11 percent of the County's soils. These soils are dominantly gently sloping to moderately steep soils with a clayey to loamy subsoil. Licking-Captina soils are

found on bottom areas along the Licking River. Also, there is a large area of these soils in central Campbell County that appears to be an old lakebed, because the area is surrounded by hills that are higher in elevation.

Wheeling-Huntington soils comprise 6 percent of the County's soils and are characterized by dominantly, nearly level and gently sloping soils with a loamy subsoil. These soils are found on bottom areas along the Ohio River including the Cities of Newport, Bellevue, and Dayton.

The remaining 4 percent of the soils are Rossmoyne-Jessup. These soils are nearly level to moderately steep soils that have a loamy to clayey subsoil. In Campbell County, this soil is found on hilltops near the Ohio River.

#### **Hydric Soils**

Hydric soils are defined as those soils which are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper layer. Hydric soils may be an indication of wetlands. A wetland, under the current definition, will include hydric soils, hydrophytic vegetation, and wetlands hydrology. In Campbell County, there are approximately 190 acres (.2% of total soils) of Robertsville silt loam, a hydric soil. This soil is found primarily along the Ohio River. There are also 1,140 acres of Newark silt loam which may contain small areas of hydric soil.

#### III. SOURCE ASSESSMENT

#### Northern Kentucky Water Service District

The Water District's sources are the Ohio River and the mainstem of the Licking River. The permitted withdrawal at the Ohio River intake is 37.0 mgd. 1996 withdrawals averaged 23.4 mgd and withdrawals are expected to increase to 33.6 mgd by 2020.

The 7Q10 flow (the seven day, ten year low flow value) is 11,000 cfs. To meet minimum adequacy standards, withdrawals cannot exceed more than 85 percent of the available water under normal conditions. The following calculations assess the adequacy of the source for current and projected demand.

7Q10 at Ohio River Intake = 11,000 cfs
1 cubic foot = 7.4805195 gallons
7Q10 = 82,286 gallons per second
7Q10 = 7,109,510,400 gallons per day
Average 1996 Withdrawal = 23,400,000 gallons per day
Rate of Use = 23,400,000 gallons
7,109,510,400 gallons
Rate of Use = 3%

```
Projected 2020 Demand = 33,600,000 gallons per day
Rate of Use = 33,600,000 gallons
7,109,510,400 gallons
Rate of Use = .5%
```

Reviewing these calculations, it is obvious that the Ohio River is an adequate source.

The 7Q10 flow at the Licking River intake is 70 cfs or 524 gallons per second. Converting gallons per second to gallons per day, the 7Q10 flow is 45,273,600 gallons. The following calculations assess the adequacy of the source for current and projected demand.

```
7Q10 = 45,273,600 gallons per day
Average 1996 Withdrawal = 6,700,000 gallons per day
Rate of Use = 6,700,000 gallons
45,273,600 gallons
Rate of Use = 14.8%
Projected 2020 Demand = 9,500,000 gallons
Rate of Use = 9,500,000 gallons
45,273,600 gallons
Rate of Use = 21.0%
```

Applying minimum adequacy standards, this source is adequate. Map 6 shows the watershed protection area for the Ohio River intake. The Licking River intake protection area can be found in the Kenton County Water Supply Plan. Supply protection will be discussed in more detail in Chapter 8.

#### **Newport Water Works**

Newport's water source is the Ohio River. The 7Q10 flow at the intake is also 11,000 cfs or 7,109,510,400 gallons per day, as calculated previously. The following calculations assess the adequacy of the source for current and projected demand.

```
Average 1996 Withdrawal = 7,101,000 gallons per day

Rate of Use = 7,101,000 gallons
7,109,510,400 gallons

Rate of Use = .1%

Highest Projected 2020 Demand = 14,750,000 gallons per day

Rate of Use = 14,750,000 gallons
7,109,510,400 gallons

Rate of Use = .2%
```

Applying minimum adequacy standards, this source is adequate. Map 6 shows the recommended protection area.

# MAP 6 **OHIO RIVER INTAKES ZONE OF RESPONSIBILITY** ZONE I ZONE II Campbell ZONE III Pendleton Bracken 4 Miles THE INFORMATION PRESENTED IN THIS PRODUCT IS ACCURATE FOR PLANING PURPOSES ONLYX

#### **Green Valley Trailer Park**

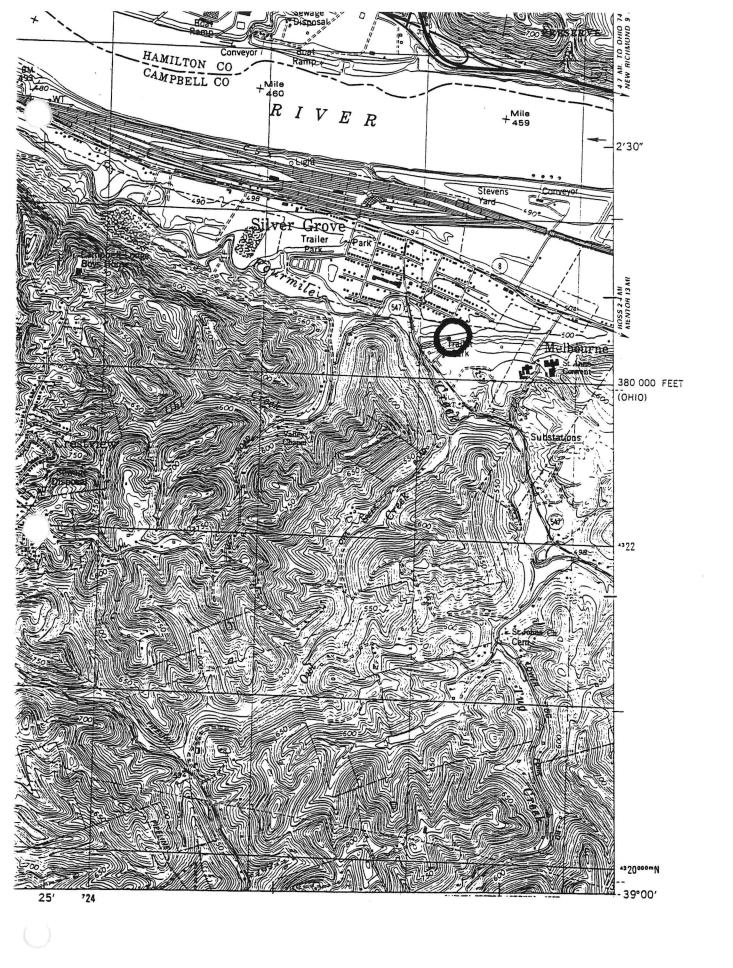
Green Valley uses groundwater to serve a population of 198. Water use averages less than 10,000 gallons per day. This water supplier did not provide any information regarding safe yield and it is not economically feasible to obtain this information. Map 7 shows the recommended protection area as a 400 ft. radius around the well; however, this will be amended after the wellhead protection plan is completed. The Phase I wellhead protection plan is scheduled for completion by December of 1998 and Phase II is tentatively scheduled for completion by December of 1999.

#### St. Anne Convent

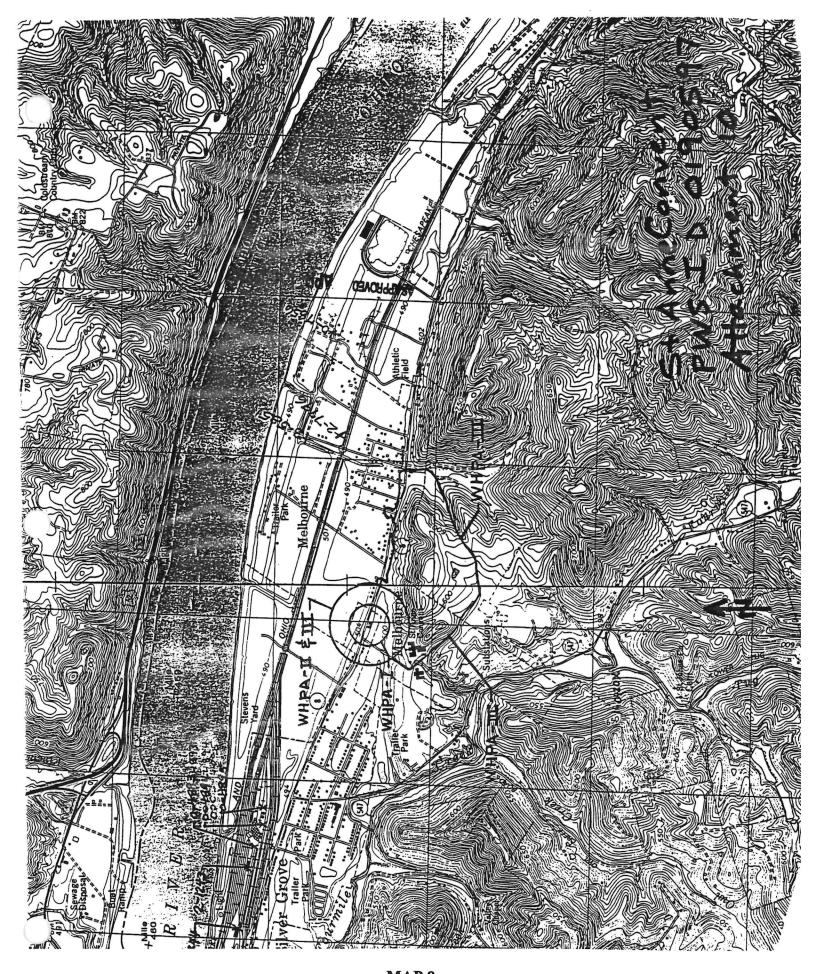
St. Anne uses groundwater to serve a population of approximately 150. This population includes nursing home residents and staff and also visitors to the retreat center. No information was provided regarding safe yield and it is not economically feasible to obtain this information. Map 8 shows the recommended wellhead protection areas as delineated in the Phase I wellhead protection plan. The Phase I wellhead protection plan was approved in April of 1998 and Phase II is scheduled for completion by July of 1999.

The wellhead protection plan, while a part of the water supply plan, will be included in a separate binder because of its size. This will also help eliminate extensive revisions to water supply plan page numbering and document organization.

Table 6.1 shows source availability for water suppliers in the County.



MAP 7
RECOMMENDED PROTECTION AREA: GREEN VALLEY TRAILER PARK



MAP 8
RECOMMENDED WELLHEAD PROTECTION AREA (WHPA): ST. ANNE CONVENT

1 inch = 2000 feet

PUBLIC WATER SUPPLIER	SOURCE	SOURCE TYPE	NORMAL/1	MINIMUM/2	DROUGHT/3
LADIA MAILI ANI LEIFI			1		
Northern Kentucky Water Service District	Ohio River	Stream	Not Available	11,000 cfs	Not Available
Molitically transfer and and an area planted	Licking River	Stream	Not Available	70 cfs	Not Available
			N. 4 A - Walata	44 000 060	Not Available
Newport Water Works	Ohio River	Stream	Not Available	11,000 cfs	Mof Wallania
			ļ		
Green Valley Trailer Park	Well	Groundwater	Not Available	Not Available	Not Available
Gleen valicy Trailor Faix	1				
				1	Net Avelleble
St. Anne Convent	Well	Groundwater	Not Available	Not Available	Not Available
		01	Reservoir	Wells	
	Notes	Stream Lowest Flow Month	Fuil Reservoir	Specific Capacity	
	<u>/1</u>		7Q10 Inflow	Specific Capacity	
	2	7Q10		Safe Yield	
	ß	7020	7Q20 Inflow	Sale Tield	

: :

# CHAPTER 7 WATER SUPPLY ADEQUACY

#### I. Adequacy Standards

The Campbell-Kenton Water Supply Planning Council elected to plan for the provision of a continuous level of supply under all conditions and to encourage conservation to the maximum extent practical.

#### II. Application of Adequacy Standards

#### Northern Kentucky Water Service District

The Northern Kentucky Water Service District withdraws water from both the Ohio and Licking Rivers. Both sources are more than adequate to meet demand through the planning period. The Licking River permit does require withdrawals to cease if flows drop to 70 cfs (the 7Q10) or less for four consecutive days. However, the Ohio River supply is more than adequate to provide extra supply in that eventuality. The magnitude of both sources is such that withdrawals do not impact other users or aquatic life.

#### **Newport Water Works**

Newport Water Works withdraws water from the Ohio River. This source is more than adequate through the planning period. Withdrawals do not impact other users or aquatic life.

#### **Green Valley Trailer Park**

As mentioned previously, little data is available for this water supplier; however, with usage of less than 10,000 gallons per day, supply should be adequate. However, with increasing regulatory requirements, it may be not be economically feasible for a small supplier such as this to stay in business. The Northern Kentucky Water Service District does serve this area, so there is an alternative source of supply.

#### St. Anne Convent

As mentioned previously, very little data is available. However, the water supply is assumed to be adequate since only 19,000 gpd to 20,000 gpd are being withdrawn. Most of the surrounding area is served by the Northern Kentucky Water Service District, so the only other groundwater user in the area is the Green Valley Trailer Park. No additional growth is anticipated.

## CHAPTER 8 SUPPLY PROTECTION

#### I. RISKS

#### A. Ohio River Intakes

Both Newport Water Works and the Northern Kentucky Water Service District have intakes, located in very close proximity to one another, on the Ohio River in northern Campbell County. A complete inventory of potential contaminant sources was conducted for Zone I which begins 1/4 mile below the Newport Water Works intake and extends five miles above the Northern Kentucky Water Service intake which is approximately at the boundary of the Melbourne city limits. The inland boundary follows the Ohio River watershed boundaries and also includes about one-third of the Four Mile Creek watershed.

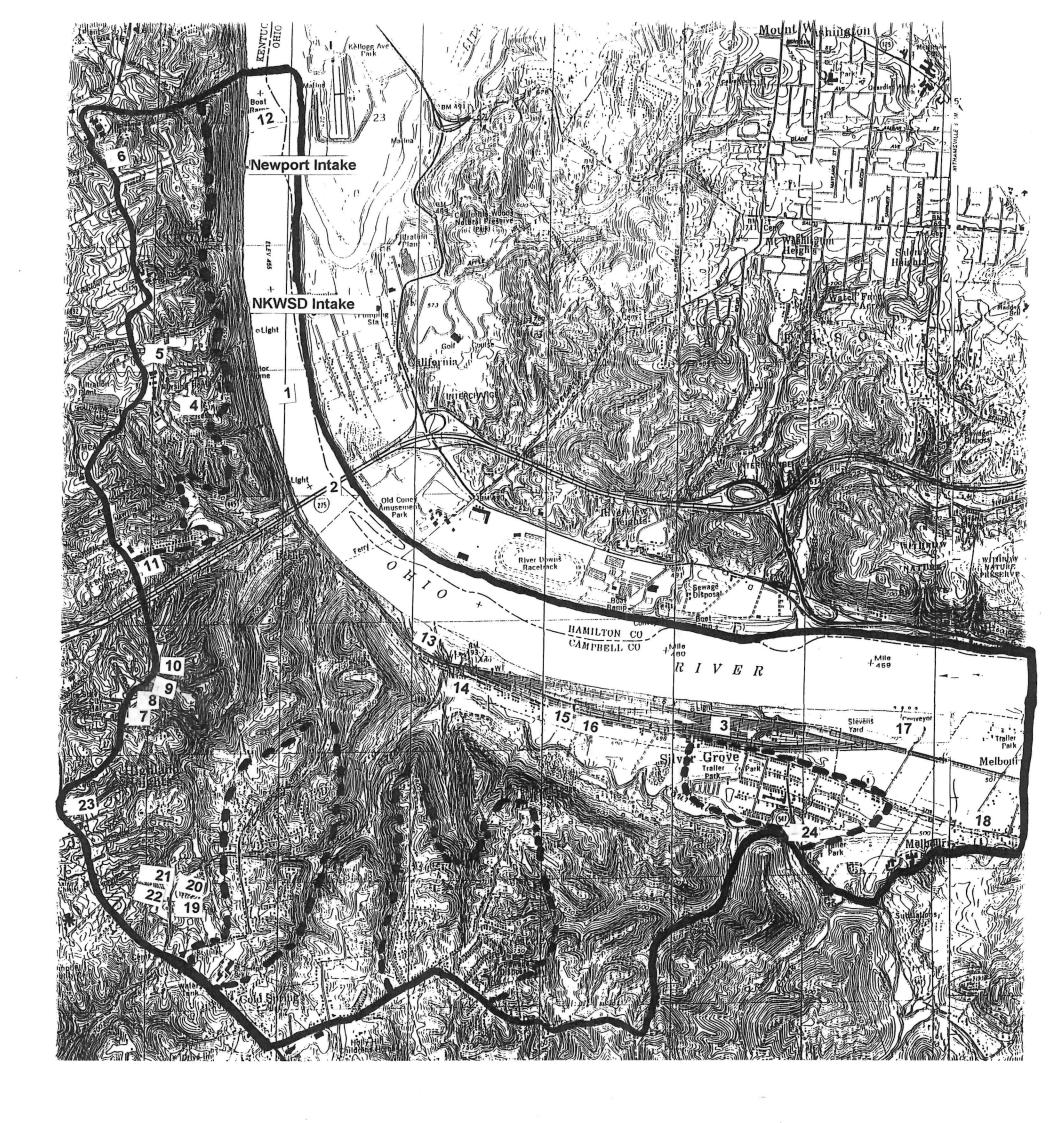
Map 9 shows the location of Zone I potential contaminant sources and their identification numbers. Table 8.1 describes each of the contaminants by identification number. As a result of the extremely hilly and steep topography, relatively few potential contaminant sources were identified. There are some concentrated areas of residential development along the ridgetops and some along the Ohio River; however, there is very little commercial, industrial, or even agricultural development. Table 8.2 groups potential Ohio River contaminant sources by type and degree of hazard. Please note that the Ohio side of the Ohio River was not inventoried because this will be a part of Ohio's Source Water Assessment program.

Zone II, which extends from 5 miles to 10 miles above the intakes, runs from the City of Melbourne to the area of Campbell County directly across from the Beckjord Power Plant (Ohio side). Map 10 shows the location of Prestress Services and the area of residential development in the City of Melbourne. There is a smaller concentration of residential development in the Ross area.

Zone III, extending from 10 miles to 25 miles above the intakes, runs from the Beckjord Power Plant area to the town of Foster in Bracken County. There are no critical areas of major activity in this zone. The area is largely undeveloped. Since no major pollutant sources were identified, this area is not mapped.

#### Soils

Soils on the stream terraces along the Ohio River are primarily Wheeling-Huntington-Alluvial and soils along the steep hillsides belong to the Eden-Cynthiana Association. Wheeling soils are deep and well-drained. They are typically underlain by sand and gravel at a depth of 3 ½ to 6 feet. Huntington soils are deep, well-drained, and nearly level. Alluvial soils vary in character and are difficult to classify; however, they are prone to erosion from rapid surface water run-off. Cynthiana soils are shallow, somewhat excessively drained, and have moderately slow permeability. Eden soils are deep and well-drained with slow permeability.



#### MAP 9

## POTENTIAL CONTAMINATION SOURCES: ZONE I (-1/4 Miles to 5 miles above Intakes)

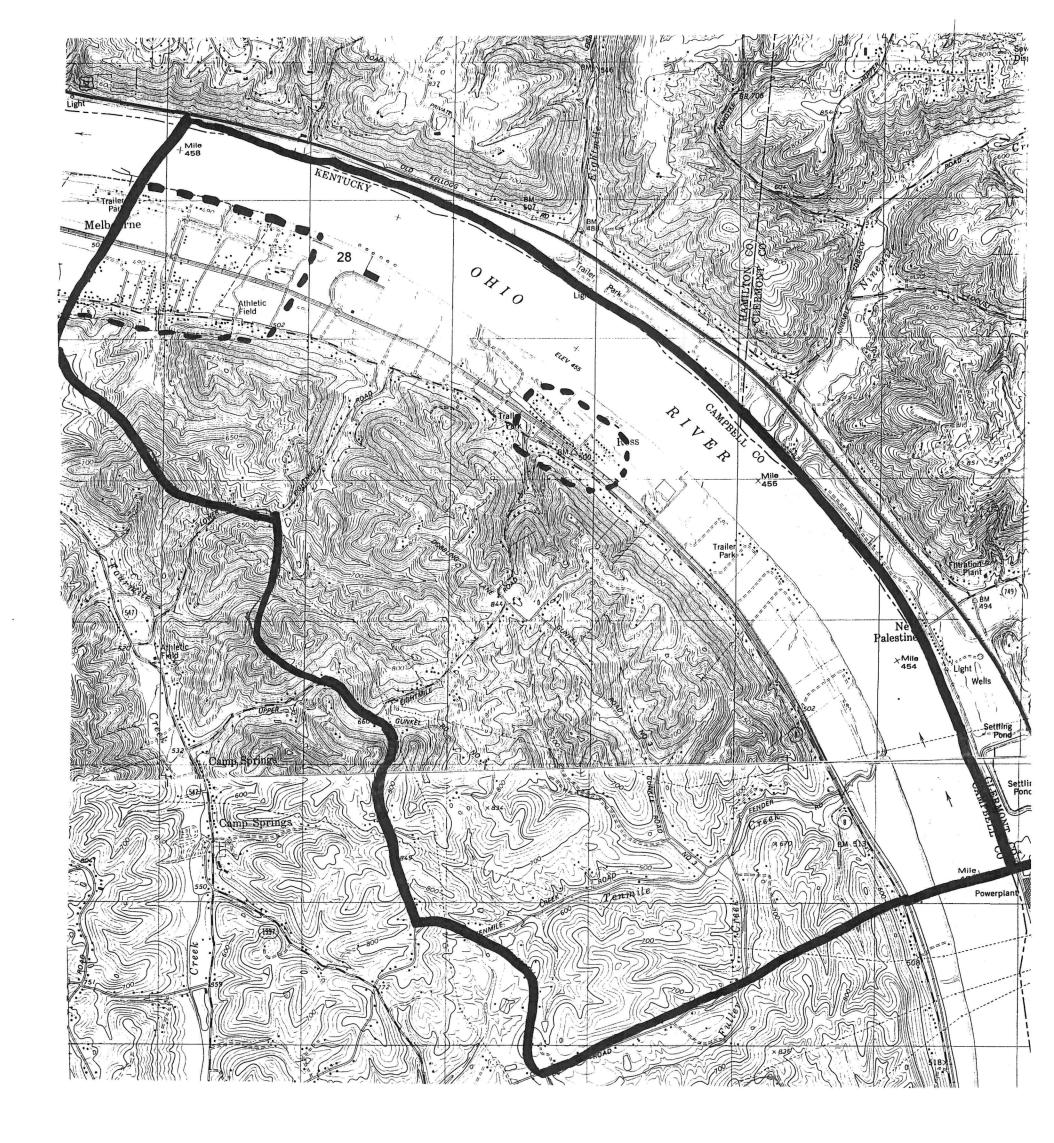
ZONE I BOUNDARIES
 1 inch = 1800 feet
 CONCENTRATED RESIDENTIAL DEVELOPMENT

Table 8.1 Identification of Potential Contaminant Sources

ID NUMBER	NAME	COMMENTS			
1	Ohio River Barge Traffic	Barge traffic is fairly heavy in this area.			
2	Combs-Hehl Bridge	I-275 bridge is heavily traveled and is the identified truck route during the I-75 construction			
3	CSX Stevens Yard and Rail Lines	Rail lines run directly next to both intakes.			
4	US Army Reserve Facility	RCRA notifier and 1 UST			
5	Tower Park	1 UST, substance stored is oil.			
6	City of Ft. Thomas	4 USTs, 2 gas and 2 diesel			
7	Marathon Gas Station	6 USTs, 3 gas, 1 oil, 1 kerosene, and 1 diesel			
8	Highland Garden Center	Sales of pesticides and fertilizers, but small risk of contamination			
9	Bud's J&M Service	Auto Repair shop, likely has solvents, oil, and gasoline			
10	Amazing Auto Body Appearance	Auto Body shop, same types of contaminants as above, but including paints			
11	Hader Hardware	Sales of household and lawncare chemicals, but small risk of contamination			
12	AquaRamp Marina	Located 1/4 mile below intakes, sells gasoline			
13	M+M Roller Excavating	Heavy Equipment and trucks at site			
14	BP Gas Station and Lykins Oil	RCRA Notifier and USTs			
15	Citgo Gas Station and Tri-State Concrete	USTs at Citgo and heavy equipment and materials storage at Tri-State Concrete			
16	Silver Grove Motors	Used car sales, but some cars appeared to be sold primarily for parts and could potentially be leaking oil, anti-freeze etc			
17	Country Mark Co-Op	Agricultural commodities transportation terminal, truck traffic			
18	Marathon Service Station	USTs			
19	Fabritec International	Manufacturing firm			
20	Engraph Label Group	Manufacturing firm - flexographic printing and rotary letter press			
21	Fischer Special Manufacturing	RCRA notifier, manufactures fasteners and screw machine products			
22	UHL&P Equipment/Truck Storage Area	Fenced area with equipment and truck storage			
23	BP Gas Station	USTs			
27	Green Valley Mobile Home Park	Permitted Discharge - Sanitary			
28	Prestress Services	Manufacturing firm located just outside 5 mile zone, State Superfund active petroleum incident, permitted discharges for sanitary and stormwater			

Table 8.2
Ohio River Intakes: Potential Pollutants and Degree of Hazard

SOURCES OF POLLUTION	SHORT-TERM VS. LONG- TERM HAZARD	CHANCE OF CONTAMINANT RELEASE	DEGREE OF HAZARD
Barge Traffic	Long-Term	Moderate	Low to High
Rail Lines	Long-Term	Moderate	Low to High
Combs-Hehl Bridge Traffic	Long-Term	Moderate	Low to High
Road Run-Off	Long-Term	Moderate	Low to High
RCRA Notifiers	Long-Term	Low to Moderate	High
USTs	Long-Term	Moderate	High
Permitted Sanitary Sewage Discharges	Long-Term	High	Low
Septic Systems	Long-Term	Moderate to High	Low
Auto Repair & Body Shops	Long-Term	Moderate	Moderate to High
Marinas with Gas Sales	Long-Term	Low	High
Concentrated Residential Development	Long-Term	Moderate	Low to High
Heavy Equipment and Truck Storage	Long-Term	Low to Moderate	Moderate to High



### **MAP 10**

## POTENTIAL CONTAMINATION SOURCES: ZONE II (5 to 10 miles above Intakes)

= ZONE II BOUNDARIES

1 inch = 1800 feet

CONCENTRATED RESIDENTIAL DEVELOPMENT

#### **Security of Access**

The intake structures for both the Newport Water Works and the Northern Kentucky Water Service District are secure with both gates and fencing. Of course, the Ohio River has no security of access.

#### B. Groundwater Suppliers

Both groundwater suppliers, the Green Valley Trailer Park and the St. Anne Convent are in the process of preparing wellhead protection plans. As a part of the Phase II plans, a complete contaminant inventory will be conducted in the delineated wellhead protection areas. The scheduled completion dates are December of 1999 for Green Valley and July of 1999 for St. Anne. These plans will be incorporated into this document as appendices.

#### Soils

Soils in the Green Valley wellhead protection area are Avonburg silt loam and Wheeling silt loam. Both soils have a depth to bedrock of more than 10 feet and both have slow permeability.

In the St. Anne wellhead protection area I (WHPA I), Ashton silt loam and Lakin loamy fine sand are the predominant soils. Both soils have a depth to bedrock of more than 10 feet. Ashton silt loam has slow permeability while Lakin soils have a permeability of more than 6.30 inches per hour.

#### Geology/Hydrology

The St. Anne Wellhead Protection Plan describes the well field as being composed of alluvium, with outcrops of loess, some glacial outwash, and some glacial drift from the Illinoian and/or the Wisconsin glaciation periods. The regional hydrology within the Ohio River flood plain may yield moderate to high quantities of groundwater with wells producing from 200 to 500 gallons per minute. The general depth to groundwater in the Ohio River alluvium is under 100 feet.

The <u>St. Anne Wellhead Protection Plan</u> notes that "the bedrock from which water is pumped is that which is obtained from the Ohio River alluvial region supplied by ground water and adjacent streams. The location of the wellheads would indicate that the possibility of groundwater pollution is minor."

#### II. PROTECTION MEASURES

The primary focus of this section is on local, rather than state and federal, regulatory and non-regulatory protection measures for Campbell County's water supply.

#### Regulatory and Non-Regulatory Protection Measures

While there are no regulatory or non-regulatory measures specifically addressing protection of the

water supply, the County's solid waste ordinance does address the storage, collection, transportation, processing, and disposal of solid waste (See Appendix H). Also, the City of Cold Spring, which is partially located in the watershed protection area of the Ohio River intakes, does address some water supply protection issues in its 1995 Comprehensive Plan Update. The comprehensive plan also makes some recommendations regarding extension of sewers, rather than septic systems, to serve new development and the siting of new development in environmentally stable areas. Excerpts of the plan can be found in Appendix H.

#### **Supply Protection Recommendations**

A public hearing on supply protection recommendations was held on April 28, 1998. The meeting was advertised in the <u>Kentucky Post</u> (see Appendix B for a copy of the notice) and all the water watch groups were notified as well. The following recommendations were adopted at the April 28, 1998 Campbell-Kenton Water Supply Planning Council meeting.

- 1. Continue to encourage land use controls that protect existing water sources.
- 2. Work with the Natural Resource Conservation Service, Conservation Districts, and the Cooperative Extension Office to promote "best management practices" for construction and agricultural activities.
- 3. Provide assistance to the Northern Kentucky Solid Waste Management District in its efforts to clean open dump sites, promote proper disposal, and further public awareness and education.
- 4. Encourage and assist local water suppliers and distributors in their efforts to promote water conservation practices to customers.
- 5. Support the efforts of the Licking River Watershed Watch.
- 6. Promote ORSANCO'S Ohio River Sweep.
- 7. Cooperate with the Sanitation District to develop a regional Storm Water Management Plan.
- 8. Share information with the Health Department's Committee on Protocol for Assessing Community Excellence in Environmental Health.

## CHAPTER 9 WATER RESOURCES INVENTORY

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

### CHAPTER 10 WATER SUPPLY ALTERNATIVES

Existing water sources have been determined to be adequate and therefore, research into alternatives was unnecessary.

## CHAPTER 11 PRIMARY WATER SUPPLY ALTERNATIVE

Since existing water sources have been determined to be adequate, selection of a primary water supply alternative was unnecessary.

### CHAPTER 12 EMERGENCY PLANS

#### I. WATER SHORTAGE RESPONSE PLANS

Since no drought vulnerability was associated with any of the County's water sources, water shortage response plans were not prepared.

#### II. 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 to their water supply sources.

#### A. Northern Kentucky Water Service District (NKWSD)

#### **Notification Procedures**

NKWSD works with ORSANCO to respond to potential contamination threats. ORSANCO maintains 24 hour telephone service to receive spill reports and operates an electronic bulletin board to disseminate information. If contamination is reported, NKWSD would either adjust the treatment process to eliminate the contaminant or would shut-off the intakes until the contaminant had passed by. If there were any contamination of treated water or if the distribution system lost water pressure, the General Manager is responsible for public notifications and notifications to state and federal agencies.

#### **Emergency Water Sources**

The Water District maintains a one day storage of treated water and one to three days storage of untreated water. Given the average rate of flow on the Ohio River, this will allow enough time for a contaminant to completely pass by the intake. Also, working with ORSANCO, the Water District generally has sufficient notice to maximize its stored water volume. Of course, since the Water District relies on both the Ohio and Licking Rivers as sources, it is possible, depending on the contaminant, that one intake could remain open, while the other was closed.

#### **Problems with the Distribution System**

No problems were identified that would affect the ability of the Water District to cope with a contamination event.

#### **Threat of Contamination**

The Water District laboratory tests water on a continual basis. If a threat of contamination were identified, testing would occur even more frequently.

#### B. Newport Water Works

#### **Notification Procedures**

Newport also works with ORSANCO to either shut-down intakes or to adjust treatment processes to eliminate the contaminant. Public notification would only be required if the treated water had contaminants that exceeded the maximum allowable levels. The Water Works Director, or his designee, would be responsible for notifying the public and state and federal agencies.

#### **Emergency Water Sources**

Newport has four to five days of storage depending upon the lagoon storage levels at the time of the contamination incident. In the event of a long-term contamination incident, pollutants would be mitigated with treatment and complexing compounds with carbon applications.

#### Problems with the Distribution System

No problems were identified that would impact the ability of the Water Works to cope with a contamination event.

#### **Threat of Contamination**

Any potential river contamination would trigger river intake shut-down. Newport would rely on reserve sources until the threat had passed.

#### C. St. Anne Convent

#### **Notification Procedures**

In the event of contamination, Sister Margaret Stallmeyer would notify the St. Anne and Holy Family communities and the applicable state and federal agencies. Sister Marilene Cullen and Kirt Fillhardt, plant operator, would share the responsibility of notifying the houses on Rt. 8, the farmhouse, and the greenhouse.

#### **Emergency Sources**

In a short-term emergency, St. Anne has approximately two days of storage. In a long-term emergency, St. Anne would hook-up to the Northern Kentucky Water Service District, which has a water line within 200 yards of the Convent's well and pumps.

#### Problems with the Distribution System

No problems were identified that would hinder the ability of the Convent to cope with a contamination event.

#### **Threat of Contamination**

If a threat of contamination occurred, St. Anne would utilize stored water and would increase water sampling and testing. If applicable, a Boil Alert would be issued.

#### D. Green Valley Trailer Park

#### **Notification Procedures**

Kirt Fillhardt would be responsible for notifying residents and applicable state and federal agencies.

#### **Emergency Sources**

In a short-term emergency, a Boil Water Advisory would be issued, if applicable. If a Boil Water Advisory were not applicable, residents would be advised to utilize bottled water. In a long-term emergency, Green Valley would hook-up to the Northern Kentucky Water Service District.

#### **Problems with the Distribution System**

No problems were identified.

#### **Threat of Contamination**

If a threat of contamination occurred, a Boil Water Advisory would be issued, if applicable. If not residents would be advised to utilize bottled water until the threat could be evaluated through sampling and testing.

#### E. St. Peter & Paul Elementary

St. Peter & Paul Elementary, as mentioned previously, collects water in a cistern and purchases treated water. If the cistern became contaminated, then it would be cleaned. Students and staff would rely on bottled water until the problem was resolved.

### CHAPTER 13 IMPLEMENTATION PLAN

#### I. ANNUAL MEETING

The Campbell-Kenton Water Supply Planning Council will meet annually, with the next meeting date tentatively scheduled for September 14, 1999 at the Aqua Drive office of the Northern Kentucky Water Service District.

#### II. PLAN UPDATES AND AMENDMENTS

Once the <u>Campbell County Water Supply Plan</u> has been approved by the Division of Water, all participants will receive a hard copy of the plan. The Northern Kentucky Water Service District, the funding agency for the plan, will also receive a diskette with all plan documents so any necessary changes or revisions can be made. NKADD will be available to provide this service on a contractual basis, if so desired.

#### III. IMPLEMENTATION

Since the water supply for the County was considered to be adequate, plan implementation will be focused on the supply protection recommendations. The Campbell-Kenton Water Supply Planning Council will help promote the supply protection recommendations, the majority of which involve environmental education or coordination functions.

### CHAPTER 14 PLAN APPROVALS

### **Council Members**

Dennis Willaman Planning Council Chair Northern Kentucky Water Service District	Dennis Willaman
Ralph Bailey Kenton County Fiscal Court	
Sister Marilene Cullen St. Anne Convent	Sister Marilene Cullen
Naguanda Deaton Campbell County Fiscal Court	
David Dezeeuw Newport Water Works	
Jeff Earlywine City of Ft. Thomas	
Kirtley Fillhardt Green Valley Trailer Park	
Phil Kloenne Northern Kentucky District Health Department	Thily Kloenn
Clark Millard City of Wilder	
Mark Pfefferman St. Peter & Paul Elementary	
Bob Reis St. Peter & Paul Elementary	Bol Reis
Steve Trauth Louis Trauth Dairy	

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

# Appendix A: Minutes

#### CAMPBELL-KENTON WATER SUPPLY PLANNING COUNCIL

#### April 17, 1997 Meeting Summary



#### In attendance:

Sister Marilene Cullen, St. Anne Convent
Naguanda Deaton, Campbell County Fiscal Court
David Dezeeuw, Newport Water Works
Phil Kloenne, Northern Kentucky District Health Department
Dennis Willaman, Northern Kentucky Water Service District
Bob Reis, St. Peter & Paul School
Mark Pfefferman, St. Peter & Paul School
Heidi Van Keuren, Northern Kentucky Area Development District

The meeting began at 10:05 a.m. with a review of the planning process. Phase I focuses on data collection and projecting the demand for water over the twenty-year planning period. Phase II, assuming the water supply is adequate, concentrates on supply protection and emergency response plans. Ms. Van Keuren distributed surveys to water suppliers and distributors with a one month deadline for completion. The rest of the surveys will be mailed to those who were unable to attend.

Mr. Willaman was elected Planning Council Chair. After some discussion, the quorum was set at five members. Those who are eligible to be a part of the planning council, but have not responded will be called to ascertain interest. If they do not wish to participate, their names will be removed from the planning council membership list.

Ms. Van Keuren reviewed the notification process for the water supply plan. All the Judge/Executives, Mayors, and water suppliers in Campbell, Kenton, Grant, and Pendleton Counties must be notified and asked to provide any relevant information or water-related plans. Ms. Van Keuren will handle the notification process which must be completed within two weeks of the meeting. In addition, the public must be notified through the newspaper.

The planning objectives suggested by the water supply planning regulations were reviewed and amended. The planning council decided to "encourage" conservation and also to provide a continuous level of supply under all conditions. In addition, at the suggestion of Mr. Pfefferman, an objective was added to "encourage expansion where feasible". Council members agreed that feasibility would include both financial and environmental factors. A public hearing will be held at 10:00 a.m. on Thursday, May 15, 1997 at the Edgewood office of the Northern Kentucky Water Service District.

Under general discussion, Ms. Van Keuren updated the planning council on the recent water supply planning workshop. The Division of Water (DOW) has set a deadline of September 30, 1997 to complete Phase I of the Campbell and Kenton water supply plans. DOW will provide technical assistance with the wellhead protection plans, however, the water supply plans will need to include a schedule for wellhead protection plan completion. It may extend beyond the original deadline of July 15, 1998 for the wellhead plans. DOW intends to meet with each of the Area Development Districts to help prioritize the plans. The workshop also included a presentation on the amendments to the Safe Drinking Water Act. DOW stated that after July 15, 1998, no funds from the new drinking water revolving loan fund would be available to a county (or its municipalities) that does not have an approved water supply plan.

The meeting adjourned at 10:45 a.m..

#### CAMPBELL-KENTON WATER SUPPLY PLANNING COUNCIL

Meeting Summary May 15, 1997



#### In Attendance:

Mark W. Pfefferman Phil Kloenne Steve Trauth Dennis Willaman David R. Dezeeuw Heidi Van Keuren

The public hearing to consider the planning objectives opened at 10:00 a.m. with no members of the public present. The hearing closed at 10:10 a.m.. The Planning Council adopted the planning objectives unanimously after a motion by Mr. Kloenne and a second by Mr. Trauth.

Ms. Van Keuren summarized the responses to the notification process. The Mayors of Florence and Silver Grove asked to be placed on the mailing list for minutes. The Grant County Water Supply Planning Council would like to be kept informed of planning council activities. Ms. Van Keuren also received a letter and a phone call from Mr. and Mrs. Jim Baird of Grandview Rd. just outside of Alexandria. They are interested in having a water line extended down their road. Mr. Willaman felt that this was a Water District, rather than a planning council, issue and that the Water District would contact the Bairds. Mark Pfefferman asked that his evening phone number be given to the Bairds since he has had experience in organizing neighbors to try to obtain public water.

Mr. Trauth asked if any other council members had received a notice from the EPA regarding a meeting in Huntington, West Virginia for water suppliers in the Ohio River valley. Neither Mr. Dezeeuw nor Mr. Willaman were aware of the meeting and they asked Mr. Trauth to fax them a copy of the notice.

There was some brief discussion of the Smith Rd - KY 10 project in Campbell County. Council members who have not completed their surveys were urged to do so within the next two weeks. The next meeting was scheduled for July 10, 1997 at 10:00 a.m. at the Edgewood office of the Northern Kentucky Water Service District. The meeting adjourned at 10:20 a.m..

#### CAMPBELL-KENTON WATER SUPPLY PLANNING COUNCIL

#### July 10, 1997 Meeting Summary



#### In Attendance:

Sister Marilene Cullen David Dezeeuw Phil Kloenne Bob Reis Dennis Willaman Heidi Van Keuren

The meeting began with a review of the May 15, 1997 meeting summary. There were no comments or changes.

Ms. Van Keuren gave a status report on Phase I of the water supply plan. She noted that surveys were still missing from the City of Newport and Green Valley Trailer Park. Mr. Dezeeuw thought he had mailed his, but promised to fax or e-mail a copy. Sister Cullen will remind Mr. Fillhardt about the survey. Ms. Van Keuren met with Tom East of the Area Planning Commission to discuss mapping requirements and there should be no problem getting the maps by the end of August.

Ms. Van Keuren distributed and reviewed Chapters One through Five of the Phase I water supply plan. Mr. Reis noted an incorrect spelling which will be corrected. Copies will be mailed to those who were unable to attend. Hopefully, Phase I will be completed by the end of September and Phase II by the end of January 1998. The next meeting was scheduled for Thursday, August 14, 1997 at 2:00 p.m..

The meeting adjourned at 10:30 a.m..

## CAMPBELL-KENTON WATER SUPPLY PLANNING COUNCIL August 14, 1997 Meeting Summary



#### In Attendance:

Mark Pfefferman Phil Kloenne Dennis Willaman Heidi Van Keuren

The July 10, 1997 meeting summary was reviewed and there were no changes or comments.

Ms. Van Keuren updated the council on a recent meeting with the Water Quantity Management staff of the Division of Water. DOW staff hope to make the water supply planning program conform with the U.S. EPA Source Water Assessment Program (SWAP). The EPA has not released any guidance documents for the SWAP yet. The following activities will be included as a part of the SWAP: watershed delineation, wellhead protection, potential contaminant inventory, and susceptibility analysis. The potential contaminant inventory would create a substantial amount of work for the Campbell and Kenton County plans. The inventory would probably consist of investigating an area from 1/4 mile below a water supply intake to 5 miles above and 2 miles outward. Additional inventories would need to be completed for the 6 to 10 mile range and the 11 to 25 mile range. This would be a lot of work in an urbanized area such as Northern Kentucky.

The demand projections for Newport Waterworks were reviewed. Ms. Van Keuren explained that there were several factors which made it difficult to accurately project demand. First, Newport currently sells a considerable amount of water, however, during the 20 year planning period this could change. A new treatment plant could be built by a wholesale customer or proposals to purchase water from the City of Cincinnati could be accepted. Newport, ideally, would like to increase its treatment capacity and its wholesales sales. Therefore, the projections reflect this because this would probably be the maximum demand scenario. Ms. Van Keuren will expand the text to explain the rationale behind the projections and possible alternative scenarios. In addition to the uncertainty of wholesale sales, the City of Newport has very little historical data available by demand sector making the accuracy of the disaggregated demand rather suspect.

Ms. Van Keuren reported on a meeting with Area Planning Commission staff regarding the plan maps. The maps should be ready for the next meeting.

The next meeting was scheduled for Thursday, September 25, 1997 at 10:00 a.m. at the Edgewood office of the Northern Kentucky Water Service District. The meeting adjourned at 2:30 p.m..

#### CAMPBELL-KENTON WATER SUPPLY PLANNING COUNCIL

#### September 25, 1997 Meeting Summary



#### In Attendance:

David Dezeeuw
Clark Millard
Jeff Earlywine
Sr. Marilene Cullen
Dennis Willaman
Mary Kathryn Dickerson
Fr. Joseph Boschert
Heidi Van Keuren

The meeting began at 10:05 a.m. with introductions. The August 14, 1997 meeting summary was reviewed and there were no comments or changes.

The demand projections for the Northern Kentucky Water Service District were reviewed and discussed. Mr. Willaman thought that the projected demand may be a little high for average day demand. Mr. Earlywine had questions regarding the computer model and the type of data that was required. Ms. Van Keuren explained that the DOW requires that this model be used for water supply planning purposes. The model was developed by the U.S. Army Corps of Engineers and it forecasts the demand for water based on demographic and economic data. Inputs include: population, housing values, density of housing, income, employment data, and climatic data. Ms. Van Keuren emphasized the value of local knowledge regarding demand for water and asked that Mr. Willaman and Mr. Dezeeuw review the projections and provide comments in the next several weeks. The Newport Water Works projections were quickly reviewed and Ms. Van Keuren explained the changes that she had made since the last meeting regarding growth scenarios. One scenario assumes that the wholesale demand for water will increase considerably. Scenario two assumes that growth will be relatively flat because the City and other areas served are fully-developed with little additional land.

The draft maps, prepared by the Northern Kentucky Area Planning Commission, were reviewed. There are a number of changes and additions that need to be made to each map. Ms. Dickerson had some questions regarding the watershed boundaries, so she took the planning unit maps to her office to review.

The wellhead protection plans for St. Anne's Convent and the Green Valley Trailer Park were discussed. Ms. Van Keuren met with Ernie Ellison, Wellhead Protection Specialist for the Division of Water, several weeks ago. DOW can provide assistance with the geology section and

the wellhead protection area delineations. Ms. Van Keuren suggested that Sr. Cullen contact Terri Dowdy regarding DOW assistance. Mr. Willaman also offered assistance with maps. DOW would like to see the wellhead protection plans completed by August 1, 1998.

Mr. Millard discussed some of the concerns of the City of Wilder regarding water needs. He asked if there were a way to incorporate their needs into the plan. Ms. Van Keuren thought the needs could be incorporated as part of the information review conducted for the plan.

Father Boschert reiterated the school's need to be on a public water system. The testing requirements are expensive and the school needs to have water delivered to meet its demand. Father Boschert also mentioned a grant application that Elrod & Atkins prepared several years ago that would have gotten St. Peter & Paul Elementary on a public water system; however, the school was cut out of the project. No one present was really aware of the circumstances of the grant application.

There was some discussion about the lack of water lines in southern Campbell County while much of northern Pendleton County has public water. Mr. Willaman explained that often, in the past, rural water districts were able to expand by adding small sized water lines. Now as development occurs, these water lines are inadequate and have to be replaced.

Ms. Van Keuren indicated that she would like to submit the Phase I water plans as soon as possible because the Water Quantity Management section of DOW has quite a backlog of plans to review. She hopes to submit the plans by October 10, 1997.

The next meeting date was set for Thursday, November 6, 1997 at 10:00 a.m. at the Northern Kentucky Water Service District's Edgewood office.

#### CAMPBELL-KENTON WATER SUPPLY PLANNING COUNCIL

#### November 6, 1997 Meeting Summary



#### In Attendance:

David Dezeeuw, Newport Water Works
Phil Kloenne, Northern Kentucky District Health Department
Bob Reis, St. Peter & Paul Elementary
Dennis Willaman, Northern Kentucky Water Service District
Heidi VanKeuren, Northern Kentucky ADD

The meeting began at 10:05 a.m. with a review of the September 25, 1997 meeting summary. There were no changes.

Ms VanKeuren discussed the status of Phase I. She had hoped to submit a draft Phase I plan to DOW by mid-October; however, NKAPC has not been able to complete the maps yet due to staffing shortages. NKAPC hopes to have the maps completed by early next week.

The Infrastructure Assessment section of Phase I was discussed. Additional information about infrastructure deficiencies and/or planned improvements is needed. Mr. Willaman indicated that no decision regarding the treatment plant in western Boone County has been made yet. A treatment plant in that area would serve growth areas in Boone County and southern Kenton County. Mr. Willaman also reported on the opening of the new water intake on the Ohio River. While both the new and existing intakes will operate together initially, the old intake will be phased out. A hydraulic study is also being conducted to determine what lines need to be replaced in the future. The Northern Kentucky Water Service District coordinates main replacement with cities that are doing road work, whenever possible. In addition, the Water District has \$500,000 allotted annually for main replacement; however, more than \$2 million per year could be spent if it were available). Ms. Van Keuren asked about small diameter lines in the system and Mr. Willaman reported that most were located in rural areas; however, there were some small lines in the urban areas serving just a few households.

Mr. Dezeeuw elaborated on Newport's planned improvements. A new sludge treatment facility will be operational by early 1998 that will free-up a lagoon for raw water storage. Three new filters are being added to the air scour filtration system which will increase water quality. The vertical turbine at the river intake is being replaced which will save on energy costs. The booster station is being renovated with new pumps, valves, and surge anticipation. The surge anticipation will prevent water hammer which contributes to water main breakage in the old cast-iron lines. Newport currently has \$250,000 allotted annually to main replacement. Also, water mains are being replaced in the riverfront redevelopment area.

Mr. Reis stated that the assessment of the St. Peter & Paul School infrastructure was accurate. Ms. Van Keuren asked about the access to public water for St. Anne Convent since their treatment plant is so old. While water is available on KY 8, it is a long distance from the Convent to the road. Since the Convent has an operational system, it is probably cheaper and easier at the present time to maintain it than to incur the expense of running a new water line.

The next meeting was scheduled for Tuesday, January 12, 1998 at 10:00 a.m. at the Edgewood office of the Northern Kentucky Water Service District. The meeting adjourned at 10:40 a.m.

#### CAMPBELL-KENTON WATER SUPPLY PLANNING COUNCIL

#### January 12, 1998 Meeting Summary



#### In Attendance:

Heidi Van Keuren, NKADD Mary Kathryn Dickerson, Boone-Kenton-Campbell Conservation Dist. Clark Millard, City of Wilder

Due to limited attendance and the lack of a quorum, the meeting was brief and informal. Ms. Van Keuren explained the potential contaminant sources inventory required for Phase II. Ms. Dickerson had some ideas of agencies that may have collected much of the data already, such as Kenton County DES.

Since so few people were in attendance, the next meeting date wasn't set. The meeting adjourned at 10:20 a.m..

#### CAMPBELL-KENTON WATER SUPPLY PLANNING COUNCIL

#### March 24, 1998 Meeting Summary



#### In Attendance:

Heidi Van Keuren, NKADD
Dennis Willaman, Northern Kentucky Water Service District
Phil Kloenne, Northern Kentucky District Health Department
Clark Millard, City of Wilder
Mark Pfefferman, Sts. Peter & Paul Elementary
Mary Kathryn Dickerson, Kenton-Campbell-Boone Conservation Districts

Ms. Van Keuren updated the group on the status of the Phase I plans. Both County plans were submitted in December to DOW, but no comments have been received to date. Also, a bill extending the water supply plan deadline to July 15, 1999 was passed by the House, but had not been passed by the Senate.

The Source Water Assessment portion of the Phase II plans was discussed. Topographic maps showing the area that needs to be inventoried for the Potential Contaminant Inventory were reviewed. The Licking River intake of the Northern Kentucky Water Service District will be time consuming because there is quite a bit of development in the area. Also, since Bank Lick Creek is within 1/4 mile of the intake, an inventory of this area will also need to be conducted. Kevin Flowers of the Florence DOW field office was suggested as a knowledgeable source about potential areas of contamination.

Supply protection recommendations were discussed. Ms. Van Keuren distributed a list of potential recommendations for the Council to review. The recommendations are rather generic because the primary water sources for the Counties are so large. Some suggestions for additional recommendations were made such as working with the Licking River Watch. The next meeting will begin with a public hearing to get input on water supply recommendations. The hearing will be advertised in the Kentucky Post.

Supply Contamination Response plans were discussed. Each water supplier needs a written plan detailing how the public would be notified of water supply contamination and identifying short and long term alternative sources of water. Questionnaires asking for pertinent information were distributed. Questionnaires will be mailed to water suppliers who were absent.

The public hearing and next meeting were scheduled for Tuesday, April 28, 1998 at 9:30 a.m. at the Northern Kentucky District Health Department Conference Room. The meeting adjourned at 10:40 a.m.

## CAMPBELL-KENTON WATER SUPPLY PLANNING COUNCIL April 28, 1998 Public Hearing & Planning Council Meeting



#### In Attendance:

Heidi Van Keuren, NKADD
Phil Kloenne, Northern Kentucky District Health Department
Jeff Earlywine, City of Ft. Thomas
David Dezeeuw, Newport Water
Mary Kathryn Dickerson, Kenton-Campbell Conservation Districts
Sr. Marilene Cullen, St. Anne Convent

Prior to the meeting, a public hearing was held to discuss the supply protection recommendations. Although the meeting was advertised in the <u>Kentucky Post</u> and a letter was sent to all the local water watch groups, no citizens attended. After some discussion, the following recommendations were unanimously adopted.

- 1. Continue to encourage land use controls that protect existing water sources.
- Work with the Natural Resource Conservation Service, Conservation Districts, and the Cooperative Extension Office to promote "best management practices" for construction and agricultural activities.
- 3. Provide assistance to the Northern Kentucky Solid Waste Management District in its efforts to clean open dump sites, promote proper disposal, and further public awareness and education.
- 4. Encourage and assist local water suppliers and distributors in their efforts to promote water conservation practices to customers.
- 5. Support the efforts of the Licking River Watershed Watch.
- Promote ORSANCO's Ohio River Sweep.
- 7. Cooperate with the Sanitation District to develop a regional Storm Water Management Plan.
- 8. Share information with the Health Department's Committee on Protocol for Assessing Community Excellence in Environmental Health.

There were no comments or questions regarding the March 24, 1998 meeting summary. Ms. Van Keuren reported on the status of the Phase I plans. DOW is asking for some minor changes which should be easy to address. DOW wanted additional water watch groups notified and asked that a wellhead protection schedule for Lally Pipe & Tube be included. There was some discussion regarding how to make a private industry comply with this. Also, DOW has helped the St. Anne Convent prepare a Phase I wellhead plan. This plan will be included in the Campbell County Water Supply Plan as an appendix. Also, the recommended protection areas for the Licking and Ohio River intakes have to show the 25 mile zone of responsibility.

Ms. Van Keuren updated the Council on the recent water supply planning workshop at General Butler State Park. DOW has not come up with an amendment process for the plans yet; however, they want to keep it simple. Also, there was some discussion regarding permitting for future use, instead of current use, based on the plan projections. Statewide, 55 Phase I and 16 Phase II plans have been approved.

Phase II planning activities were discussed. The contaminant inventory is a major undertaking and it is proving to be problematic to display the information graphically. Ms. Dickerson suggested that Ms. Van Keuren contact Steve Crabtree. Mr. Crabtree may have some information that would be useful.

Ms. Van Keuren shared a thank-you note that she had received from Wilma Baird on Grandview Road. Mr. Willaman has proposed a CDBG project that would include her road and she was very thankful for any assistance the Council may have provided.

The next meeting was tentatively scheduled for June 29, 1998 at 10:00 a.m. and the location was not decided. Mr. Dezeeuw offered some meeting space at the Newport Municipal Building.

## Campbell-Kenton Water Supply Planning Council June 29, 1998 Meeting Summary



#### In Attendance:

Heidi Van Keuren, NKADD
Dennis Willaman, Northern Kentucky Water Service District
Reverend Joseph Boschert, St. Peter & Paul School
David R. Dezeeuw, Newport Water Works
Phil Kloenne, Northern Kentucky District Health Department
Mary Kathryn Dickerson, Boone/Kenton/Campbell Conservation District

The meeting began with a review of the April 29, 1998 Public Hearing & Meeting Summary. There were no questions or comments.

Ms. Van Keuren updated the Council on the status of the Phase I plans. The changes requested by DOW, which related primarily to mapping, the water watch notification process, and wellhead protection plans, were submitted on June 24, 1998.

Ms. Van Keuren explained the Community Development Block Grant (CDBG) process and the recent addition of a point allocation based on the status of the water supply plan. Although the Department for Local Government (DLG) has not decided upon the number of points, points will be assigned based on the degree of completeness (Phase I submitted, Phase I approved, Phase II submitted, Phase II approved). Although the legislature extended the water supply plan deadline date until July 15, 1999, DLG has elected to keep the point allotment in this year's application. Applications are due by August 31, 1998. Since Campbell County is planning on submitting a water line extension project, the Campbell County Water Supply Plan is a priority. Ms. Van Keuren plans to submit the Phase II Campbell County plan by the end of July, hopefully assuring that the County receives at least 75 percent of the available points. It is improbable that DOW will review and approve the Phase II plan by the end of August; however, it is possible.

The status of water supply plans statewide was discussed. To date, 18 counties have Phase II plans approved. 11 counties have submitted Phase II. 34 counties have Phase I approved. 18 counties have submitted Phase I. Finally, the only counties that are not participating in the water supply planning process are Gallatin and Jefferson.

The next meeting was scheduled for Monday, July 27, 1998 at 10:00 a.m. at the Aqua Drive offices of the Northern Kentucky Water Service District. The meeting adjourned at 10:30 a.m.

# Appendix B: Notifications

## APPENDIX B NOTIFICATIONS

#### **Notifications to Adjacent Counties**

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

The following is a list of recipients of this letter.

Judge/Executive Ken Lucas, Boone County Mayor Evelyn Kalb, City of Florence Mayor Warren Moore, City of Union Mayor Phil Trzop, City of Walton Judge/Executive Shirley Howard, Grant County Mayor Martha Hicks, City of Crittenden Mayor Winford Colson, City of Corinth Mayor Norman Ferguson, City of Dry Ridge Mayor Robert Jones, City of Williamstown Judge/Executive Don Mays, Pendleton County Mayor Delbert Reid, City of Butler Mayor Max Goldberg, City of Falmouth Trapp Water Company Rauh Water Supply **Arlinghaus Properties** Hillside Trailer Park Birkle Water Supply I-75 Camper's Village

#### Notification to Local Governments and Water Suppliers in the Planning Unit

A letter was also sent to local units of government in Campbell and Kenton Counties, water suppliers that provide water for use in Campbell and Kenton Counties, and all local governments that share the same water sources (Ohio and Licking Rivers, Bullock Pen Lake). Please note that most governments sharing the same water sources received the letter above which had the same content. Governments in Ohio were not notified per conversation with Water Quantity Management staff. The letter notified recipients of Campbell and Kenton Counties water supply planning activities and requested pertinent information (see sample).

The following is a list of recipients:

Mayor Patrick Fanning, City of Alexandria Mayor Thomas Wiethorn, City of Bellevue Mayor Walter Govan, City of California Mayor Clarence Martin, City of Cold Spring Mayor Pat Stortz, City of Crestview

Mayor Bobby Crittendon, City of Dayton

Mayor Steven Pendery, City of Ft. Thomas

Mayor Charles Roettger, City of Highland Heights

Mayor Maurice Hehman, City of Melbourne

Mayor Matt Franck, City of Mentor

Mayor Frank Peluso, City of Newport

Mayor Carl Schwarber, City of Silver Grove

Mayor Charles Melville, City of Southgate

Mayor Jerry Williams, City of Wilder

Mayor John Haun, City of Woodlawn

Judge/Executive Kenneth Paul, Campbell County

Judge/Executive Clyde Middleton, Kenton County

Mayor James Miller, City of Bromley

Mayor Denny Bowman, City of Covington

Mayor Maeston Ward, City of Crescent Park

Mayor George Stewart, City of Crescent Springs

Mayor Harold Ries, City of Crestview Hills

Mayor John Link, City of Edgewood

Mayor Al Wermeling, City of Elsmere

Mayor Marc Otto, City of Erlanger

Mayor Harold Parks, City of Fairview

Mayor Thomas Holocher, City of Ft. Mitchell

Mayor Cindy Pinto, City of Ft. Wright

Mayor Isaac Gabbard, City of Independence

Mayor Michael Pendery, City of Kenton Vale

Mayor Frank Smith, City of Lakeside Park

Mayor Clifford Coyle, City of Latonia Lakes

Mayor Gerald Holloway, City of Ludlow

Mayor Melissa Worstell, City of Park Hills

Mayor Bob Miller, City of Ryland Heights

Mayor Mark Kreimborg, City of Taylor Mill

Mayor Dennis Stein, City of Villa Hills

Bullock Pen Water District

Northern Kentucky Water Service District

St. Anne's Convent

Newport Water Works

Green Valley Trailer Park

#### **Public Notifications**

A Notice of Intent to Plan was placed in the legal section of the May 1, 1997 <u>Kentucky Post</u> and the May 8, 1997 <u>Campbell County Recorder</u>. The public hearing notice for the planning objectives was placed in the May 8, 1997 <u>Kentucky Post</u>. Copies of the notices are included in the end of this appendix.

#### Water Watch Groups

The following representatives of Water Watch Groups were notified and invited to participate in the planning process (see sample).

Suzy Wera, Beechwood School

Gary Turner, Simon Kenton High School

Diane Becker, Ludlow School

Curtis Massey, Fourth District Schools, Covington

Marian Sumner, Holmes Jr. High School

Lanita Boyd, Ruth Moyer School

Tim Schneider, Campbell County Middle School

Carrie Eaton, St. Thomas School

Clarence Spencer, Dayton High School

Philip Ruwe, Ft. Thomas

Marg Theurer, Cincinnati Community Rowing Club

Giles Hertz, Sierra Club/Elkhorn Paddlers

Greg Cunningham, Sierra Club

Arli Eiseman, Lakeside Park

Larry Varney, Campbell County Conservation District

Ron and Mary Beth Lusby, Sierra Club

Jim Vogt, Latonia Neighborhood Association

Larry and Susan Patton, Sierra Club

Don Girton, Izaak Walton League

Mark Bergman, Izaak Walton League

Julie Moore, Sierra Club

Robin Root, APES-NKU

Kathy Saalfeld, Ft. Thomas

Rose and Jack Pfaff, Highland Heights

Daniel Cox, Independence

Daniel Phirman, Thomas More College

Colleen Epperson, Ludlow High School

Bill and Sharon Hearing, Sierra Club

Jennifer Williams, Melbourne

Joe Darpel, Cold Spring

Linda Riess, Independence

Anthony Blakely, Ft. Mitchell

Michael Born, Covington

Dan Feldman, Alexandria

Rose Marie Kuebbing, Latonia

Linda Heath, Melbourne

Dena Espenscheid, Thomas More College

Joseph Wall, Ft. Wright

Bill O'Malley, Sunrise

Priscilla Thompson, Lloyd High School

#### **Information Review**

The only information received was from the City of Wilder. However, there are several important sources including: 1990 <u>Licking River Basin Study</u> and the 1995 <u>Northern Kentucky's Future:</u> <u>Comprehensive Plan Update</u>.

#### City of Wilder

The City of Wilder provided the following information regarding their infrastructure needs. It is not a comprehensive list, but these needs have been discussed and prioritized over the past five years.

- 1. Water lines should be installed at I-275 interchange connecting north side of interchange to south side creating a loop in the system and eliminating two dead end lines.
- 2. Water line should be extended from North Street and Licking Pike to 30" water main at Licking Pike and Steel Plant Road. This will provide backup water and better circulation to water district in case of break of 36" main along Moock Road. This will also add a limited amount of customers along Licking Pike.
- 3. A water line should be extended from Bentwood Hills Drive up Three Mile Road to I-275 to loop system and provide water service to Three Mile Road area. This would eliminate dead end systems and provide water service to a limited number of customers.
- 4. Effort should be made to eliminate dead end lines where possible.
- 5. Hydraulic study of the service area should be completed as soon as possible considering development that is occurring in the region so developers will know what size/type of services are to be expected.
- 6. Water District should continue to work with local planning units and keep local officials informed of the types of services and plans the district is considering in each jurisdiction.



### NORTHERN KENTUCKY AREA DEVELOPMENT DISTRICT 16 SPIRAL DRIVE / P.O. BOX 668 / FLORENCE, KENTUCKY 41022-0668 PHONE (606) 283-1885 / FAX (606) 283-8178 / TDD (606) 282-2707



John Mays, Executive Director

April 28, 1997

Donald R. Mays
Judge/Executive
Pendleton Co. Courthouse
Falmouth, KY 41040

Dear Judge Mays:

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

The Campbell-Kenton Water Supply Planning Council consists of:

Ralph Bailey - Kenton County Fiscal Court
Sister Marilene Cullen - St. Anne Convent
Naguanda Deaton - Campbell County Fiscal Court
David Dezeeuw - Newport Water Works
Jeff Earlywine - City of Ft. Thomas
Kirtley Fillhardt - Green Valley Trailer Park
Phil Kloenne - Northern Kentucky District Health Dept.
Clark Millard - City of Wilder
Mark Pfefferman - St. Peter & Paul Elementary
Bob Reis - St. Peter & Paul Elementary
Steve Trauth - Louis Trauth Dairy
Dennis Willaman, Council Chair - Northern Kentucky Water
Service District

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 me at P O Box 668, Florence, KY 41022-0668 (606) 283-1885 or e-mail at hvankeuren@juno.com.

Sincerely,

Heidi Van Keuren

Planning Representative

HVK/mw

In compliance with the planning requirements and in the interests of cooperation, please submit any pertinent information, such as the following, to me by May 15, 1997:

- A copy of any existing water or related plans;
- 2) A statement of any current or potential conflicts, problems or opportunities that the local government or water system want the planning process to examine or address, including water use rights, access and conservation; and
- 3) A description of any expected changes that may alter current growth trends, including existing ordinances and planning goals.

If you would like to attend planning council meetings, receive minutes from the meetings, or submit written comments involving the plan or planning process, please contact me at (606) 283-1885, P.O. Box 668, Florence, KY 41022-0668 or e-mail at hvankeuren@juno.com.

HVK/mw



## **MEMORANDUM**

DATE:

April 28, 1997

TO:

Boone/Campbell/Kenton/Grant County Judges and Mayors, Mayor of Crittenden, Bullock Pen Water Dist., Pendleton

Co. Water Dist. #1/North, and Ross Resorts

quid- V- h

FROM:

Heidi Van Keuren, Planning Representative

RE:

Water Supply Plans

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

The Campbell-Kenton Water Supply Planning Council consists of:

Ralph Bailey - Kenton County Fiscal Court
Sister Marilene Cullen - St. Anne Convent
Naguanda Deaton - Campbell County Fiscal Court
David Dezeeuw - Newport Water Works
Jeff Earlywine - City of Ft. Thomas
Kirtley Fillhardt - Green Valley Trailer Park
Phil Kloenne - Northern Kentucky District Health Dept.
Clark Millard - City of Wilder
Mark Pfefferman - St. Peter & Paul Elementary
Bob Reis - St. Peter & Paul Elementary
Steve Trauth - Louis Trauth Dairy
Dennis Willaman, Council Chair - Northern Kentucky Water
Service District

16 SPIRAL DRIVE / P.O. BOX 668 / FLORENCE, KENTUCKY 41022-0668 / PHONE (606) 283-1885 / FAX (606) 283-8178 / TDD (606) 282-2707

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. . .

Campbell 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 planning unit will include Campbell and Kenton Counties.

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

Ralph Bailey - Kenton County Fiscal Court
Sister Marilene Cullen - St. Anne Convent
Naguanda Deaton - Campbell County Fiscal Court
David Dezeeuw - Newport Water Works
Jeff Earlywine - City of Ft. Thomas
Kirtley Fillhardt - Green Valley Trailer Park
Phil Kloenne - Northern Kentucky District Health Dept
Clark Millard - City of Wilder
Mark Prefferman - St. Peter & Paul Elementary
Bob Reis - St. Peter & Paul Elementary
Steve Trauth - Louis Trauth Dairy
Dennis Willaman, Council Chair - Northern KY Water Service District

The public is invited to attend and comment at all meetings of the planning council. Additionally, two meetings will be held specifically to solicit public input concerning objectives for the planning process.

The next planning council meeting will be held on Thursday, May 15, 1997 at 10:00 a m. at the Edgewood office of the Northern Kentucky Water Service District, 3049 Dixie Highway.

For more information contact

Heidi Van Keuren Northern Kentucky Area Development District 16 Spiral Dr., P.O. Box 668 Florence, KY 41022-0668 (606) 233-1885

#### LEGAL NOTICE

A public hearing will be held by the Cold Spring City Council at the city building, 120 E. Alexandria Pike, on Tuesday, May 20, 1997 at 7:15 pm for the purpose of obtaining written and oral comments of citizens regarding possible use of Municipal Aid Road Funds. The City currently has \$1,100.00 in carry over funds from fiscal year 1996-97 and will be receiving \$93,000.00 during fiscal year 1997-98, for a total of \$94,100.

All interested persons and organizations in Cold Spring are invited to the public hearing to submit oral or written comments on the possible use of the Municipal Ald funds. These funds will be used for the construction, re-construction, maintenance or repair of city streets.

Any person(s), especially senior citizens, who cannot submit comments should call the city building at 441-9604 so that arrangements can be made to secure their comments.

Carole Huber
City Clerk

Back Huber

#### NOTICE OF ADOPTION AND SUMMARY OF ORDINANCES

The undersigned City Clerk of the City of Newport, Kentucky hereby states that on April 28, 1997, the City of Newport, Kentucky adopted the following Ordinance entitled:

COMMISSIONERS ORDINANCE NO. 8-97-5

AN ORDINANCE OF THE BOARD OF COMMISSIONESR OF THE CITY OF NEWPORT, KENTUCKY AUTHORIZING THE CITY MANAGER TO ACCEPT THE BID OF HEITKER GENERAL CONSTRUCTION FOR THE SIDEWALK IMPROVEMENTS PROJECT ON RIVERBOAT ROW IN THE CITY OF NEWPORT, KENTUCKY, PURSUANT TO BIDS RECEIVED ON FEBRUARY 3, 1997.

The City Clerk of the City of Newport, Kentucky hereby certifies that the above summary is true and correct and written in a way calculated to inform the public of its content.

FRANK PELUSO, CITY CLERK

The undersigned, an atterney licensed to practice law in the Commonwealth of Kentucky, hereby cartifies that he propared the summary of ordinance referred to above and that the summary represents an accurate depiction of the contents of the ordinance adopted by the City of Newport, Kentucky on April 28, 1997.

MICHAEL L SCHULKENS

I hereby certify that the following are the title of Alexandria, Cempbell County, Kentucky

ORDINANCE 4-97: AN ORDINANCE OF KENTUCKY, ADOPTING AND APPROVI PLANNING COMMISSION AS AMENDED ORDER TO REGULATE OUTSIDE SALES

ORDINANCE 6-97: AN ORDINANCE OF KENTUCKY, REQUIRING A PERMIT FC TOWERS, ENCOURAGING SUCH TOWERS OTHER SUCH TOWERS, REQUESTING THE TO ADVISE THE MAYOR AND COUREGULATIONS FOR TELECOMMUNICATION

I, Michael A. Duncan, an attorney licensed to p Attorney for the City of Alexanchia. Campbell C summaries of Ordinances 4-97 & 6-97 were depiction of the contents of said Ordinances of the City Clent, 400 West Main Street, Alex

LE

The City of Cold Spring general insurance coverage packets are available at t. E. Alexandria Pike, Cold between 9:00 am and 4:00 pr

Sealed bids will be office, at the above addr time on June 17, 1997. Bit City Council meeting at 7:1

PUBL MUNICI PROPOSE

A PUBLIC HEARING WILL BE HELD THE CIVIC CENTER, 175 JOHNS HILL THE PURPOSE OF OBTAINING W CITIZENS REGARDING POSSIBLE U CURRENTLY HAS APPROXIMATELY FISCAL YEAR 1996/1997 AND WILL DURING THE FISCAL YEAR 1997/1991

ALL INTERESTED PERSONS AND OR INVITED TO THE PUBLIC HEARING TON THE POSSIBLE USE OF THE MUBE USED FOR THE CONSTRUCTION REPAIR OF CITY STREETS.

ANY PERSON(S), ESPECIALLY SEN WRITTEN STATEMENT OR ATTEND T CITY BUILDING AT 441-8575 SO ARF THEIR COMMENTS. THE CITY BUILDI MONDAY THROUGH FRIDAY.

IMMEDIATELY FOLLOWING THE SCHEDULED COUNCIL MEETING WILL

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1G3AK47F4BM438841, 1979 Chrys SS22G9R110102, 1984 Chev 1G1AD69P6EJ103316, 77 AMC A7445E780192

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1973 Ford 3F01F108440, 1984

Bulck 1GAAS27P7EK424733,
1977 AMC A7A445E780804,
1983 Olds 1G3BN49746F9081552,
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LEGAL MOTICE
The City of Esmere will hold a
Board of Adjustment Aveting
on Wednesday, May 14, 1977,
P.M., at 318 Garvey Avenue,
Esmere, KY. The First Baptist
Oruch of Esmere is seeking a
conditional use permit and sevcrel variances to expand. The
Ourch is located at 1007 Gervey Avenue All interested
permits are urged to attend.
12722.
LEGAL serverse.



#### EQUAL HOUSING OPPORTUNITY

All real estate advertising in this newspaper is subject to the Federal Fair Housing Act of 1968 which makes it illegal to advertise any preference, limitation or discrimination based on race, color, religion, sex, national origin, handicap or familial status or an intention to make any such preference, limitation or discrimination

This newspaper will not knowingly accept any advertising for real estate which is in violation of the law Our readers are hereby informed that all dwellings advertised in this newpaper are avelable or or equal apportunity basis

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PT THOMAS—Charming 3BR. 11/2 Ba. howd firs, updated kit. \$73,000. 441-3408

FT THOMAS-Complete reno-vation, 3 br. f/r, deck, Own/Agt D.Cuit Co 441-3070

Own/Agt D.C.B. Co 441-3070
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735 Highland Ave. Set. 5/9
6 rm brick, 3 BR, full burnt 1st
ftr. 1/2 bath 2nd. 1/2 in barnt,
TERMs of Real Estate 10%
day of sale, balance at closing within 30 days of sale. Call
for preview & further into.
Jay Teoparden. Auctioneer.
781-8800 TEEGARDEN REALTY & AUCTION, BNC.
FT. THOMAS-View. Nich and.

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T WRIGHT-F1 Herry, 3 BR. 21/3 BA. LR. FR. Ig kit, Ig deck. Reduced 331-5339

NEDEPENDENCE-3 BR brick rench, 2½ BA, WBFP, ingrad pool, ig bern, take, 13 eCrss. \$259,500, 431-8044, 371-9778.

LATONIA-5 rms. LR. DR. BR. remod kil-beth, off-st pring. NJ burnt \$45,000 586-6681

LATONIA-Newly remod 5 rms. 2 BA, c/a, below mit value 859,500 frm 291-1110 341-4707

2 br. 142 be full burnt, gas heat. C.A. Professed Prop-erties 37-477

erries 371-677

IEWPORT - New Isting, retiree, single, nawly married,
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range, Call Mary, Fromme
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### PUBLIC HEARING NOTICE

To all interested citizens. The Campbell-Kenton Water Supply Planning Council will hold a public hearing to solicit input concerning objectives for the Campbell and Kenton County Water Supply Plans, as mandated by KRS Chapter 151. The purpose of the plans is to assess the water resources available to each county including planning for emergencies and protection of water supply sources.

The hearing will be held Thursday, May 15, 1997 at 10:00 a.m. at the Edgewood office of the Northern Kentucky Water Service District, 3049 Dixie Highway, Edgewood, KY.

For more information or to submit written comments, contact:

> Heidi Van Keuren Northern Kentucky Area Development District 16 Spiral Dr., P O Box 668 Florence, KY 41022-0668 (606) 283-1885

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COLD SPRING-Zoned Special Comm. Development Area Comm. Development Area. & ac., corner, level tot. 101.7' frontage, on US 27. Many options. \$25,500/postable lease. Call Babe Steppe, 781-1476; Kalser Realty, 261-5102

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ATOMIA -- Store front/business rental space, great loca-tion, 200 sq.ft. w/extra for storage Call 356-1446

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PT THO MAS-3 mini office spaces w/bath fac., heat/we-ter/elec furn. Use together or will apparate \$125-\$195.
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COVINGTON—Clean 2 & 3 room apts. All utilities paid. Deposit & rets. 291-0616

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#### NORTHERN KENTUCKY AREA DEVELOPMENT DISTRICT 16 SPIRAL DRIVE / P.O. BOX 668 / FLORENCE, KENTUCKY 41022-0668 PHONE (606) 283-1885 / FAX (606) 283-8178 / TDD (606) 282-2707

John Mays, Executive Director

April 21, 1998

#### Dear Water Watch Program Participant:

Campbell and Kenton Counties, a joint planning unit, are currently in the process of preparing water supply plans in accordance with state law, KRS 151.110 through 116. The purpose of the plans is to assess the long-range water supply availability for each County. Phase I plans, which have been submitted in a draft format to the Division of Water, assessed the adequacy of the existing water supply for residential, commercial, municipal and industrial needs through 2020. Since the Phase I plans found the water supply to be adequate, Phase II of the plan will focus on protection of the existing supply.

The Campbell-Kenton Water Supply Planning Council currently consists of the following members:

Dennis Willaman, Northern Kentucky Water Service District, Council Chair Ralph Bailey, Kenton County Fiscal Court
Sister Marilene Cullen, St. Anne Convent
Naguanda Deaton, Campbell County Fiscal Court
David Dezeeuw, Newport Water Works
Jeff Earlywine, City of Ft. Thomas
Kirtley Fillhardt, Green Valley Trailer Park
Phil Kloenne - Northern Kentucky District Health Department
Clark Millard, City of Wilder
Mark Pfefferman, St. Peter & Paul Elementary
Bob Reis, St. Peter & Paul Elementary
Steve Trauth, Louis Trauth Dairy

As a member of a local water watch group, the Planning Council is interested in your input. If you would like to attend Planning Council meetings (next meeting is scheduled for Tuesday, April 28, 1998 at 9:30 a.m. at the Northern Kentucky District Health Department, 610 Medical Village Drive, Edgewood, KY), receive minutes from the meetings, or submit written comments involving the plan or planning process, please don't hesitate to contact me at NKADD, 16 Spiral Dr., P O Box 668, Florence, KY 41022-0668, (606) 283-1885 or e-mail at hvankeuren@juno.com.

Sincerely,

Heidi Van Keuren

Planning Representative

HVK/mw

V- Ken

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1973 Ford 3F01F108440, 1984 Bulck 1G4AS27P7EK424733, 1977 AMC A7A455E280804, 1985 Okts 1G3BN69A6F9081552, 1 9 8 9 Ch 6 v EG25K&K4139521. 227953

LEGAL NOTICE
The City of Elsmere will hold a Board of Adjustment Meeting on Wednesday, May 14, 1977, 7 P.M., at 318 Garvey Avenue, Elsmere, KY. The First Baptist Ohurch of Elsmere is seeking a conditional use permit and several veriences to expend. The Church is located at 1007 Garvey Avenue. All Interested perties are urged to ettend. 12325 225601

LEGAL NOTICE
JONATHAN W. COTTRELL,
Attorney at Law, P.O. Box 874,
Sandpoint, ID 83844, (208)
263-7534, IN THE DISTRICT
COURT OF THE FRST JUDCIAL DISTRICT OF THE
STATE OF IDAHO, IN AND
POR THE COUNTY OF BONNER MAGISTRATE DIVISION.
In the matter of termination of
perential rights and adoption
with respect to FELICIA MARIE FULTZ, DOB 11/30/1984.
SP-96-00244. SUMMONS. NOTICE: YOU HAVE BEEN SUED
BY THE ABOVE-NAMED
PLAINTIFF(S). THE COURT
MAY ENTER JUDGMENT
AGAINST, YOU WITHOUT
FURTHER NOTICE UNLESS
YOU RESPOND WITHIN 20
DAYS. READ THE REFORMA-

100

### EQUAL HOUSING OPPORTUNITY

All real estate advertising in this newspaper is subject to the Federal Fair Housing Act of 1968 which makes it illegal to advertise any preference, limitation or discrimination based on race, color, religion, sex, national origin, handicap or familial status or an Intention to make any such preference, limitation or discrimination.

This newspaper will not knowingly accept any advertising for real estate which is in violation of the law. Our readers are hereby informed that all dwellings advertised in this newpaper are available on an equal opportunity basis.

75

CHRISTMAN Family Realtors

### **PUBLIC HEARING NOTICE**

To all interested citizens. The Campbell-Kenton Water Supply Planning Council will hold a public hearing to solicit input concerning objectives for the Campbell and Kenton County Water Supply Plans, as mandated by KRS Chapter 151. The purpose of the plans is to assess the water resources available to each county including planning for emergencies and protection of water supply sources.

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For more information or to submit written comments, contact:

> Heidi Van Keuren Northern Kentucky Area Development District 16 Spiral Dr., P O Box 668 Florence, KY 41022-0668 (606) 283-1885

Own/Agr D.Culls Co 441-3070
PT. THOMAS-Estate Auction.
935 Highland Ave. Ser. 5/10
6 rm brick. 3 BR, full bsrnt 1st
fir, 1/2 barh 2nd, 1/2 in bsrnt,
TERMs of Real Estate 10%
day of sale, balance at closing within 30 days of sale. Call
for preview & further info.
Jay Teegarden , Auctioneer.
781-8800 TEEGARDEN REALTY & AUCTION, INC.
ET. THOMAS-View, Nich and.

vation, 3 br, f/r, deck, Own/Agt D.Culls. Co 441-3070

FT. THOMAS-View, high end, superior workmanship. D. Cull & Co. 441-3070

FT WRIGHT-Ft Henry. 3 BR, 2½ BA, LR, FR, Ig kit, Ig deck. Reduced. 331-8339

INDEPENDENCE-3 BR brick ranch, 2½ BA, WBFP, Ingrid pool, ig barn, lake, 13 acres. \$259,500. 431-8044, 371-9778.

LATONIA-5 rms, LR, DR, BR, remod kif-bath, off-st prkng, full bsmt. \$45,000. 586-6681

LATONIA-Newly remod 5 rms, 2 BA, c/a, below mkt value \$59,500 firm 291-1110 341-4702 \$65,0

session sessio

emis 37-477
EWPORT-New Esting, retires, single, newly married, must see this 3 rm contage, new vinyl windows, furnace, a/c, LR & BR carpeted, window blinds & drapes remain in home, price incl. new washer-dryer, refrig & range. Call Mary, Fromme Real Estate 431-8147

VILLA HILLS
JUST LISTED THIS
WEEK-4 bedroom, 2.5
bath, 2 story, new roof &
water heater, 2 family
roomsi 2 car garage. Only
\$144,900

\$144,900 CRESCENT PARK-Just listed, 2 bedroom ranch, 1 car garage, new cabs in kitchen, new roof. Only

\$64,700: Visit our home page at: http://home.fuse.net/ shristman/

331-9626

75 **958** 

nons. \$225,000/possible Call Babe Steppe, 781 Kaiser Realty, 261-5102 781-1476:

175 ladesus

BURLINGTON AREA-Nr Air-port. Up to 5000 sq.ft. ware-tiouse or light industry space. Also 2000 + sq.ft. office space avail. Call 371-3538

FLORENCE--Warehouse space avai, 2800 sq. ft. from \$3.75. Call Tim at 801-298-2216

Totall for Lease

FLORENCE-Night club for rent, approx 3500 sq ft. Call for details/appt, 525-6893

FLORENCE--Retail/office. 1200-1725 sf, high traffic, ample prkg. 581-2225, lv msg.

LATONIA-Storefront/business rental space, great location, 300 sq.ft. w/extra for storage. Call 356-1446

# 183 Office Space or Locks

ALEXANDRIA-Office space for lease; 600 sq. ft. Imm. occ. 7967 Alexandria Pk. 635-9779 CRESCENT SPRING-Aprox. 500 sq. ft. Ample perking. \$375/mo. 331-5786

CRESTVIEW MILLS—1144 sq ft, 3 offices, 1 conference rm, reception area, immediate occup., call 578-0655

PT. MITCHELL-Off Butter-mik Pk. Prime location. 1300 sq ft. No build-out req'd. 2500 sq ft, formerly UDF, build to suit. 331-4443

T. THOMAS—1 person sultes-2100, built to suit, 8-10 per s.f. D. Cull & Co. 441-3070

T THOMAS—3 mini office spaces w/bath fac, heat/wa-ter/elec furn. Use together or will separate \$125-\$195. 781-5100 Gary or Beverty

T THOMAS Next to Y, nr 471 1200-1400 sq.ft, \$7/sqft inci util, prkng. Schoept 781-6000

FT. WRIGHT EXECUTIVE II To be constructed. For information call 331-4800

# 190 westment

LUDLOW investment Building in good shape, very clean. \$65,000 Robin 920-7970 Ky 1st Realtors 371-7788

## 197 Real Estate

CASH OFFER-In 48 Hrs for homes, any condition. Call Paul 384-3553 Anytime

CASH FOR YOUR HOUSE S Any Area/Cond. Close guick. 331-5559 or 365-4663

# 200 Appliments

COV-3 rms, luxury furn. Ev-erything included. Prkng. 8385/mo. 581-4005, 556-5338 COV, Beautiful 2 rms,quiet bldg.utii pd, carpet. \$60/ wk+\$125 dep. Refs. 781-3265 COV EASTSIDE, 3 Rms 2nd, \$340 mo. + deposit, Utils In-cluded, Coin laundry, 331-6043

COV/HOLMAN- 1st or 2nd fir carpeted, washer/dryer te-clittles. \$50-\$65/wk, 781-5847

COV-Newly decor 2 rm effcy. 1 person. Quiet. Cable. References & deposit. 261-5550

COV., Upper-Nice 1 rm apt. \$80 wkly + dep. All utilities paid. No pets. Call 356-8032 COVINGTON-3 sm rms, pvt, crpt, extra clean. Also 1 per-son effc, bus. 261-6980

COVINGTON-Clean 2 & 3 room apts. All utilities paid. Deposit & refs. 291-0616

COVINGTON-Clean 2 & 3 room apts. All utilities paid. Deposit & refs. 291-0616

Swimming Pool Dickman Emery A: 291-2282

COVINGTON-NICE 1st fl.2 bdrm. nice area, pet & shower, fenced yard. \$375, 311 E. 18tt 261-1745

### Cres. Springs, Ft. Mitc Ft. Wright Areas LUXURY 1 & 2 BR

Spacious floor plans
Equipt kif., some micro
Walk-in closets
Laundry facil, each bld
Balcony or patio
Pool or clubhouse
Some include heat
Some w/2 full baths
Limited access
AMIss. from X-way/Airi
No pets
331-4800, 341-2593

331-4800, 341-2593 331-3148, 261-1872

Crescent Springs/Ft. Mi ell-2 & 3 bdrm townhor Free heat. Starting @ 1 Call 331-8474

# CHATEAU RIDGE

2 Br quiet res well main 5min dintwn \$455, 781-099

EDGEWOOD-Clean 2 BR plex, 1½ BA, 2 sty, full bt WBFP, no pets, \$615 331-5 eapt kit. W/D hkup, no p \$530mo; 1 yr lease. 331-80

ELSMERE- 1 BR, 2nd fir, large yard, \$325/mo. + 1 deposit, 586-7408

ERLANGER-Duplex, 2 BR, ba, wbfp, equipt kit., \$550 + \$550 dep. 689-5685

### ERLANGER

GREENFIELD APT 1 & 2 Bdrm apts. Frostf refrig., self-cleaning or dishwasher, C/A, wired cable TV, pool. Double p windows & well insular Start \$350-5495. Now av able 6-12 mos lease. No p 5 mins from I-75. Call 727-9 between 10am-spm Mon-FLORENCE-1 BR, complet

remod., great neighborho \$425. 282-8843, 282-7373. FLORENCE- 1st Floor apr

ments in nice ar Wash/Dry hookup, 371-78

FLORENCE/HEBRON

SAVE \$660

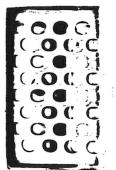
 3 Bdrm, 2½ Bathrooms
 Pool. Exercise Brooms Pool, Exercise Room
 Only \$540 a Month
 Great Location

**COUNTRY PLACE** CALL NOW!! **606-689-4**100

Professionally Managed b Flourncy Properties Equal Housing Opportunit Limited Time Only

HERITAGE PARK APTS SOME WITH) FIREPLACES WASHER/DRYER HOOKUP \$200 SEC DEP SPECIAL

371-5333



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Private Party Advertisers Only

You Can Sell It Fast With A Classified Ad! Call 421-6300!

LEGAL NOTICE
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MAY ENTER JUDGMENT
AGAINST, YOU WITHOUT
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227953

Own/Agr D.Culls Co 441-3070
FT. THOMAS-Estet Auction.
925 Highland Ave. Ser. 5/19
6 rm brick, 3 BR, full bsmit 1st.
11/2 bath 2nd, 1/2 in bsmit,
TERMs of Real Estate 10%
day of sale, balance at closing within 30 days of sale. Call
for preview & further info.
Jey Teegarden , Auctioneer.
781-8800 TEEGARDEN REALTY & AUCTION, INC.

TT. THOMAS-CVIEW Islands.

vation, 3 br, 1/r, deck, Own/Agt D.Cuille Co 441-3070

T. THOMAS-View, high end. superior workmanship D. Cull & Co. 441-3070

T WRIGHT-F1 Henry. 3 BR, 2½ BA, LR, FR, ig kit, ig deck, Reduced. 331-5339

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ATONIA-Newly remod 5 rms, 2 BA, c/a, below mkt value \$59,500 firm 291-1110 341-4702

503 Church St. 2 br, 1½ ba full barnt, gas heat, C/A. Preferred Preperties 371-4777

erties 37-4777

NEWPORT-New Esting, retiree, single, newly married, must see this 3 rm cortage, new vimy windows, furnace, a/c, LR & BR carpeted, window binds & drapes remain in home, price incl. new washer-dryer, retrig & range, Call Mary, Fromme Real Estate 431-6147

VILLA MILLS

JUST LISTED THIS
WEEK-4 bedroom, 2.5
beth, 2 story, new roof &
water heater, 2 family
roomsi 2 car garage. Only
\$144,900

5144,900 CRESCENT PARK-Just fisted, 2 bedroom rench, 1 car garage, new cabs in kitchen, new roof. Only

Visit our home page at: http://kems.fms.aut/ eliristmas/

331-9626

CHRISTMAN Family Realton

We Are The Villa Hills Villa Hills Specialists! \*\*

75 P.

Call Babe Steppe, 781-1476; Kalser Realty, 261-5102

# 175 ladebuse

BURLINGTON AREA-Nr Air-port. Up to 5000 sq.ft. ware-house or light Industry space. Also 2000 + sq.ft. office space avail. Call 371-3538

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COVINGTON-3 sm rms, pvt, crpt, extra clean. Also 1 per-son effc, bus. 261-6980

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COVINGTON-NICE 1st fl.2 bdrm. nice area, pet & shower, fanced yard. \$375. 311 E. 18tt 261-1745

Swimming Pool Dickman Emery Ap 291-2282

# Cres. Springs, Ft. Mitc

Ft. Wright Areas LUXURY 1 & 2 BR

LUXURY 1 & 2 BR Specious floor plans Equipt kit., some micro Walk-in closets Laundry facil, each bid Balcony or patio Pool or clubhouse Some include heat Some w/2 full baths Limited access Mins from Yamay Alex Mins. from X-way/Airr

331-4800, 341-2593 331-3148, 261-1872

Crescent Springs/Ft. Mi-ell-2 & 3 bdrm townhon Free heat. Starting @ \$ Call 331-8474

# CHATEAU RIDGE

2 Br quiet res well main 5min dntwn \$455, 781-099

EDGEWOOD-Clean 2 BR plex, 1½ BA, 2 sty, full bs WBFP, no pets, \$615 331-5 egpt kit. W/D hkup, no pi \$530mo; 1 yr lease. 331-80

ELSMERE- 1 BR, 2nd fir, large yard, \$325/mo. + \$ deposit, 586-7408

ERLANGER-Duplex, 2 BR,

ba, wbfp, equipt kit., g \$550 + \$550 dep. 689-5689

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GREENFIELD APT: 1 & 2 Bdrm apts. Frostfi refrig., self-cleaning ov-dishwasher, C/A, wired cable TV, pool. Double ps windows & well insulat 5tart \$350-\$495. Now av-able 6-12 mos lease. No ps 5 mins from 1-75. Cal 727-9, between 10am-6pm Mon-f

FLORENCE-1 BR, complet remod., great neighborho \$425, 282-8843, 282-7373.

FLORENCE- 1st Floor apa ments in nice are Wash/Dry hookup, 371-780

FLORENCE/HEBRON

SAVE \$660

ON A SPACIOUS

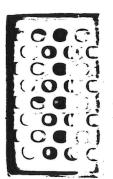
3 Bdrm, 2½ Bathrooms
Pool, Exercise Room
Only \$540 a Month
Great Location

### **COUNTRY PLACE** *Call Now!!* **6**06-689-4100

Professionally Managed by Flournoy Properties Equal Housing Opportunity Limited Time Only

lorence, Near HERITAGE PARK APTS SOME WITH) FIREPLACES WASHER/DRYER HOOKUP \$200 SEC DEP SPECIAL

371-5333



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# Appendix C: Workplan

### **PROPOSAL**

### CAMPBELL-KENTON WATER SUPPLY PLAN

### I. Introduction

In 1990, the Kentucky Legislature mandated county-level, long-range water supply planning. The subsequently promulgated water supply planning regulation divides the planning process into two phases. In Phase I, the future demand for water is projected over a twenty year period. Projected demand is then compared to available water from existing water sources. If the water supply is considered to be adequate, Phase II planning activities focus on supply protection and preparation for shortages or contamination. If the supply is inadequate, then alternative water sources will be considered in Phase II.

Every county must have an approved water supply plan in place by July 15, 1998. If an approved plan is not in place, then the Natural Resources & Environmental Protection Cabinet will not endorse projects that impact water under the Kentucky Intergovernmental Review Process (KIRP). The Division of Water is strongly suggesting that Phase I plans be submitted by June 30, 1997 to allow adequate time for review and revision.

The Division of Water encourages the formation of multi-county planning units; however, a separate plan document must be prepared for each county.

### **II.** Scope of Services

NKADD staff will complete all duties assigned to the planning representative per 401 KAR 4:220, Section 6, except map preparation. NKADD will coordinate with NKAPC for mapping services. Tasks have been divided into the following categories: planning, data collection, computer modeling and analysis, and engineering. Additionally, NKADD staff will provide assistance with planning council responsibilities including meetings, public hearings, and public notices.

### PHASE I

### **Planning**

- 1. Develop a work plan for submission to the cabinet.
- 2. Identify and describe obstacles to the planning process.
- 3. Describe water-use conflicts or potential conflicts, if any.
- 4. Identify potential sources of water to use in case of contamination or some similar emergency.

5. Include all work in plan documents per regulation.

### **Data Collection**

- 1. Assemble and review all information collected during the notification process.
- 2. Assess water use for the base year by determining the amounts of water used by water suppliers, by water supply distributors, by loss, by withdrawal by permittees other than water suppliers or distributors, by agricultural use or by other permit-exempt water withdrawals. Assessment will be completely documented.
- 3. Summarize soils and geologic characteristics for the county.
- 4. Identify and contact any single user that purchases twenty percent or more of the water produced by a water supplier and review any plans such users have that may affect future water use.

### **Computer Modeling and Data Analysis**

- 1. Forecast the amount of water available under normal and drought conditions, from each source being used by water suppliers in the planning unit, during the base year.
- 2. Forecast water supply demands for dates five, ten, fifteen, and twenty years after the base year. Forecasts will be made using IWR-MAIN water forecast software developed by the Army Corps of Engineers which allows for projection disaggregated by types of usage. Forecasts prepared by water supplier staff and consultant will also be used.
- 3. Compare water source availability and water demand for the base year and forecasted demand for dates five, ten, fifteen, and twenty years afterward, for each water supplier.
- 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 on 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. Calculate safe yield, specific capacity, zone of contribution and zone of influence for each water supplier well.

- 4. Determine existing treatment and 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.

### PHASE II

### **Planning**

- 1. Identify and evaluate the risk of water supply degradation, contamination, or depletion, resulting from activities in the watersheds or recharge areas in the planning unit.
- 2. Relate soils and geologic characteristics of the planning unit to the risks of water supply contamination, degradation, or depletion.
- 3. Describe local, existing regulatory and non-regulatory measures that protect the quality and quantity of the water supplier's sources.
- 4. Formulate recommendations for local regulatory and non-regulatory measures to protect the quality and quantity of the water supplier's sources through watershed, recharge area, or wellhead protection programs.
- 5. Summarize the available information related to the quality of water in the county.
- 6. Evaluate one or more alternatives if an existing source of supply is not adequate to meet forecasted needs for twenty years after the base year.
- 7. Examine each alternative that could potentially provide adequate water for normal supply provisions and clarify these alternatives for the public as prescribed by regulation.
- 8. If capital improvement projects are proposed, projects shall be described including: design components, storage capacity, location alternatives, proposed construction schedule, expected federal, state, and local costs, types of financing, and sources of local funding.
- 9. Prepare water shortage response and supply contamination plans according to regulation.
- 10. 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 changes or agreements that are necessary to implement the plan.

11. Include all work in plan documents per regulation.

# **Data Collection and Analysis**

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 water quality data; description of groundwater aquifers, including confining layers, flow characteristics and predicted maximum yield; and ownership of dams or water body access rights to any reservoirs or impoundments.

2. Acquire and include U.S. Geological Survey topographic maps of the county.

### III. Qualifications

The Northern Kentucky Area Development District prepared the Boone County Water Supply Plan which was the first to be approved in the state. NKADD is also currently assisting Carroll, Grant, Owen, and Pendleton Counties with the preparation of water supply plans.

### IV. Cost

The total project cost is \$16,200.00. The following shows costs by county for each phase. It is assumed that each county will contribute its 20 hours of free time to the project. Also, any costs related to mapping will be an additional charge.

Phase I Campbell County 20 Free Hours Campbell County 125 Hours X \$34.00 Kenton County 20 Free Hours Kenton County 125 Hours X \$34.00	\$ 0.00 \$ 4,250.00 \$ 0.00 \$ 4,250.00
Total	\$ 8,500.00
Phase II Campbell County 125 Hours X \$34.00 Kenton County 125 Hours X \$34.00	\$ 4,250.00 \$ 4,250.00
Total	\$ 8,500.00
Additional Costs Public Notice Newspaper Advertisements	\$ 1,200.00
GRAND TOTAL	\$18,200.00

# Appendix D: Survey

### NORTHERN KENTUCKY AREA DEVELOPMENT DISTRICT CAMPBELL-KENTON COUNTY WATER SUPPLY PLAN WATER SOURCE, TREATMENT, & DISTRIBUTION QUESTIONNAIRE

GENERAL INFORMATION		
UTILITY NAME Bromlev V	Nater Works	
MAILING ADDRESS 226  Bramly 95  OPERATIONS MANAGER		
OPERATIONS MANAGER	none	
BUSINESS PHONE	ONNAIRE Gleaul Smith	Vanet Gordin
TREATED WATER SOURCE(S)		
IF YOUR UTILITY PURCHAS PLEASE LIST THE SOURCE UT AMOUNT OF WATER THAT CAN	ES TREATED WATER FROM A ILITY, THE CONTRACT PRICE, BE DELIVERED TO YOU.	NOTHER UTILITY, AND THE MAXIMUM
SOURCE UTILITY Renton County Water	CONTRACT PRICE  A/1.19 per 100 cm ft	MAXIMUM DELIVERY
TREATED WATER STORAGE		
LOCATION  Mond	TYPE*	CAPACITY (GA1.)
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	• /			
ON-REVENUE SYSTEM	USAGE			
	2100127 2110	(C)	WAY BATTU	/ /C31 /D3V)
	ANNUAL AVG.	(GAL/DAY)	MAX DAILY	(GAL/DAY)
IRE PROTECTION	7500	gol		
THER				
				*
LEASE ATTACH CURF				
VERAGE YEARLY PRI	CE OF WATER IN	DOLLARS PI	ER 1,000 GAI	LONS).
OTAL WATER USAGE	(GALLONS PER DA	AY)		
ANNUAL A	VERAGE	MAX	KIMUM DAILY	
.985	GPD			GPD
990	GPD	-		GPD
995 996	GPD GPD			GPD GPD
	•			
USTOMERS (TOTAL B	Y CATEGORY)		¥.	
198	•	1995	1996	
RESIDENTIAL 34	0 Merst. 348	346	340	
COMMERCIAL 10	10	10	10,	
INDUSTRIAL^				

X

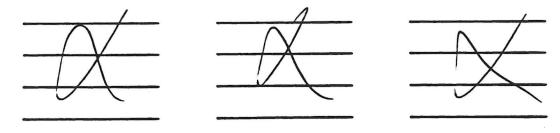
### AVERAGE TOTAL USAGE BY CATEGORY

	1985	1990	1995	1996
RESIDENTIAL COMMERCIAL	GPD GPD	GPD GPD	GPD GPD	GPD GPD
INDUSTRIAL	GPD GPD	GPD GPD	GPD GPD	GPD
INSTITUTIONAL	GPD	GPD GPD	GPD	✓ GPD

MAJOR WATER USERS B	Y CATEGORY	
INDUSTRIAL	AVERAGE (GPD)	PEAK (GPD)
COMMERCIAL (RETAIL,	WHOLESALE*, CAR WAS	SHES, LAUNDRIES, ETC.)
	$-\sqrt{1}$	

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

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



RESIDENTIAL (APARTMENTS, TRAILER PARKS, ETC.)

AMMEN INDUS COL	F COURSES, SWIMMING	POOLS. ETC.)
OTHER (PARKS, GOLD	AVERAGE (GPD)	PEAK (GPD)
PLEASE DESCRIBE A	NY WATER QUALITY PRO	DBLEMS.
DISTRICTS?	YES NO	TO OTHER UTILITIES OR WATER
IF "YES", LIST CU ANY.	STOMERS, CONTRACT P	RICE, AND CONTRACT AMOUNT, IF
CUSTOMER	CONTRACT PRICE	*
WHAT CURRENT CONS	SERVATION MEASURES,	IF ANY, DO YOU FOLLOW?
WHAT ABOUT CONSE	RVATION IN THE FUTUR	RE?
DO YOU HAVE PLAN 5 YEARS?	IS TO INCREASE CAPAC	TITY WITHIN THE NEXT 10 YEARS?
	$\mathcal{W}$	
WHAT IMPROVEMENT	S ARE PLANNED FOR Y	OUR FACILITIES?
	1/0 1/4-	hammed allov

φ.

				YEARS	DO	YOU	ANTICIPA	TE A	N	INCREASE	IN	CUSTOMERS?
WHY	?? W	THY N			-					•		
			1	11	91	00	ale !	la	4	Ehlans	w	n's

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

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

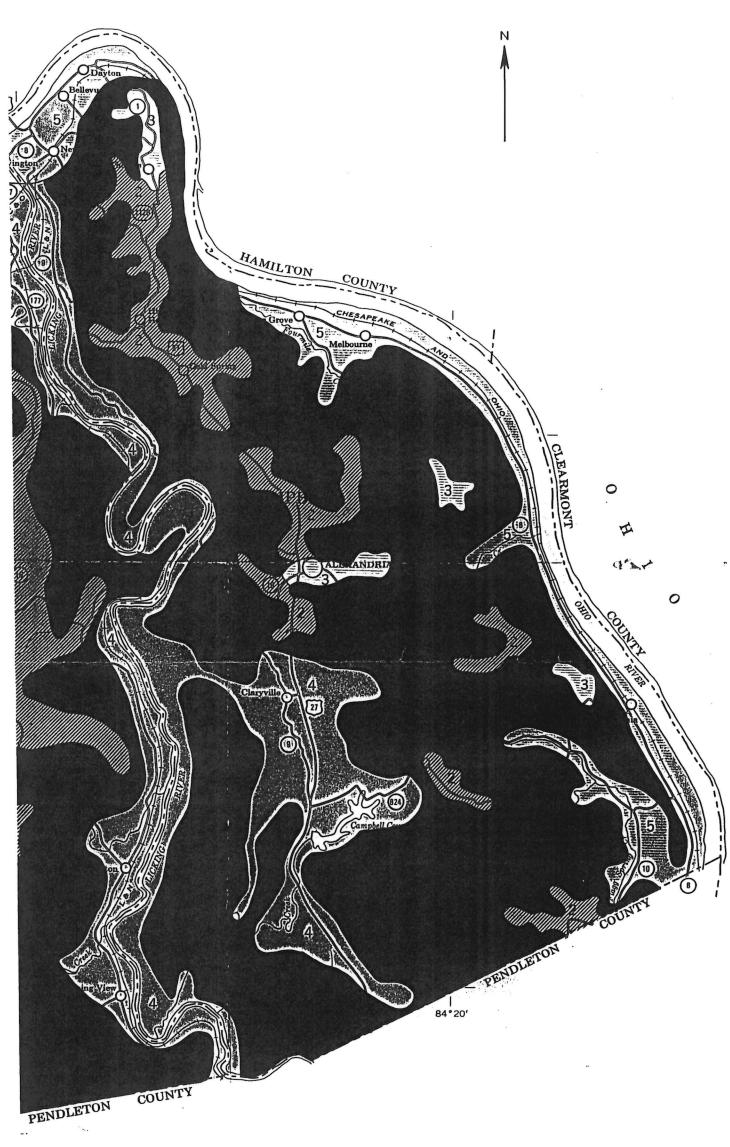
NKADD

FAX #: (606) 283-8178

P.O. BOX 668 FLORENCE, KY 41022-0668

ATTN: HEIDI VAN KEUREN

# Appendix E: Soil Map



### SOIL ASSOCIATIONS

Eden-Cynthiana association: Dominantly steep to very steep soils that have a clayey subsoil; on limestone and shale uplands

Faywood-Nicholson association: Dominantly gently sloping to moderately steep soils that have a loamy to clayey subsoil; on ridgetops and side slopes of the limestone and shale uplands

Rossmoyne-Jessup association: Nearly level to moderately steep soils that have a loamy to clayey subsoil; on ridgetops and side slopes of the glaciated uplands

Licking-Captina association: Dominantly gently sloping to moderately steep soils that have a clayey to loamy subsoil; on stream terraces

Wheeling-Huntington-Alluvial land, steep association:
Dominantly nearly level and gently sloping soils that
have a loamy subsoil; on stream terraces, first bottoms,
and moderately steep to steep areas of variable textured
alluvium

Compiled 1971

U. S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

KENTUCKY AGRICULTURAL EXPERIMENT STATION

### **GENERAL SOIL MAP**

BOONE, CAMPBELL, AND KENTON COUNTIES, KENTUCKY

	Scale 1	: 126,720		
1 0	1	2	3	4 Miles

# Appendix F: Obstacles to the Planning Process

# APPENDIX F OBSTACLES TO THE PLANNING PROCESS

No significant obstacles to the planning process were identified. Should any be discovered during Phase II planning activities, this appendix will be amended.

# Appendix G: Paying for the Planning Process

# APPENDIX G PAYING FOR THE PLANNING PROCESS

Both the Campbell and Kenton County water supply plans were funded by the Northern Kentucky Water Service District. In addition, as members of NKADD, Campbell and Kenton Counties donated 40 free hours of NKADD staff time to the project.

The breakdown of costs is as follows:

### Phase I

Campbell and Kenton County Free Hours	\$	0.00
Northern Kentucky Water Service District	.\$ 8	,500.00

### Phase II

Northern Kentucky Water Service District	\$8,500.00
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### **Advertising and Reproduction Costs**

Northern Kentuck	Water Service District	\$ 1,200.00
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Total \$18,200.00

Mapping services were provided by the Northern Kentucky Area Planning Commission (NKAPC) at no cost because of the GIS partnership between NKAPC and the Northern Kentucky Water Service District.

# Appendix H: Regulatory and Non-Regulatory Documents

### Appendix c

#### CAMPBELL COUNTY FISCAL COURT

ORDINANCE NO. 0-15-91

AN ORDINANCE REGULATING THE STORAGE, COLLECTION, TRANSPORTATION, PROCESSING AND DISPOSAL OF SOLID WASTE WITHIN CAMPBELL COUNTY, KENTUCKY AND REPEALING ALL ORDINANCES IN CONFLICT HEREWITHIN.

WHEREAS, it is necessary and proper for the County of Campbell, for the protection of its residents, to regulate the storage, collection, transportation, processing, and disposal of solid waste within Campbell County, Kentucky; and,

WHEREAS, the Fiscal Court of Campbell County, Commonwealth of Kentucky, deems it necessary to enact this Ordinance to preserve and protect the health, safety and convenience of the inhabitants of Campbell County, pursuant to the Fiscal Court's authority under KRS 67.083;

NOW, THEREFORE, BE IT ORDAINED BY THE FISCAL COURT OF THE COUNTY OF CAMPBELL, COMMONWEALTH OF KENTUCKY.

### SECTION 1: DEFINITIONS

For the purpose of this Ordinance, the following terms shall be deemed to have the meaning indicated below:

APPROVED INCINERATOR: An incinerator which complies with all current regulations of the responsible local, State and Federal air pollution control agencies.

BULKY RUEBISH: Non-putresicible solid wastes consisting of combustible and/or non-combustible waste materials from dwelling units, commercial, industrial, institutional or agricultural establishments which are either too large or too heavy to be safely and conveniently loaded in solid waste transportation vehicles by solid waste collectors, with the equipment available therefore.

COLLECTION: Removal of solid waste from the designated pick-up location to the transportation vehicle.

CONTAINED LANDFILL OR SANITARY LANDFILL: A facility for the disposal of solid waste consistent with the pursuant to criteria published under Section 4004 of the Resource Conservation and Recovery Act of 1976, as amended.

COUNTY: Campbell County, Kentucky.

CCURT: Campbell County Fiscal Court.

### Appendix c (0-15-91)

SOLID WASTE CONTAINER: Receptacle used by any person to store solid waste during the interval between solid waste collection.

SOLID WASTE DISPOSAL: The process of discarding or getting rid of unwanted material. In particular, the final disposition of solid waste by man.

SOLID WASTE MANAGEMENT: The administration of solid waste activities: storage, collection, source separation, transportation, processing, treatment and disposal.

STORAGE: Keeping, maintaining or storing solid waste from the time of its production until the time of its collection.

TRANSPORTATION: The transporting of solid waste from the place of collection or processing to a solid waste processing facility or solid waste disposal area.

YARD WASTES: Grass clippings, leaves, tree trimmings, etc.

### SECTION 2: SOLID WASTE STORAGE:

### SECTION 2.1: STORAGE CONTAINERS REQUIRED

The occupant or owner of every dwelling unit and of every institutional, commercial or business, industrial or agricultural establishment producing solid waste within the limits of the County, 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 times in good repair.

SECTION 2.2: SOLID WASTE TO BE STORED IN A MANNER PRESCRIBED BY ORDINANCE.

The occupant or owner of every dwelling unit of every institutional, commercial, industrial, agricultural or business establishment shall place all solid waste to be collected in proper solid waste 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.

### SECTION 2.3: STANDARDS FOR RESIDENTIAL STORAGE CONTAINERS.

Residential solid waste shall be stored in containers of not more than 35 gallon capacity unless said storage containers are supplied and approved by a permitted residential should waste collector. Containers shall be leakproof, waterproof, and fitted with a fly-tight lid and shall be properly covered at all times except when deposing waste therein or removing the contents thereof. The weight of any individual

# SECTION 3.2: NON COMPULSORY COLLECTION

Subscription to solid waste collection services as provided by the County or its contractors is not compulsory. However, the County shall assure that all residents who want services shall be provided such.

## SECTION 3.3: COLLECTION POINTS

Solid waste containers as required by this Ordinance for the storage of other residential solid waste shall be placed at the curb, alley, the rear of the building for collection or other locations approved or authorized by the waste hauler. Any solid waste container placed at the curb or alley for collection shall be so placed not more than twelve (12) hours before collection and all such reusable containers shall be removed from the curb or alley twelve (12) hours after collections.

# SECTION 3.4: AUTHORITY FOR COLLECTORS TO ENTER PRIVATES PROPERTY.

Solid waste collectors, employed by the Court or solid waste collection agency operating under contract with the County, are hereby authorized to enter upon private property for the purpose of collecting solid waste therefrom as required by the Ordinance. Solid waste collectors shall not enter dwelling units or other residential buildings for the purpose of collecting residential solid waste. Commercial solid waste may be removed from within commercial establishments upon written request of the owner and approved by the Court by persons under contract with the Court. All solid waste collections, other than bulky rubbish, shall be collected at least one (1) time per week.

# SECTION 3.5: COLLECTOR'S RESPONSIBILITY DEFINED.

Solid waste collectors, employed by the County or a solid waste collection agency, operating under contract with or permitted by the County, shall be responsible for the collection of solid waste from the designated pickup location to the transportation vehicle provided the solid waste was stored in compliance with the provisions set forth in this Ordinance. Any spillage or blowing litter caused as a result of the duties of the solid waste collector shall be collected and placed in the transportation vehicle by the solid waste collector, Solid waste collectors or land fill operators shall not dispose of "limited quantity generator" waste, as defined by State Statue, nor the disposal of infectious and medical waste, including but not limited to, contaminated needles and instruments, animal carcasses and pathological, laboratory and blood wastes, unless first receiving a permit modification authorizing acceptance of such waste, Limited quantity generators may not place hazardous waste with nonhazardous solid waste in garbage cans or dumpsters, without first having arranged for a permit modification.

### SECTION 4: TRANSPORTATION OF SOLID WASTE

file and maintain with the Court evidence of a satisfactory public liability insurance policy, covering all operations of such applicant pertaining to such business and all vehicles to be operated in the conduct thereof, in the amount of not less than One Hundred Thousand Dollars (\$100,000.00) for each person injured or killed, and in the amount of not less than Five Hundred Thousand Dollars (\$500,000.00) in the event of injury or death of two or more persons in any single accident, and the amounts of not less than Fifty Thousand Dollars (\$50,000.00) for damage to property.

Such policy may be written to allow the first Two Hundred Fifty Dollars (\$250.00) of liability for damage to property to the deductible. Should any such policy be cancelled, the Court shall be notified of such cancellation by the insurance carrier in writing not less than ten (10) days prior to the effective date of such cancellation, and provisions to that effect shall be incorporated in such policy, which shall also place upon the company writing such policy duty to give such notice.

### SECTION 6.3: PERMIT APPLICATION

Each applicant for any such permit shall state in his application therefore; (a) the nature of the permit desired, as to collection, transportation, or processing of solid waste or any contamination thereof; (b) name and address of applicant and whether a sole proprietorship, corporation, or partnership, with disclosure of the connership interests; (c) the number of employees and solid waste collection vehicles to be operated there under (d) schedule of fees the applicant plans to charge; (e) the precise location or locations of solid waste processing or disposal facilities to be used; (f) boundaries of the collection area; (g) such other information as required by the Court; and (h) State of Incorporation and/or County of Partnership registration.

### SECTION 6.4: PERMIT ISSUANCE

If the application shows that the applicant will collect, transport and process solid waste without hazard to the public health or damage to the environment, in conformity with the laws of the Commonwealth of Kentucky and this Ordinance, and will be in the best interest to the citizens of Campbell County, Kentucky, then the Court may issue the permit authorized by this Ordinance. The Court shall have the authority to limit the number of annual permits issued under this section in order to preserve the health, comfort, safety and welfare of the residents, to promote energy conservation, and to provide for collection and disposal consistent with good solid waste management practices, The permit shall be issued for a period of one (1) year, and each applicant shall pay therefore a fee of Twenty-Five Dollars (\$25.00).

### SECTION 6.5: APPLICANT DENIAL

If the application does not clearly show that the collection, transportation or processing of solid waste will create no public health hazard or be without harmful effects to the environment, or will

### Appendix #

legible and not less than 3" high. Each permit for processing or disposal facilitates shall be prominently displayed at the facility.

## SECTION 6.11: LIMITS ON NUMBER OF PERMITS

There shall be specific limits for the number of permits issued to applicants for permits authorizing collection or transportation of solid waste under the terms of this Ordinance. There shall be a limit of one (1) permit outstanding at any one time authorizing the applicant or the holder of the permit to operate a land fill or any other means of disposal of solid waste. The number of permits issued in any one (1) year shall be determined by the Court, and such determination shall be made on an annual basis.

### SECTION 7: RULES AND REGULATIONS:

The Campbell County Solid Waste Coordinator will recumend to the Campbell County Fiscal Court who shall make, amend, revoke, and enforce reasonable rules and regulations, as approved by the Court for the storage, collection, transportation, processing, recycling, composting and disposal of solid waste, including, but not limited to:

- (a) Preparation, drainage and wrapping of waste deposited in solid waste containers.
- (b) Specifications for solid waste containers, including the type, composition, equipment, size, and shape thereof.
- (c) Identification of solid waste containers and of the covers thereof, and of equipment thereto appertaining, if any.
- (d) Weight limitations on the combined weight of solid waste containers and the contents thereof, and weight and size limitations on bundles of solid waste too large for solid waste containers.
- (e) Storage of solid waste in solid waste containers.
- (f) Sanitation, maintenance and replacement of solid waste containers.
- .(g) Schedules of and routes for collection and transportation of solid waste.
- (h) Collection points of solid waste containers.
- (1) Collection, transportation, processing and disposal of solid waste.
- (j) Processing facilities and fees for the use thereof.
- (k) Disposal facilities and fees for the use thereof.
- (1) Records of quantity and type of wastes recovered at processing and/or disposal facilities.
- (m) Handling of special wastes such as sludges, ashes, agriculture, construction, bulky items, tires, automobiles, oils, greases, etc.
- (n) Acceptable solid waste containers to indigent persons within Campbell County, Kentucky.

A copy of any and all rules and regulations promulgated under the provisions hereof shall be filed in the office of the County Judge/Executive.

SECTION 8: SERVICE CHARGE

### Appendix c

The provisions of this Ordinance are severable and if any provisions or part thereof shall be held invalid or unconstitutional or inapplicable to any person or circumstance, such invalidity, unconstitutionality or inapplicability shall not effect or impair the remaining provisions of this Ordinance.

Introduced, seconded and given first reading of the 29TH day of May, 1991.

· Adopted by the Fiscal Court of Campbell County, Kentucky, after second reading at a regular meeting on the 18TH day of September , 1991, and on same occasion signed in open session by the County Judge, Executive as evidence of his approval, attested under seal of the Campbell County Fiscal Court Clerk and declared to be in full force and effect.

ATTEST:

1.) September 11, 1991 2.) September 25, 1991 DATE PUBLISHED:

CAMPBELL COUNTY ATTORNEY

# CITY OF COLD SPRING



# Comprehensive Plan 1995 Update

PREPARED BY

NORTHERN KENTUCKY AREA PLANNING COMMISSION

characteristics of a "shopping center" -- Adequate off-street parking, controlled ingress and egress, etc.).

### C. <u>Industrial</u>

Land which is most advantageous for industrial development should contain the following characteristics: (a) good access to major transportation facilities; (b) good proximity to urban development (employment sources); (c) relatively flat land; and (d) a full range of urban services.

Industrial development generates significant traffic volumes (automobile, trucks and sometimes rail services) necessitating good access to major highways and to employment sources (urbanized areas) in order for the street network to be able to accommodate the traffic volumes and prevent the generation of traffic through low density areas. Most industrial development, by its very nature, requires central sanitary sewer services and water supply, gas and electric service, higher levels of police and fire protection, etc. Such development often also depends upon water and rail for delivery and/or distribution of products and supplies.

Land which can be most advantageously used for industrial purposes should be identified and reserved for industrial use and encouraged to be exclusively used for such purposes.

Land which is most advantageous for industrial development in the Alexandria Area is at a premium. Thus, identification and reservation of such land is necessary. Increased industrial development in these well located areas, would increase employment opportunities. It would also result in an increased tax base for the provision of public services; and insure better use of transportation systems, thus utilizing less energy and causing less pollution to the environment.

### D. <u>Physically Restrictive Development Area</u>

Areas which are flood-prone (within the 100-year floodplain) and /or landslide prone (slopes of 20% and greater and/or areas which contain known soil and/or geologic formation problems) should be preserved, or very rigidly controlled.

Such a concept would prevent unnecessary construction problems which might consequently result in hazardous or dangerous conditions; and, encourage certain areas to be maintained in their natural open state as an integral part of the landscape.

### E. Community Facilities

Locations of existing and future community facilities should be based on an area-wide approach to the provision of such services. Such locations should also be based on logical service areas, defined according to generally accepted standards promulgated by authorities in each of these specialized fields.

Such a concept would insure adequate provision of well located

facilities without unnecessary duplication.

The school-park concept should be utilized in development of both school and park facilities.

These two types of facilities serve similar population groups and there exists a great potential for coordination and joint use of facilities to the benefit of the tax-paying public.

Appropriate authorities and private developers should be encouraged to assure realization of community facilities planning by requiring and/or incorporating designs for such facilities into the early stages of development.

Such early incorporation shall serve to insure that such facilities do not appear as "after-thoughts" located only where remnants of undeveloped land exists and that capital improvement planning for completion of such facilities can be reasonably programmed.

### F. Environment

Centralized water supply and centralized sewage facilities should be developed simultaneously, to properly service development in urban areas.

The extension of water supply into areas not served by centralized sewerage facilities is known to increase water usage and wastewater production and often overloads the capacity of subsurface disposal systems, resulting in ground pollution and unhealthful conditions.

Septic tanks and other individual on-site sewage disposal systems should not be used to serve urban-type development.

Widespread use of such sewage disposal methods results in hazardous environmental conditions (i.e., water and ground water pollution, offensive odors, bacteria breeding, etc.).

Land which is highly susceptible to hillside slippage and/or erosion should not be developed, or in extreme cases, development should be limited and strictly controlled.

Such a limitation on development would prevent hazardous conditions and also result in maintaining the environmental quality of the area by preserving open space.

Solutions to the solid waste management problem should be both long and short-range in nature and should consider collection and transportation, disposal methods, public vs. private involvement, time sequencing, cost alternatives, and environmental impact.

Solid waste "management" is intended to be an all encompassing term inclusive of the study of amounts collected, methods of transportation and disposal, alternatives of private and public involvement (control and accountability), time sequencing of moving from short to long-range solutions, cost comparisons, financing alternatives, etc. Whatever methods are utilized/recommended, it is of critical importance that they be organized so as to avoid health hazards, provide reasonable accessibility without detrimentally affecting urban concentrations, take advantage of whatever techniques and methods of energy and resource recovery which prove to be within the practical support capabilities of the area, and that the problem be viewed on an area-wide basis.

Federal, state, and local performance standards should be strictly applied to all development.

Such compliance should help to ensure adequate control of air, water, noise, and other types of pollution.

Erosion prevention and control techniques should be stringently applied to reduce sedimentation problems.

Such control would: improve water quality; prevent damage to stream channels and siltation of storm sewer systems, which cause flooding of yards, basements, etc. and prevent the loss of prime topsoil.

### G. Energy

Energy-efficient development should be promoted by employing those types of land use arrangements which minimize the distance and number of vehicular trips to work, to commercial activities, to schools, etc. Such land use arrangements should also facilitate the provision of mass transit via the concentration and coordination of population and employment centers.

Minimizing the distances and number of vehicular trips would reduce the amount of energy (fuel) consumed, and also reduce the impact of auto emissions (pollution) on the environment. Facilitating the provision of mass transit would decrease the dependency on, and use of, the automobile, as well as increasing the opportunities and choices for travel.

### H. <u>Transportation</u>

A balanced transportation system should be encouraged through the provision of a comprehensive multi-modal approach.