

# Water-Resource Development: A Strategic Plan

*Summary of Water Systems*

*Northern Kentucky Area  
Development District*

*Water Resources Development Commission*

*October, 1999*

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## NORTHERN KENTUCKY AREA DEVELOPMENT DISTRICT

7505 Sussex Drive, Suite 8  
Florence, KY 41042  
(606)-2831885

### REGIONAL OVERVIEW

#### (Northern Kentucky ADD Existing & Proposed Water Lines Map)

- Estimated 1999 population of 376,000--87% on public water
- Estimated 2020 population of 452,000--89% on public water
- 1,560 miles of water lines, with plans for 850 additional miles
- Estimated funding needs for public water 2000-2005--\$38,100,000
- Estimated funding needs for public water 2006-2020--\$36,500,000

The Northern Kentucky Development District region had an estimated population of 376,415 (146,976 households) in 1999 with a projected population of 452,500 (191,900 households) in 2020. There are 1,560 miles of water lines in the region serving about 328,000 people, or about 87% of the region's population. 850 miles of proposed water line extensions for the period 2000-2020 would provide service to an additional 6,680 households. About 48,000 people in the region rely on private domestic water systems: 5,000 on wells, and 43,000 on hauled water and other sources.

Estimated populations and public water service for the eight counties in the region is given below:

County	1999 Pop	On Public	2020 Pop	On Public
Boone	81,600	64,500 (79%)	128,000	102,400 (80%)
Campbell	86,900	81,200 (93%)	91,000	87,400 (96%)
Carroll	9,500	8,600 (90%)	9,700	8,900 (92%)
Gallatin	7,200	6,500 (90%)	11,200	10,300 (92%)
Grant	21,000	16,800 (80%)	31,400	27,000 (86%)
Kenton	145,700	134,000 (92%)	152,000	144,400 (95%)
Owen	10,200	6,800 (67%)	11,800	10,300 (92%)
Pendleton	14,300	9,600 (67%)	17,600	14,600 (83%)
Region	376,000	328,000 (87%)	453,000	405,000 (89%)

65 public and semi-public water systems serve the region: 39 community systems—13 municipal, 13 water districts, 13 private; and 26 non-community systems. There are 12 small

# EXISTING & PROPOSED WATER LINES

## NKADD Kentucky

Prepared By:  
**Water Resource Development Commission**

Department for Local Government  
1024 Capital Center Drive, Suite 340  
Frankfort, Kentucky 40601-8204  
502-573-2382 -- 502-573-2939 fax  
<http://dlgnt1.state.ky.us/wrdc/>

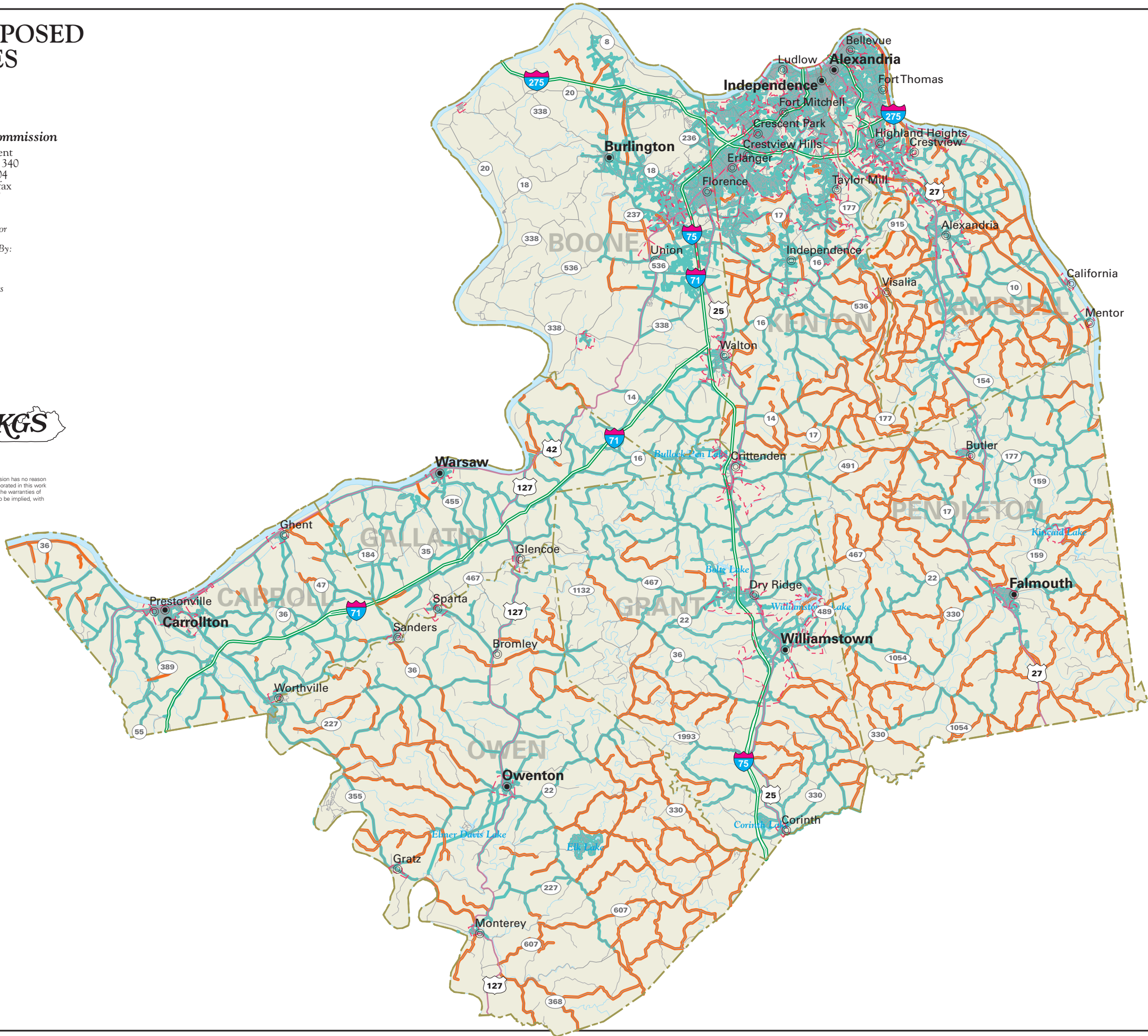
Bob Arnold, Chairman  
Lawrence Wetherby, Executive Director

Final GIS & Cartographic Operations By:  
Kent Amness & Kim Prough

Data Collection & GIS Input By:  
Kentucky Area Development Districts



LIMITATION OF LIABILITY: The Water Resource Development Commission has no reason to believe that there are any inaccuracies or defects in information incorporated in this work and make no representations of any kind, including, but not limited to, the warranties of merchantability or fitness for a particular use, nor any such warranties to be implied, with respect to the information or data furnished herein.



**WATER LINES**  
Existing Water Lines  
Proposed Water Lines

(501 to 3,300 people served) community systems and 11 very small (500 or fewer people served) community systems.

Estimated costs for public water expansions and associated system upgrades are:

**Estimated Costs - Proposed Projects, 2000-2005**

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	In \$1000	in \$1000	in \$1000	in \$1000
<b>BOONE</b>								-
Boone Co. W/D				4,000				4,000
Florence	No	new	projects					-
Walton	No	new	projects					-
<b>Total</b>				4,000				4,000
								-
<b>CAMPBELL</b>								-
Northern Ky. Water Service	9.8	150	500					500
<b>Total</b>	9.8	150	500					500
								-
<b>CARROLL</b>								-
Carroll Water Dist. #1				250				250
West Carroll W/D								-
<b>Total</b>				250				250
								-
<b>GALLATIN</b>								-
Gallatin Co. W/D	9.7	75	300	600	1,500			2,400
Warsaw	No new projects							-
Carroll Water Dist. #1	2.3	15	60					60
<b>Total</b>	12.0	90	360	600	1,500			2,460
								-
<b>GRANT</b>								-
Bullock Pen W/D	33.0	284	1,280				1,300	2,580
Corinth W/D	19.3	160	670					670
Williamstown Water	8.4	105	340	2,000				2,340
<b>Total</b>	60.7	549	2,290	2,000			1,300	5,590
								-
<b>KENTON</b>								-
Taylor Mill W/D	1.1	11	40					40
N. Kentucky W/D	10.6	252	400	3,000				3,400
Taylor Mill	3.0	45	150					150
Newport					3,000	5,700		8,700
Covington				5,000				5,000
Villa Hills				2,000				2,000
Bromley				1,000				1,000
Ludlow				1,000				1,000
<b>Total</b>	14.7	308	590	12,000	3,000	5,700		21,290
								-
<b>OWEN</b>								-
Carroll Water Dist. #1	9.4	61	330					330
Tri-Village W/D	34.0	256	1,200					1,200
Carroll Co. W/D	94.0	61	330				1,300	1,630
<b>Total</b>	137.4	378	1,860				1,300	3,160
								-
<b>PENDLETON</b>								-

East Pendleton W/D								-
Pendleton W/D	4.8	85	230					230
Corinth W/D	17.3	131	610					610
Williamstown W/D								-
West Carroll W/D								-
<b>Total</b>	<b>22.1</b>	<b>216</b>	<b>840</b>					<b>840</b>
<b>NORTHERN KENTUCKY</b>	<b>257</b>	<b>1,691</b>	<b>6,440</b>	<b>18,850</b>	<b>4,500</b>	<b>5,700</b>	<b>2,600</b>	<b>38,090</b>



**Estimated Costs - Proposed Projects, 2006-2020**

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
<b>BOONE</b>								-
Boone Co. W/D								-
<b>Total</b>								-
<b>CAMPBELL</b>								-
Northern Ky. Water Service	129.0	1100	6,500				730	7,230
<b>Total</b>	129.0	1100	6,500				730	7,230
<b>CARROLL</b>								-
Carroll Water Dist. #1	4.5	26	135					135
West Carroll W/D	16.3	37	570					570
<b>Total</b>	20.8	63	705					705
<b>GALLATIN</b>								-
Gallatin Co. W/D								-
								-
<b>GRANT</b>								-
Bullock Pen W/D								-
Corinth W/D	19.0	156	700					700
Williamstown Water Dept.								-
<b>Total</b>	19.0	156	700					700
<b>KENTON</b>								-
Taylor Mill W/D	1.0	15	40					40
N. Kentucky W/D	90.0	1700	3,600				1,700	5,300
Taylor Mill								-
<b>Total</b>	91.0	1715	3,640				1,700	5,340
<b>OWEN</b>								-
Carroll Water Dist. #1	12.7	50	450					450
Tri-Village W/D	156.0	850	5,500					5,500
Carroll Co. W/D	12.7	50	450					450
Owenton					4,000			4,000
<b>Total</b>	181.4	950	6,400		4,000			10,400
<b>PENDLETON</b>								-
East Pendleton W/D	65.0	328	2,600					2,600
Pendleton W/D	79.0	665	3,200				1,200	4,400
Williamstown W/D	2.0	14	90					90
West Carroll W/D								-
Falmouth					5,000			5,000
<b>Total</b>	146.0	1007	5,890		5,000		1,200	12,090
<b>NORTHERN KENTUCKY</b>	587	4,991	23,835	-	9,100	-	3,360	36,465

## BOONE COUNTY

### (Boone County Water Service Area Map)

- Estimated 1999 population of 81,600--79% on public water
- Estimated 2020 population of 128,000--80% on public water
- 340 miles of water lines
- Estimated funding needs for public water 2000-2005--\$4,000,000
- Estimated funding needs for public water 2006-2020--\$0

Boone County had an estimated population of 81,603 (30,413 households) in 1999 with a projected population of 128,000 (52,400 households) in 2020. Public water is provided to about 79 percent of the county's residents. In areas of the county not served by public water, about 10 percent of the households rely on private domestic wells and 90 percent of the households rely on other sources.

### *Estimated Costs - Proposed Projects, 2000-2005*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
<b>BOONE</b>								-
Boone Co. W/D				4,000				4,000
Florence	No new projects							-
Walton	No new projects							-
<b>Total</b>				4,000				4,000

### PUBLIC WATER SYSTEMS

There are 20 public and semi-public water systems in Boone County: 8 community systems-- 2 municipal, the Florence Water and Sewer Commission and Walton Waterworks Department; 1 water district, Boone County Water and Sewer District; 5 private community systems; and 12 non-community systems. Portions of the county are also served by Bullock Pen Water District, Gallatin County Water District, and Northern Kentucky Water Service District.

# WATER SERVICE AREAS

## BOONE COUNTY

### Kentucky

*Prepared By:*  
**Water Resource Development Commission**

Department for Local Government  
1024 Capital Center Drive, Suite 340  
Frankfort, Kentucky 40601-8204  
502-573-2382 -- 502-573-2939 fax  
<http://dlgnt1.state.ky.us/wrdc/>

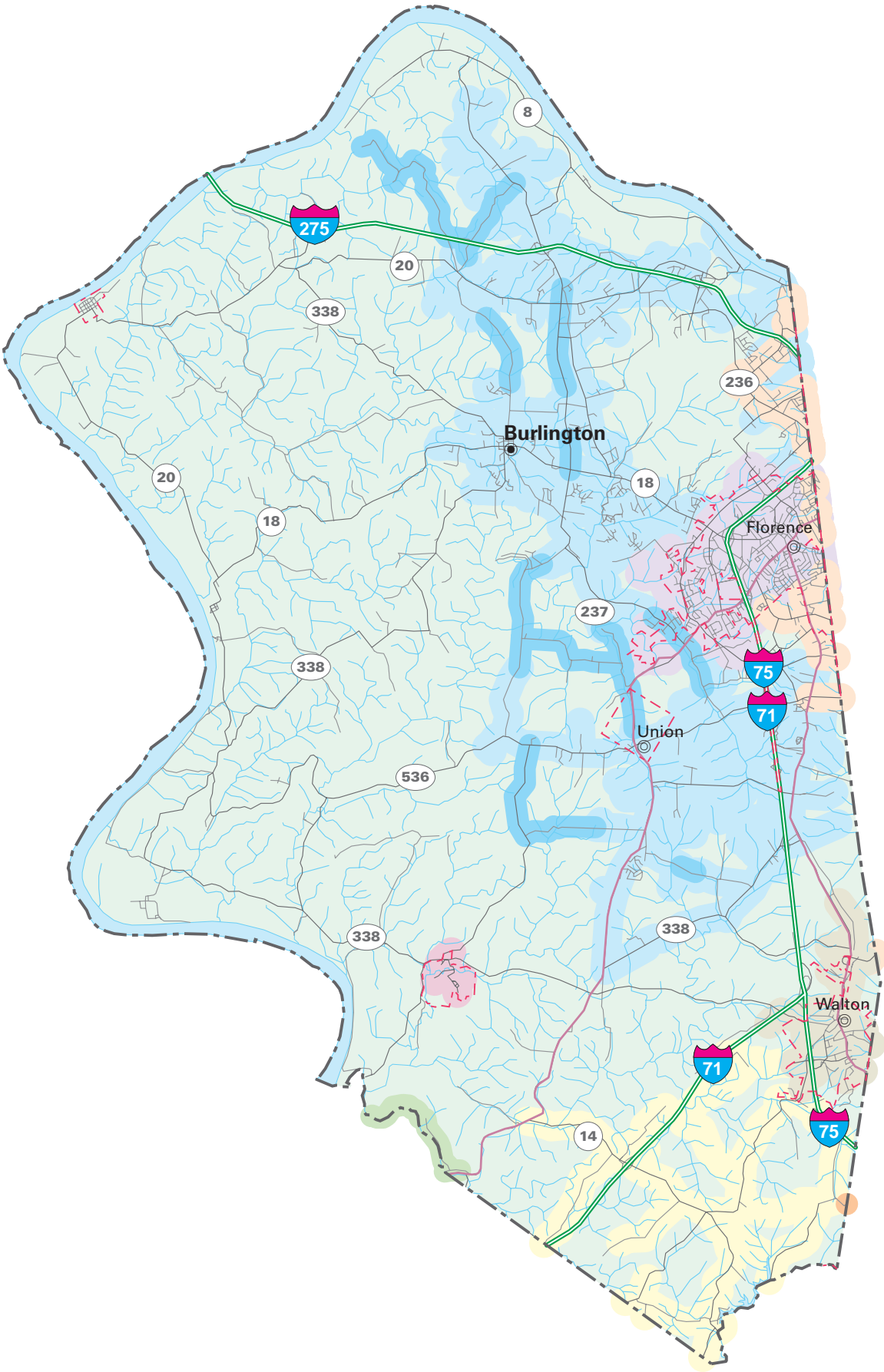
Bob Arnold, Chairman  
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Final GIS & Cartographic Operations By:  
Kent Anness & Kim Prough

Data Collection & GIS Input By:  
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#### WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		WALTON WATERWORKS DEPARTMENT
		NORTHERN KENTUCKY WATER SERVICE DISTRICT
		GALLATIN COUNTY WATER DISTRICT
		FLORENCE WATER AND SEWER COMMISSION
		BULLOCK PEN WATER DISTRICT
		BOONE COUNTY WATER AND SEWER DISTRICT
		BIG BONE LICK STATE PARK #1

**FLORENCE WATER AND SEWER COMMISSION**

PWSID: ..... 0080135  
 System Type:..... COMMUNITY  
 Owner Type: ..... WATER DISTRICT  
 Surface Source:  
 Purchase Source: ..... NORTHERN KENTUCKY WATER SERVICE DISTRICT  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production:..... 0.00  
 Total Tank Storage Capacity (gallons):..... 1,700,000.00  
 Total Service Connections: ..... 8,676.00  
 Number of Employees:..... 30.00  
 Treatment Operator Class: .....3D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... Not available  
 O/M costs 1997:..... Not available  
 O/M costs per Service Connection: ..... Not available  
 Net Revenue 1997:..... Not available  
 Total Water Produced 1997 (gallons):..... Not available  
 Water Sold 1997 (gallons):..... Not available  
 Unaccounted-for Water 1997 (%): ..... Not available

The Florence Water and Sewer Commission purchases its water from the Northern Kentucky Water Service District. Florence has 8,676 service connections serving a population of approximately 26,000. It has 6,694 residential customers using a total volume in 1998 of 540,211,584 gallons, 1,597 commercial customers who used 344,283,456 gallons, and 27 industrial customers who used 12,867,844 gallons. The average daily usage for the last twelve months was 3,200,000 gallons per day. Florence has no treatment or pumping facilities of its own. They have a storage capacity of 1,700,000 gallons in 2 tanks located within the city. The Florence Water and Sewer Commission has 30 full-time employees.

All households within Florence are being serviced with city water. Florence is growing at a rapid rate, and the city continues to be able to serve them thanks to the virtually limitless supply of water that the Northern Kentucky Water Service District can provide.

**BOONE COUNTY WATER AND SEWER DISTRICT**

PWSID: ..... 0080034  
 System Type:..... COMMUNITY  
 Owner Type: ..... WATER DISTRICT  
 Surface Source:  
 Purchase Source: ..... NORTHERN KENTUCKY WATER SERVICE DISTRICT  
 Well Source:  
 Sells Water to:

Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production:..... 0.00  
 Total Tank Storage Capacity (gallons): ..... 300,000.00  
 Total Service Connections: ..... 12,126.00  
 Number of Employees:..... 20.00  
 Treatment Operator Class: .....3D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... 2.50  
 O/M costs 1997:..... 3,348,472.00  
 O/M costs per Service Connection: ..... 295.96  
 Net Revenue 1997: ..... 331,776.00  
 Total Water Produced 1997 (gallons):..... 0.00  
 Water Sold 1997 (gallons):..... 1,405,603,667.00  
 Unaccounted-for Water 1997 (%): ..... 2.28

### **WALTON WATERWORKS DEPARTMENT**

PWSID: ..... 0080442  
 System Type:..... COMMUNITY  
 Owner Type: ..... MUNICIPAL  
 Surface Source:  
 Purchase Source: ..... NORTHERN KENTUCKY WATER SERVICE DISTRICT  
 Well Source:  
 Sells Water to: ..... BULLOCK PEN WATER DISTRICT  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production:..... 0.00  
 Total Tank Storage Capacity (gallons): ..... 300,000.00  
 Total Service Connections: ..... 1,003.00  
 Number of Employees:..... 5.00  
 Treatment Operator Class: .....2D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... Not available  
 O/M costs 1997:..... Not available  
 O/M costs per Service Connection: ..... Not available  
 Net Revenue 1997: ..... Not available  
 Total Water Produced 1997 (gallons):..... Not available  
 Water Sold 1997 (gallons):..... Not available  
 Unaccounted-for Water 1997 (%): ..... Not available

## **OTHER WATER SYSTEMS**

### **HILLSIDE TRAILER PARK**

Hillside Trailer Park is located in Boone County. The system serves a population of 150 and has 45 service connections. The private, community system has treatment capacity of 7,375 gallons per day. The water source is surface water from a lake.

**TRAPP WATER COMPANY**

Trapp Water Company is located in Boone County. The system serves a population of 450 and has 1 service connection. The private, community system has treatment capacity of 252,000 gallons per day and the water source is from wells.

**ARLINGHAUS PROPERTY**

Arlinghaus Property is located in Boone County. The system serves a population of 36 and has 8 service connections. The private, community system has treatment capacity of 14,400 gallons per day and the water source is wells.

**BIRKLE WATER SUPPLY**

Birkle Water Supply is located in Boone County. The system serves a population of 260 and has 1 service connection. The private, community system has treatment capacity of 201,600 gallons per day and the water source is wells.

**RAUH WATER SUPPLY**

Rauh Water Supply is located in Boone County. The system serves a population of 330 and has 1 service connection. The private, community system has treatment capacity of 360,000 gallons per day and the water source is wells.

**BULLITTSBURG BAPTIST ASSEMBLY**

Bullittsburg Baptist Assembly is located in Boone County. The system serves a population of 25 and has 2 service connections. The private, transient, non-community system has treatment capacity of 44,270 gallons per day and the water source is wells.

**BIG BONE LICK STATE PARK #1**

PWSID: ..... 0082026  
System Type:..... NON TRANSIENT NON COMMUNITY  
Owner Type: .....STATE  
Surface Source:.....BIG BONE LICK LAKE  
Purchase Source:  
Well Source:  
Sells Water to:  
Treatment Plant Capacity (MGD):..... 0.14  
Percent Daily Average Production:..... 14.00  
Total Tank Storage Capacity (gallons): ..... 100,000.00  
Total Service Connections: ..... 62.00  
Number of Employees:..... 2.00  
Treatment Operator Class: ..... 1D

Distribution Operator Class:.....	2A
Customer Rate for 1,000 Gallons:.....	Not available
O/M costs 1997:.....	Not available
O/M costs per Service Connection: .....	Not available
Net Revenue 1997:.....	Not available
Total Water Produced 1997 (gallons):.....	Not available
Water Sold 1997 (gallons):.....	Not available
Unaccounted-for Water 1997 (%): .....	Not available

### **CAMP TURNABOUT**

Camp Turnabout is located in Boone County. The system serves a population of 429 and has 130 service connections. The private, transient, non-community system has treatment capacity of 81,600 gallons per day and the water source is wells.

### **C G&E EAST BEND**

C G&E East Bend is located in Boone County. The system serves a population of 150 and has 1 service connection. The private, non-transient, non-community system has treatment capacity of 480,000 gallons per day and the water source is wells.

### **RIVER RIDGE PARK INC**

River Ridge Park Inc is located in Boone County. The system serves a population of 150 and has 75 service connections. The private, transient, non-community system has treatment capacity of 24,000 gallons per day and the water source is wells

### **RIVERSHORE SPORTS COMPLEX**

Rivershore Sports Complex is located in Boone County. The system serves a population of 25 and has 1 service connection. The private, transient, non-community system water source is wells.

### **RIVERLAND PARK**

Riverland Park is located in Boone County. The system serves a population of 50 and has 45 service connections. The private, transient, non-community system has treatment capacity of 9,000 gallons per day and the water source is wells.

### **CAMP MICHAEL DAN BEARD COUNCIL**

Camp Michael Dan Beard Council is located in Boone County. The system serves a population of 50 and has 2 service connections. The private, transient, non-community

system has treatment capacity of 3,200 gallons per day. The water is purchased from Boone County Water Co.

#### **BOB'S FAMILY RESTAURANT**

Bob's Family Restaurant is located in Boone County. The system serves a population of 150 and has 1 service connection. The private, transient, non-community system has treatment capacity of 2,350 gallons per day. The water is purchased from Boone County Water Co.

#### **KELLEY ELEMENTARY SCHOOL**

Kelley Elementary School is located in Boone County. The system serves a population of 355 and has 1 service connection. The local, non-transient, non-community system has treatment capacity Potters Ranch of 25,000 gallons per day and the water source is wells.

#### **POTTERS RANCH**

Potters Ranch is located in Boone County. The system serves a population of 100 and has 15 service connections. The private, non-transient, non-community system water source is wells.

#### **TRADITIONS GOLF CLUB**

Traditions Golf Club is located in Boone County. The system serves a population of 25 and has 1 service connection and is a private, transient, non-community system.

#### **PRIVATE DOMESTIC SYSTEMS:**

About 15,900 residents of Boone County rely on private domestic water systems: 1,600 on wells and 14,300 on cisterns, hauled water, and other sources.

The alluvium along the Ohio River is the best source of ground water in the county. Many properly constructed drilled wells will produce several hundred gallons per minute from the alluvium, with most wells able to produce enough for a domestic supply at depths of less than 100 feet. Water is hard or very hard but otherwise of good quality.

In the lower sections of the larger creek valleys most drilled wells will produce enough water for a domestic supply at depths of less than 100 feet. Some wells located in the smaller creek valleys will produce enough water for a domestic supply except during dry weather. In the



upland areas of Boone County that encompasses approximately 70% of the county, most drilled wells will not produce enough water for a dependable domestic supply except along drainage lines which may produce enough water except during dry weather. Ground water in these areas is hard or very hard and may contain salt or hydrogen sulfide, especially at depths greater than 100 feet.

## CAMPBELL COUNTY

### (Campbell County Water Service Area Map)

- Estimated 1999 population of 86,900--93% on public water
- Estimated 2020 population of 91,000--96% on public water
- 350 miles of water lines, with plans for 140 additional miles
- Estimated funding needs for public water 2000-2005--\$500,000
- Estimated funding needs for public water 2006-2020--\$7,230,000

Campbell County had an estimated population of 86,854 (34,654 households) in 1999 with a projected population of 91,000 (39,400 households) in 2020. Public water is provided to about 93 percent of the county's residents. In areas of the county not served by public water, about 1 of 8 households rely on private domestic wells and 7 of 8 the households rely on cisterns, hauled water and other sources. About 1,250 customers will be added to public water service through new line extensions in 2000-2020.

#### *Estimated Costs - Proposed Projects, 2000-2005*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
CAMPBELL								-
Northern Ky. Water Service	9.8	150	500					500
<b>Total</b>	<b>9.8</b>	<b>150</b>	<b>500</b>					<b>500</b>

#### *Estimated Costs - Proposed Projects, 2006-2020*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
CAMPBELL								-
Northern Ky. Water Service	129.0	1,100	6,500				730	7,230
<b>Total</b>	<b>129.0</b>	<b>1,100</b>	<b>6,500</b>				<b>730</b>	<b>7,230</b>

### PUBLIC WATER SYSTEMS

There are 8 public and semi-public water systems in Campbell County: 3 community--1 municipal, Newport Water Department; 2 private community; and 5 non-community systems. East Pendleton Water District, Pendleton County Water District, and Northern Kentucky Water Service District also serve areas of the County.

### **NEWPORT WATER WORKS**

PWSID: ..... 0190313

# WATER SERVICE AREAS

## CAMPBELL COUNTY

### Kentucky

*Prepared By:*  
**Water Resource Development Commission**

Department for Local Government  
1024 Capital Center Drive, Suite 340  
Frankfort, Kentucky 40601-8204  
502-573-2382 -- 502-573-2939 fax  
<http://dlgnt1.state.ky.us/wrdc/>

Bob Arnold, Chairman  
Lawrence Wetherby, Executive Director

Final GIS & Cartographic Operations By:  
Kent Anness & Kim Prough




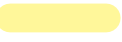
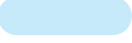



Data Collection & GIS Input By:  
Kentucky Area Development Districts



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#### WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		PENDLETON COUNTY WATER DISTRICT/SOUTH
		NORTHERN KENTUCKY WATER SERVICE DISTRICT
		NEWPORT WATER WORKS
		EAST PENDLETON WATER DISTRICT

System Type:.....COMMUNITY  
 Owner Type:.....MUNICIPAL  
 Surface Source:.....OHIO RIVER  
 Purchase Source:  
 Well Source:  
 Sells Water to:.....NORTHERN KENTUCKY WATER SERVICE DISTRICT  
 Treatment Plant Capacity (MGD):.....10.50  
 Percent Daily Average Production:.....41.00  
 Total Tank Storage Capacity (gallons):.....1,000,000.00  
 Total Service Connections: .....7,000.00  
 Number of Employees:.....21.00  
 Treatment Operator Class:.....3D  
 Distribution Operator Class:.....4A  
 Customer Rate for 1,000 Gallons:.....Not available  
 O/M costs 1997:.....Not available  
 O/M costs per Service Connection: .....Not available  
 Net Revenue 1997:.....Not available  
 Total Water Produced 1997 (gallons):.....Not available  
 Water Sold 1997 (gallons):.....Not available  
 Unaccounted-for Water 1997 (%): .....Not available

The Newport Water Department draws its water from the Ohio River for treatment. The Department has 7,000 service connections, serving approximately 20,000 people, although its customers are not broken down by category. The total annual volume used in 1998 was 201,662,500 gallons. The average daily production of the Newport Water Department water treatment plant was 5,000,000 gallons per day in 1997. They supply wholesale water to the Northern Kentucky Water Service District to supply customers in Bellevue, Dayton and part of Fort Thomas. There is a storage capacity of 1,000,000 gallons in one tank. The Newport Water Department has 21 full-time employees.

All households within the city of Newport are already being served by city water. However, the City of Southgate, which is located on the southern edge of the system, has some concerns about fire suppression due to low pressure. Areas just north of 1-275/1471 interchange do not have adequate pressure at the hydrants. They feel this could be remedied by looping into the existing system to increase pressure.

The City of Newport has just begun preliminary negotiations with the Northern Kentucky Water Service District to sell them the waterworks. No decision has been made as of this writing. A \$5.7 million upgrade of aging equipment has been put on hold while negotiations continue.

## OTHER SYSTEMS:

### **ST ANNE CONVENT**

St Anne Convent is located in Campbell County. The system serves a population of 150 and has 1 service connection. The private, community system has treatment capacity of 48,000 gallons per day and the water source is wells.

### **GREEN VALLEY TRAILER PARK INC.**

Green Valley Trailer Park Inc. is located in Campbell County. The system serves a population of 198 and has 60 service connections. The private, community system has treatment capacity of 30,000 gallons per day and the water source is wells.

### **WREN ROAD CAMPSITES**

Wren Road Campsites is located in Campbell County. The system serves a population of 24 and has 16 service connections. The private, transient, non-community system water source is wells.

### **THOMAS MORE COLLEGE BIO STAT**

Thomas More College Bio Stat is located in Campbell County. The system serves a population of 45 and has 1 service connection. The private, transient, non-community system water source is wells.

### **NIENABER PROPERTY PUBLIC WATER**

Nienaber Property Public Water is located in Campbell County. The system serves a population of 9 and has 15 service connections. The private, transient, non-community system water source is wells.

### **ST PETER AND PAUL SCHOOL**

St Peter And Paul School is located in Campbell County. The system serves a population of 85 and has 1 service connection. The non-transient, non-community system has treatment capacity of 6,375 gallons per day. The water source is cisterns collected from roof runoff.

### **DOYLE CLUB AND CAMP**

Doyle Club And Camp is located in Campbell County. The system serves a population of 52 and has 17 service connections. The private, transient, non-community system has treatment capacity of 10,000 gallons per day and the water source is wells.

### **PRIVATE DOMESTIC SYSTEMS:**

About 6,100 people in Campbell County rely on private domestic water systems: about 700 on water wells, and 5,400 on cisterns, hauled water, and other sources.

The alluvium along the Ohio River is the best source of ground-water in the county. Many properly constructed drilled wells will produce several hundred gallons per minute from the alluvium, with most wells able to produce enough for a domestic supply at depths of less than 100 feet. Water is hard or very hard but otherwise of good quality.

In the Licking River valley and the lower sections of the larger creek valleys in Campbell County most drilled wells will produce enough water for a domestic supply at depths of less than 100 feet. Some wells located in the smaller creek valleys will produce enough water for a domestic supply except during dry weather. In the upland areas of Campbell County that encompasses 60% of the county, most drilled wells will not produce enough water for a dependable domestic supply except along drainage lines that may produce enough water except during dry weather. Ground water in these areas is hard or very hard and may contain salt or hydrogen sulfide, especially at depths greater than 100 feet.

## CARROLL COUNTY

### (Carroll County Water Service Area Map)

- Estimated 1999 population of 9,500--90% on public water
- Estimated 2020 population of 9,720--92% on public water
- 170 miles of water lines, with plans for 21 additional miles
- Estimated funding needs for public water 2000-2005--\$250,000
- Estimated funding needs for public water 2006-2020--\$705,000

Carroll County had an estimated population of 9,535 (3,820 households) in 1999 with a projected population of 9,720 (4,170 households) in 2020. Public water is provided to about 90 percent of the county's residents. In areas of the county not served by public water, about 2 of 5 households rely on private domestic wells and 3 of 5 on other sources. About 65 customers will be added to public water service through new line extensions in 2000-2020.

#### *Estimated Costs - Proposed Projects, 2000-2005*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
CARROLL								-
Carroll Water Dist. #1				250				250
West Carroll W/D								-
Total				250				250

#### *Estimated Costs - Proposed Projects, 2006-2020*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
CARROLL								-
Carroll Water Dist. #1	4.5	26	135					135
West Carroll W/D	16.3	37	570					570
Total	20.8	63	705					705

### PUBLIC WATER SYSTEMS

There are 10 public and semi-public water systems in Carroll County: 7 municipal--5 water districts, West Carroll Water District, Carroll County Water District No. 1, West Carroll WD/Henry Co #2, West Carroll WD/Trimble County Water District, West Carroll Water district/Milton Water District; 1 municipal, Carrollton Utilities; 1 private community systems; and 3 non-community systems. The City of Milton, Trimble County Water District, and Henry County Water District #2 also serve portions of the county.

# WATER SERVICE AREAS

## CARROLL COUNTY

### Kentucky

*Prepared By:*  
**Water Resource Development Commission**

Department for Local Government  
1024 Capital Center Drive, Suite 340  
Frankfort, Kentucky 40601-8204  
502-573-2382 -- 502-573-2939 fax  
<http://dlgnt1.state.ky.us/wrdc/>

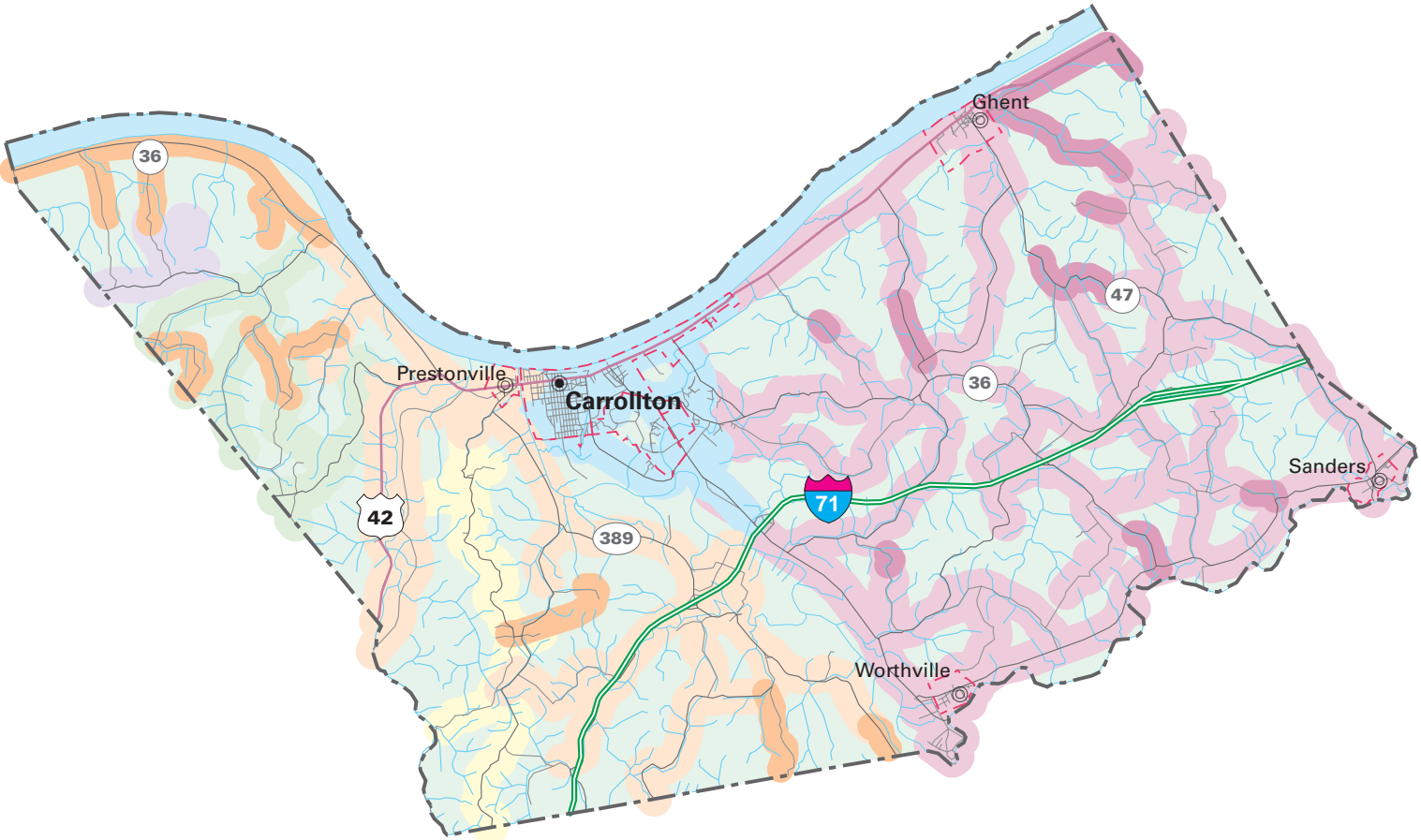
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Final GIS & Cartographic Operations By:  
Kent Anness & Kim Prough

Data Collection & GIS Input By:  
Kentucky Area Development Districts



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WATER SERVICE STATUS BY OWNER		
EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		WEST CARROLL WATER DISTRICT/CARROLLTON
		TRIMBLE COUNTY WATER DISTRICT #1
		MILTON WATER AND SEWER DEPARTMENT
		HENRY COUNTY WATER DISTRICT #2
		CARROLLTON UTILITIES
		CARROLL COUNTY WATER DISTRICT #1





**WEST CARROLL WATER DISTRICT/CARROLLTON**

PWSID: ..... 0210008  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT  
 Surface Source:  
 Purchase Source: ..... CARROLLTON UTILITIES  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production:..... 0.00  
 Total Tank Storage Capacity (gallons):..... 94,000.00  
 Total Service Connections: ..... 825.00  
 Number of Employees:..... 0.00  
 Treatment Operator Class: ..... 1D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... 5.56  
 O/M costs 1997:..... 202,328.00  
 O/M costs per Service Connection: ..... 259.39  
 Net Revenue 1997:..... 24,351.00  
 Total Water Produced 1997 (gallons):..... 0.00  
 Water Sold 1997 (gallons):..... 48,595,580.00  
 Unaccounted-for Water 1997 (%): ..... 12.00

The West Carroll Water District purchases its water from Carrollton Utilities, the Trimble County Water District, the Henry County Water District and the City of Milton in Trimble County. The District has 304 service connections in Carroll County and 512 service connections in Trimble County, serving a population of approximately 2, 100. It has 782 residential customers who used a total volume in 1998 of 39,657,600 gallons, and 18 commercial customers who used 2,293,200 gallons. The combined average daily usage of the four sources was approximately 185,038 gallons per day over the last twelve months. There is a storage capacity of 94,000 gallons in 2 tanks located throughout the District. The staff at Carrollton Utilities administers the West Carroll Water District operations.

West Carroll Water District is planning several extensions, most notably increasing its connectivity to surrounding water districts. There will also be a sizeable extension westward on US 42, all the way to the county line. The roads in western Carroll County are well served, through the cooperative efforts of several water districts.

**CARROLL COUNTY WATER DISTRICT #1**

PWSID: ..... 0210066  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT  
 Surface Source:

Purchase Source: ..... CARROLLTON UTILITIES  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.52  
 Percent Daily Average Production:..... 64.00  
 Total Tank Storage Capacity (gallons):..... 670,000.00  
 Total Service Connections: ..... 1,863.00  
 Number of Employees:..... 6.00  
 Treatment Operator Class: .....2D  
 Distribution Operator Class:.....3B  
 Customer Rate for 1,000 Gallons:..... 4.90  
 O/M costs 1997:..... 411,704.00  
 O/M costs per Service Connection: ..... 228.47  
 Net Revenue 1997: ..... 149,232.00  
 Total Water Produced 1997 (gallons):..... 234,609,000.00  
 Water Sold 1997 (gallons):..... 211,290,000.00  
 Unaccounted-for Water 1997 (%): ..... 4.81

The Carroll County Water District No. 1 gets draws its water from six wells that are permitted together as a well field to draw 605,000 gallons per day. Four of the wells are located at the treatment plant in Ghent, ordinarily with 2 in use at any one time. The other 2 well as located at the new Gallatin County Water Treatment Plant. The District has 1,313 service connections in Carroll County, 292 service connections in Owen County, and 358 service connections Gallatin County, serving a population of approximately 6,150. The district has 1,379 residential customers who in 1998 used a total volume of 94,074,900 gallons, 105 commercial customers who used 32,032,800 gallons, and 19 industrial customers who used 85,182,300 gallons. The average daily production of the new water Carroll County Water District No.1 treatment plant in Gallatin County was 574,936 gallons per day. The district does not currently supply treated water to any other system, but would be willing to, if the need arises. There is a storage capacity of 670,000 gallons in 7 tanks located throughout the District. The Carroll County Water District No. 1 has 6 full-time employees. The district's primary problem at this time is the inability of the lines to transport enough water from the new treatment plant to the rest of the distribution system. The district manager hopes that a new line along US 42 will alleviate the bottleneck. Much of the distribution system is constructed of 4-inch pipes, requiring system upgrades to facilitate further planned expansion into Owen County. It is estimated that 88 percent of the households within the service boundary are being served. This is excellent coverage for such a rural area. Some households will not be able to be served because of continual earth

slippage, which also causes problems for private wells. For these homes, trucked water may be the only solution.

### **CARROLLTON UTILITIES**

PWSID: ..... 0210067  
 System Type: ..... COMMUNITY  
 Owner Type: ..... MUNICIPAL  
 Surface Source:  
 Purchase Source:  
 Well Source:  
 Sells Water to: ..... WEST CARROLL WATER DISTRICT/CARROLLTON  
 Treatment Plant Capacity (MGD): ..... 1.50  
 Percent Daily Average Production: ..... 41.00  
 Total Tank Storage Capacity (gallons): ..... 1,000,000.00  
 Total Service Connections: ..... 1,785.00  
 Number of Employees: ..... 21.00  
 Treatment Operator Class: ..... 2D  
 Distribution Operator Class: ..... 3A  
 Customer Rate for 1,000 Gallons: ..... Not available  
 O/M costs 1997: ..... Not available  
 O/M costs per Service Connection: ..... Not available  
 Net Revenue 1997: ..... Not available  
 Total Water Produced 1997 (gallons): ..... Not available  
 Water Sold 1997 (gallons): ..... Not available  
 Unaccounted-for Water 1997 (%): ..... Not available

Carrollton Utilities draws its water from three wells that have a combined withdrawal capacity of 1,400,000 gallons per day. The District has 1,605 service connections serving a population of approximately 4,200. It has 1,323 residential customers who used a total volume in 1998 of 77,786,900 gallons, 285 commercial customers who used 120,264,000 gallons, and 2 industrial customers who used 7,030,200 gallons. The average daily production of the Carrollton Utilities new water treatment plant was 720,000 gallons per day in 1997. It supplies water to the West Carroll Water District and has an emergency connection with Carroll County Water District No. 1. There is a storage capacity of 1,000,000 gallons in 2 tanks located within the district. Carrollton Utilities has 21 fulltime employees.

Carrollton Utilities currently serves 100% of the households within the Carrollton city limits and has no plans for waterline extensions. Carrollton Utilities also provides water to General Butler State Recreation Park

**WEST CARROLL WD/HENRY CO #2**

West Carroll WD/Henry Co #2 is located in Carroll County. The system serves a population of 366 and has 111 service connections. The water district purchases water from Henry County Water district #2.

**WEST CARROLL WD/TRIMBLE COUNTY WATER DISTRICT**

West Carroll WDTrimble County Water District is located in Carroll County. The system serves a population of 775 and has 229 service connections. The water district purchases water from Trimble County Water District.

**WEST CARROLL WATER DISTRICT/MILTON WATER DISTRICT**

West Carroll Water district/Milton Water District is located in Carroll County. The system serves a population of 33 and has 11 service connections. The water district's water is purchased from Milton Water District.

**OTHER SYSTEMS**

**GREEN ACRES MOBILE HOMES COURT**

Green Acres Mobile Homes Court is located in Carroll County. The system serves a population of 92 and has 28 service connections. The private, community system has treatment capacity of 14,000 gallons per day and the water source is wells.

**K U GHENT GENERATING STATION**

K U Ghent Generating Station is located in Carroll County. The system serves a population of 245 and has 103 service connections. The private, non-transient, non-community system has treatment capacity of 75,000 gallons per day and water source is wells. The charge for the first 5000 gallons of water was \$34.42.

**DOW CORNING CORP/CARROLLTON**

Dow Corning Corp/Carrollton is located in Carroll County. The system serves a population of 511 and has 1 service connection. The private, non-transient, non-community system has treatment capacity of 288,000 gallons per day and the water source is wells.

**AMERIFORM MANUFACTURING, INC**

Ameriform Manufacturing, Inc is located in Carroll County. The system serves a population of 230 and has 1 service connection. The private, non-transient, non-community system has treatment capacity of 16,800 gallons per day and the water source is wells.

**PRIVATE DOMESTIC SYSTEMS:**

About 900 people in the county rely on private domestic water supplies: 350 on wells, and 550 on hauled water or other sources.

The alluvium along the Ohio River is the best source of ground water in the county. Many properly constructed drilled wells will produce several hundred gallons per minute from the alluvium, with most wells able to produce enough for a domestic supply at depths of less than 100 feet. Water is hard or very hard but otherwise of good quality.

In the bottoms of the Kentucky River, Eagle Creek and in the lower sections of the larger creek valleys that drain into the Ohio River, most drilled wells will produce enough water for a domestic supply at depths of less than 100 feet. Some wells located in the smaller creek valleys will produce enough water for a domestic supply except during dry weather. In the upland areas of Carroll County that encompasses approximately 50% of the county, most drilled wells will not produce enough water for a dependable domestic supply except along drainage lines that may produce enough water except during dry weather. Ground water in these areas is hard or very hard and may contain salt or hydrogen sulfide, especially at depths greater than 100 feet.

## GALLATIN COUNTY

### (Gallatin County Water Service Area Map)

- Estimated 1999 population of 7,200--90% on public water
- Estimated 2020 population of 11,200--92% on public water
- 130 miles of water lines, with plans for 12 additional miles
- Estimated funding needs for public water 2000-2005--\$2,460,000
- Estimated funding needs for public water 2006-2020--\$0

Gallatin County had an estimated population of 7,198 (2,839 households) in 1999 with a projected population of 11,200 (4,700 households) in 2020. Public water is provided to about 90 percent of the county's residents. In areas of the county not served by public water, about 1 in 5 households rely on private domestic wells and 4 in 5 the households rely on other sources. About 90 customers will be added to public water service through new line extensions in 2000-2020.

### *Estimated Costs - Proposed Projects, 2000-2005*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
<b>GALLATIN</b>								-
Gallatin Co. W/D	9.7	75	300	600	1,500			2,400
Warsaw	No new projects							-
Carroll Water Dist. #1	2.3	15	60					60
<b>Total</b>	<b>12.0</b>	<b>90</b>	<b>360</b>	<b>600</b>	<b>1,500</b>			<b>2,460</b>

### PUBLIC WATER SYSTEMS

There are 3 public or semi-public water systems in Gallatin County: 2 community--1 municipal, City of Warsaw; 1 water district, Gallatin County Water District; and 1 non-community systems. Parts of the county are also served by Bullock Pen Water District, Carroll County Water District #1, and Tri-Village Water District.

# WATER SERVICE AREAS

## GALLATIN COUNTY

### Kentucky

*Prepared By:*  
**Water Resource Development Commission**

Department for Local Government  
1024 Capital Center Drive, Suite 340  
Frankfort, Kentucky 40601-8204  
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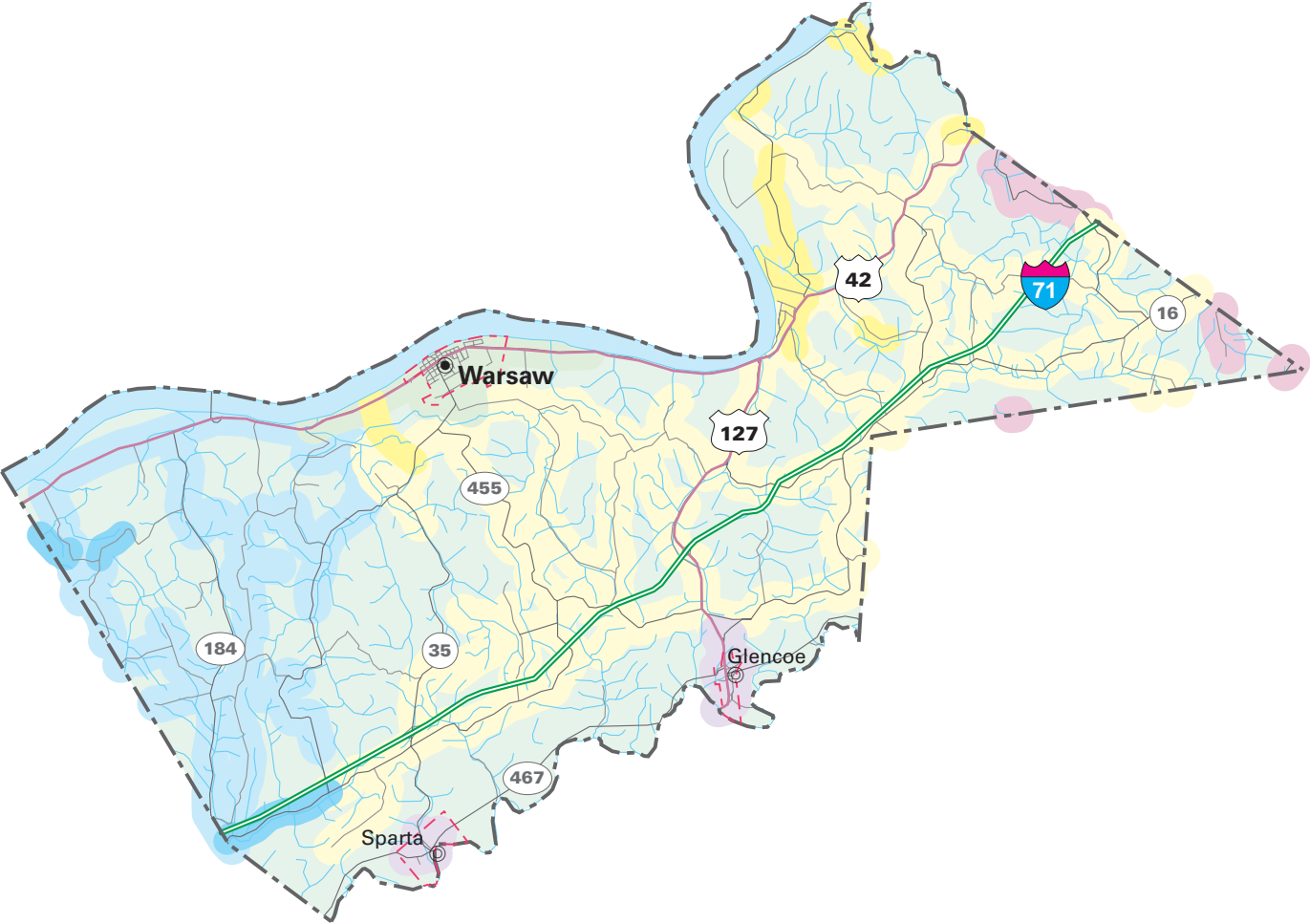
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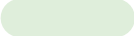
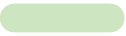


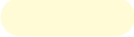
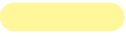
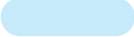



Final GIS & Cartographic Operations By:  
Kent Anness & Kim Prough

Data Collection & GIS Input By:  
Kentucky Area Development Districts



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WATER SERVICE STATUS BY OWNER		
EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		WARSAW WATER WORKS
		TRI-VILLAGE WATER DISTRICT
		GALLATIN COUNTY WATER DISTRICT
		CARROLL COUNTY WATER DISTRICT #1
		BULLOCK PEN WATER DISTRICT

**WARSAW WATER WORKS**

PWSID: ..... 0390444  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:  
 Purchase Source:  
 Well Source:  
 Sells Water to: ..... GALLATIN COUNTY WATER DISTRICT  
 Treatment Plant Capacity (MGD):..... 0.72  
 Percent Daily Average Production:..... 64.00  
 Total Tank Storage Capacity (gallons):..... 500,000.00  
 Total Service Connections: ..... 702.00  
 Number of Employees:..... 5.00  
 Treatment Operator Class:  
 Distribution Operator Class:..... 2BD  
 Customer Rate for 1,000 Gallons:..... Not available  
 O/M costs 1997:..... Not available  
 O/M costs per Service Connection: ..... Not available  
 Net Revenue 1997:..... Not available  
 Total Water Produced 1997 (gallons):..... Not available  
 Water Sold 1997 (gallons):..... Not available  
 Unaccounted-for Water 1997 (%): ..... Not available

The City of Warsaw draws its water from two wells. The waterworks serves 700 residential customers and two commercial customers with a combined total annual usage of 139,450,000 gallons. In addition, Warsaw Waterworks wholesales water to the Gallatin County Water District. The system operates a Water Treatment Plant with a production capacity of 720,000 gallons per day. On an average day, the plant produces 460,000 gallons per day. The Waterworks has an elevated tank with a total storage capacity of 500,000 gallons, and has five full time employees.

100 percent of the residents of Warsaw are already being served by city water, as are a few households outside of the city limits. The mayor's office regularly receives requests for water service from residents outside the city limits, although the city does not currently plan to extend their system any farther.

**GALLATIN COUNTY WATER DISTRICT**

PWSID: ..... 0390130  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT  
 Surface Source:  
 Purchase Source: ..... WARSAW WATER AND SEWER  
 Well Source:  
 Sells Water to: ..... BULLOCK PEN WATER DISTRICT



Treatment Plant Capacity (MGD):.....	0.00
Percent Daily Average Production:.....	0.00
Total Tank Storage Capacity (gallons):.....	100,000.00
Total Service Connections: .....	1,274.00
Number of Employees:.....	5.00
Treatment Operator Class: .....	2D
Distribution Operator Class:	
Customer Rate for 1,000 Gallons:.....	5.97
O/M costs 1997:.....	214,304.00
O/M costs per Service Connection: .....	171.17
Net Revenue 1997:.....	48,594.00
Total Water Produced 1997 (gallons):.....	0.00
Water Sold 1997 (gallons):.....	62,278,000.00
Unaccounted-for Water 1997 (%): .....	13.88

## OTHER SYSTEMS

### **RIVER'S EDGE CAMPGROUND**

River's Edge Campground is located in Gallatin County. The system serves a population of 132 and has 45 service connections. The private, transient, non-community system has treatment capacity of 20,000 gallons per day and the water source is wells. The charge for the first 5,000 gallons of water was \$20.60.

### **PRIVATE DOMESTIC SYSTEMS:**

About 700 people in Gallatin County rely on private domestic water systems: 100 on wells and 600 on hauled water and other sources.

The alluvium along the Ohio River is the best source of ground-water in the county. Many properly constructed drilled wells will produce several hundred gallons per minute from the alluvium, with most wells able to produce enough for a domestic supply at depths of less than 100 feet. Water is hard or very hard but otherwise of good quality.

In the bottoms of Eagle Creek and in the lower sections of the larger creek valleys that drain into the Ohio River, most drilled wells will produce enough water for a domestic supply at depths of less than 100 feet. Some wells located in the smaller creek valleys will produce enough water for a domestic supply except during dry weather. In the upland areas of Gallatin County that encompasses approximately 60% of the county, most drilled wells will not produce enough water for a dependable domestic supply except along drainage lines that may produce enough water except during dry weather. Ground water in these areas is hard or

very hard and may contain salt or hydrogen sulfide, especially at depths greater than 100 feet.

## GRANT COUNTY

### (Grant County Water Service Area Map)

- Estimated 1999 population of 21,000--80% on public water
- Estimated 2020 population of 31,400--86% on public water
- 250 miles of water lines, with plans for 80 additional miles
- Estimated funding needs for public water 2000-2005--\$5,590,000
- Estimated funding needs for public water 2006-2020--\$700,000

Grant County had an estimated population of 21,014 (8,087 households) in 1999 with a projected population of 31,400 (12,800 households) in 2020. Public water is provided to about 80 percent of the county's residents. In areas of the county not served by public water, about 10 percent the households rely on private domestic wells and 90 percent on other sources. About 705 customers will be added to public water service through new line extensions in 2000-2020.

#### *Estimated Costs - Proposed Projects, 2000-2005*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
<b>GRANT</b>								-
Bullock Pen W/D	33.0	284	1,280				1,300	2,580
Corinth W/D	19.3	160	670					670
Williamstown Water Dept.	8.4	105	340	2,000				2,340
<b>Total</b>	<b>60.7</b>	<b>549</b>	<b>2,290</b>	<b>2,000</b>			<b>1,300</b>	<b>5,590</b>

#### *Estimated Costs - Proposed Projects, 2006-2020*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
<b>GRANT</b>								-
Bullock Pen W/D								-
Corinth W/D	19.0	156	700					700
Williamstown Water Dept.								-
<b>Total</b>	<b>19.0</b>	<b>156</b>	<b>700</b>					<b>700</b>

### PUBLIC WATER SYSTEMS

There are 7 public or semi-public water systems in Grant County: 5 community--2 municipal, Williamstown Municipal Water and Dry Ridge Water Department; 2 water districts, Bullock Pen Water District and Corinth Water District; 1 private community

# WATER SERVICE AREAS

## GRANT COUNTY

### Kentucky

**Prepared By:**  
**Water Resource Development Commission**

Department for Local Government  
1024 Capital Center Drive, Suite 340  
Frankfort, Kentucky 40601-8204  
502-573-2382 -- 502-573-2939 fax  
<http://dlgnt1.state.ky.us/wrdc/>

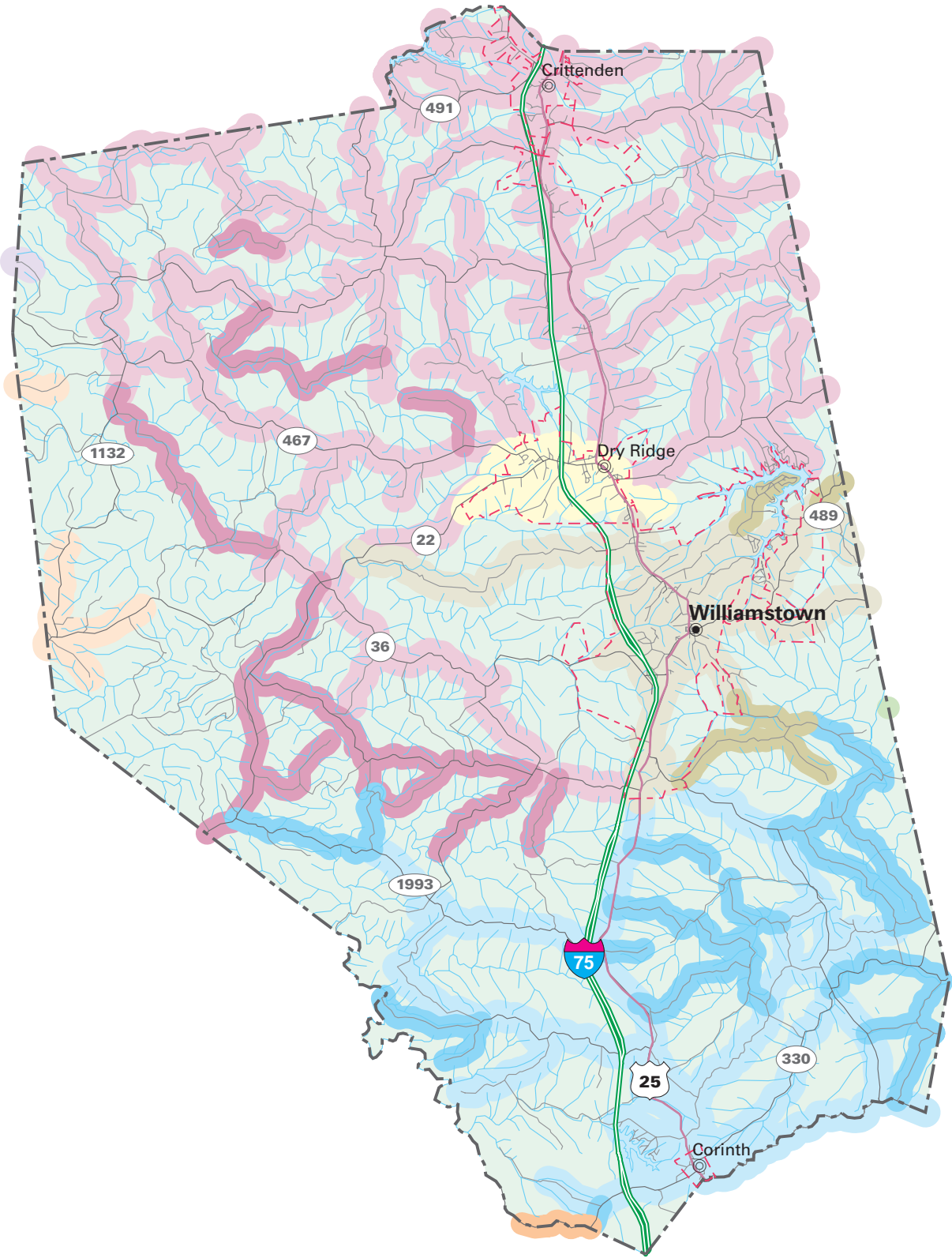
Bob Arnold, Chairman  
Lawrence Wetherby, Executive Director

Final GIS & Cartographic Operations By:  
Kent Anness & Kim Prough

Data Collection & GIS Input By:  
Kentucky Area Development Districts



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#### WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		WILLIAMSTOWN MUNICIPAL WATER DEPARTMENT
		TRI-VILLAGE WATER DISTRICT
		PENDLETON COUNTY WATER DISTRICT/SOUTH
		GALLATIN COUNTY WATER DISTRICT
		DRY RIDGE WATER WORKS COMMISSION
		CORINTH WATER DISTRICT
		BULLOCK PEN WATER DISTRICT

systems; and 2 non-community systems. Gallatin County Water District and Tri-Village Water District also serve a few homes in the county.

### **BULLOCK PEN WATER DISTRICT**

PWSID: ..... 0410047  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT  
 Surface Source:..... BULLOCK PEN LAKE  
 Purchase Source: .....WALTON WATER WORKS  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 1.00  
 Percent Daily Average Production:..... 62.00  
 Total Tank Storage Capacity (gallons): ..... 790,000.00  
 Total Service Connections: ..... 4,507.00  
 Number of Employees:..... 12.00  
 Treatment Operator Class: .....2D  
 Distribution Operator Class:.....3A  
 Customer Rate for 1,000 Gallons:..... 5.18  
 O/M costs 1997:..... 925,335.00  
 O/M costs per Service Connection: ..... 205.31  
 Net Revenue 1997: ..... 34,904.00  
 Total Water Produced 1997 (gallons):..... 223,827,000.00  
 Water Sold 1997 (gallons):..... 264,706,713.00  
 Unaccounted-for Water 1997 (%): ..... 4.92

The Bullock Pen Water District serves parts of Grant, Pendleton, Boone, Gallatin, and Kenton Counties. It supplied 4,412 residential customers with 252,326,760 gallons in 1998, 92 commercial customers with 11,848,633 gallons, and 1 industrial customer with 531,290 gallons. The District receives its water from Bullock Pen Lake. It is permitted to withdraw 850,000 gallons per day and averages 625,000 gallons per day. It also receives 100,000 gallons per day from Walton Waterworks and 150,000 gallons per day from Williamstown Municipal Water. The System operates a water treatment plant that has a production capacity of 1,000,000 gallons per day. On average, the plant produces about 625,000 gallons per day. The District has a storage capacity of 790,000 gallons in five tanks throughout the District. Bullock Pen Water District has twelve full time employees.

Bullock Pen Water District has outlined an aggressive 5-year plan for water line extensions. The majority of the district lies in Grant County, which is growing rapidly along the 1-75 corridor, but is still highly rural, with low population densities is much of the rest of the county. Many of the people who live on these rural roads have been are active and organized

in their efforts to bring water service to their homes. Residents in the White Chapel and Chipman Ridge areas have been especially vocal. The official district boundaries do not reflect its actual service area, which already extends beyond those boundaries. Because those served and proposed roads are have not been officially annexed, there remains a degree of uncertainty in many areas over who truly retains jurisdiction.

Beyond the extensions planning within the next 5 years, there are currently no plans for waterline extensions. Due largely to population growth within its service area, the District cannot plan on any additional services until an additional water source is obtained. The District is presently looking into a water purchase agreement with Northern Kentucky Water Service.

#### **WILLIAMSTOWN MUNICIPAL WATER DEPARTMENT**

PWSID: ..... 0410472  
 System Type:..... COMMUNITY  
 Owner Type: ..... MUNICIPAL  
 Surface Source: .....WILLIAMSTOWN LAKE  
 Purchase Source:  
 Well Source:  
 Sells Water to: .....CORINTH WATER DISTRICT  
 Treatment Plant Capacity (MGD):..... 2.25  
 Percent Daily Average Production:..... 38.00  
 Total Tank Storage Capacity (gallons): ..... 600,000.00  
 Total Service Connections: ..... 1,300.00  
 Number of Employees:..... 7.00  
 Treatment Operator Class: .....2D  
 Distribution Operator Class:.....4A  
 Customer Rate for 1,000 Gallons:.....Not available  
 O/M costs 1997:.....Not available  
 O/M costs per Service Connection: .....Not available  
 Net Revenue 1997: .....Not available  
 Total Water Produced 1997 (gallons):.....Not available  
 Water Sold 1997 (gallons): .....Not available  
 Unaccounted-for Water 1997 (%): .....Not available

Williamstown Municipal Water draws its water from Williamstown Lake. The system has 1,300 service connections for a population of approximately 3,000. It served 1, 130 residential customers who used a total volume in 1998 of 62,421,511 gallons, 206 commercial customers who used 8,869,300 gallons, and 1 industrial customer who used 440,000,000 gallons. The average daily production of the Williamstown Municipal Water treatment plant was 1,134,492 gallons per day in 1997. They also supply water to Dry Ridge,

Corinth Water District, and Bullock Pen Water District. There is a storage capacity of 600,000 gallons in 3 tanks located throughout the area. Williamstown Municipal Water has 7 full-time employees.

Williamstown is the hub of water treatment in Grant County. The town is large with a relatively dispersed population, an estimated 85 percent of whom are currently served.

### **CORINTH WATER DISTRICT**

PWSID: ..... 0410662  
 System Type:..... COMMUNITY  
 Owner Type: ..... WATER DISTRICT  
 Surface Source:  
 Purchase Source: ..... WILLIAMSTOWN MUNICIPAL WATER  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production:..... 0.00  
 Total Tank Storage Capacity (gallons): ..... 122,000.00  
 Total Service Connections: ..... 562.00  
 Number of Employees:..... 2.00  
 Treatment Operator Class: ..... 1D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... 5.33  
 O/M costs 1997: ..... 204,154.00  
 O/M costs per Service Connection: ..... 366.52  
 Net Revenue 1997: ..... 12,035.00  
 Total Water Produced 1997 (gallons):..... 0.00  
 Water Sold 1997 (gallons): ..... 42,624,902.00  
 Unaccounted-for Water 1997 (%): ..... 6.39

The Corinth Water District is a water distributor, serving the southern portion of Grant County, which is rural, the homes around Corinth Lake, and Corinth, which consists of approximately 80 homes. The District has no treatment or pumping facilities of its own, but does have one 122,000-gallons standpipe storage tank near Corinth. Corinth Water District purchases all of its water from the City of Williamstown. The District currently serves 540 households in Grant County and 22 households in Harrison County, serving a total population of 1,386, as well as 20 commercial customers. In 1998 residential usage was 30,353,400 gallons and commercial usage was 28,549,100 gallons. The average daily usage was 125,800 gallons per day of a total available capacity from the source of 5,000,000 gallons per day. The Corinth Water District has two full time employees.

Corinth Water District has optimistic plans for expanding its service in the next 20 years. Grant County is experiencing rapid growth, especially on the 1-75 corridor, so the district's immediate plans concentrate on extending water lines from the existing 8 inch main along US 25, to roads just east of 1-75 and US 25. Beyond the 5-year horizon, the district plans to extend water lines to the more remote locations west to KY 22 and east to the Grant County line. There is some confusion in this area over which district has jurisdiction over certain roads, which is to be expected while districts operate without official, updated district boundaries.

### **DRY RIDGE WATER WORKS COMMISSION**

PWSID: ..... 0410107  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT  
 Surface Source:  
 Purchase Source: ..... WILLIAMSTOWN MUNICIPAL WATER  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production:..... 0.00  
 Total Tank Storage Capacity (gallons): ..... 300,000.00  
 Total Service Connections: ..... 649.00  
 Number of Employees:..... 5.00  
 Treatment Operator Class: .....2D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:.....Not available  
 O/M costs 1997:.....Not available  
 O/M costs per Service Connection: .....Not available  
 Net Revenue 1997: .....Not available  
 Total Water Produced 1997 (gallons):.....Not available  
 Water Sold 1997 (gallons):.....Not available  
 Unaccounted-for Water 1997 (%): .....Not available

The City of Dry Ridge Water Department is a water distributor, purchasing its water from the City of Williamstown. The Dry Ridge has 649 service connections serving a population of approximately 2,400. It has 439 residential customers using a total volume in 1998 of 66,846,166 gallons and 116 commercial customers who used 6,473,490 gallons. The average daily usage for the last twelve months was 235,840 gallons per day. The Department has no treatment or pumping facilities of its own, but does own 2 elevated storage tanks, with a total storage capacity of 300,000 gallons. The City of Dry Ridge Water Department has 4.5 full-time employees.



The Dry Ridge water distribution system is relatively new, as Dry Ridge has seen a recent development boom. Approximately 95% of the city's population are already being served, and the city continually extends new lines as subdivisions are constructed within the city limits.

## OTHER SYSTEMS

### **TELSTAR MOBILE HOME PARK**

Telstar Mobile Home Park is located in Grant County. The system serves a population of 221 and has 67 service connections. The private, community system purchases water from dry ridge water works. The charge for the first 5,000 gallons of water was \$24.80.

### **I 75 CAMPERS VILLAGE CAMPGROUND**

I-75 Campers Village Campground is located in Grant County. The system serves a population of 145 and has 30 service connections. The private, transient, non-community system has treatment capacity of 12,000 gallons per day and the water source is wells.

### **THREE SPRINGS CAMPGROUND**

Three Springs Campground is located in Grant County. The system serves a population of 110 and has 30 service connections. The private, transient, non-community system purchases water from Williamstown.

## PRIVATE DOMESTIC SYSTEMS:

About 3,900 residents of Grant County rely on private domestic water supplies: 400 on water wells and 3,500 on hauled water and other sources.

Ground-water resources in Grant County are limited. Wells located in the larger valley bottoms throughout the county will produce enough water for a domestic supply except during dry weather. In the upland area of Grant County that encompasses approximately 80% of the county, most drilled wells will not produce enough water for a dependable domestic supply except along drainage lines that may produce enough water except during dry weather.

Throughout the county ground water is hard or very hard and may contain salt or hydrogen sulfide, especially at depths greater than 100 feet.

## KENTON COUNTY

### (Kenton County Water Service Area Map)

- Estimated 1999 population of 145,700--92% on public water
- Estimated 2020 population of 152,000--95% on public water
- 550 miles of water lines, with plans for 105 additional miles
- Estimated funding needs for public water 2000-2005--\$21,290,000
- Estimated funding needs for public water 2006-2020--\$5,340,000

Kenton County had an estimated population of 145,698 (57,430 households) in 1999 with a projected population of 152,000 (64,600 households) in 2020. Public water is provided to about 92 percent of the county's residents. In areas of the county not served by public water, about 10 percent of the households rely on private domestic wells and 90 percent rely on other sources. About 2,020 customers will be added to public water service through new line extensions in 2000-2020.

#### *Estimated Costs - Proposed Projects, 2000-2005*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
<b>KENTON</b>								-
Taylor Mill W/D	1.1	11	40					40
N. Kentucky W/D	10.6	252	400	3,000				3,400
Taylor Mill	3.0	45	150					150
Newport					3,000	5,700		8,700
Covington				5,000				5,000
Villa Hills				2,000				2,000
Bromley				1,000				1,000
Ludlow				1,000				1,000
<b>Total</b>	<b>14.7</b>	<b>308</b>	<b>590</b>	<b>12,000</b>	<b>3,000</b>	<b>5,700</b>		<b>21,290</b>

#### *Estimated Costs - Proposed Projects, 2006-2020*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
<b>KENTON</b>								-
Taylor Mill W/D	1.0	15	40					40
N. Kentucky W/D	90.0	1,700	3,600				1,700	5,300
Taylor Mill								-
<b>Total</b>	<b>91.0</b>	<b>1,715</b>	<b>3,640</b>				<b>1,700</b>	<b>5,340</b>

### PUBLIC WATER SYSTEMS

Kenton County has 7 public or semi-public water systems: 5 community--3 municipal, Ludlow Water Works, Taylor Mill Water Department, and Bromley Water Works; 1 water

# WATER SERVICE AREAS

## KENTON COUNTY

### Kentucky

*Prepared By:*  
**Water Resource Development Commission**

Department for Local Government  
1024 Capital Center Drive, Suite 340  
Frankfort, Kentucky 40601-8204  
502-573-2382 -- 502-573-2939 fax  
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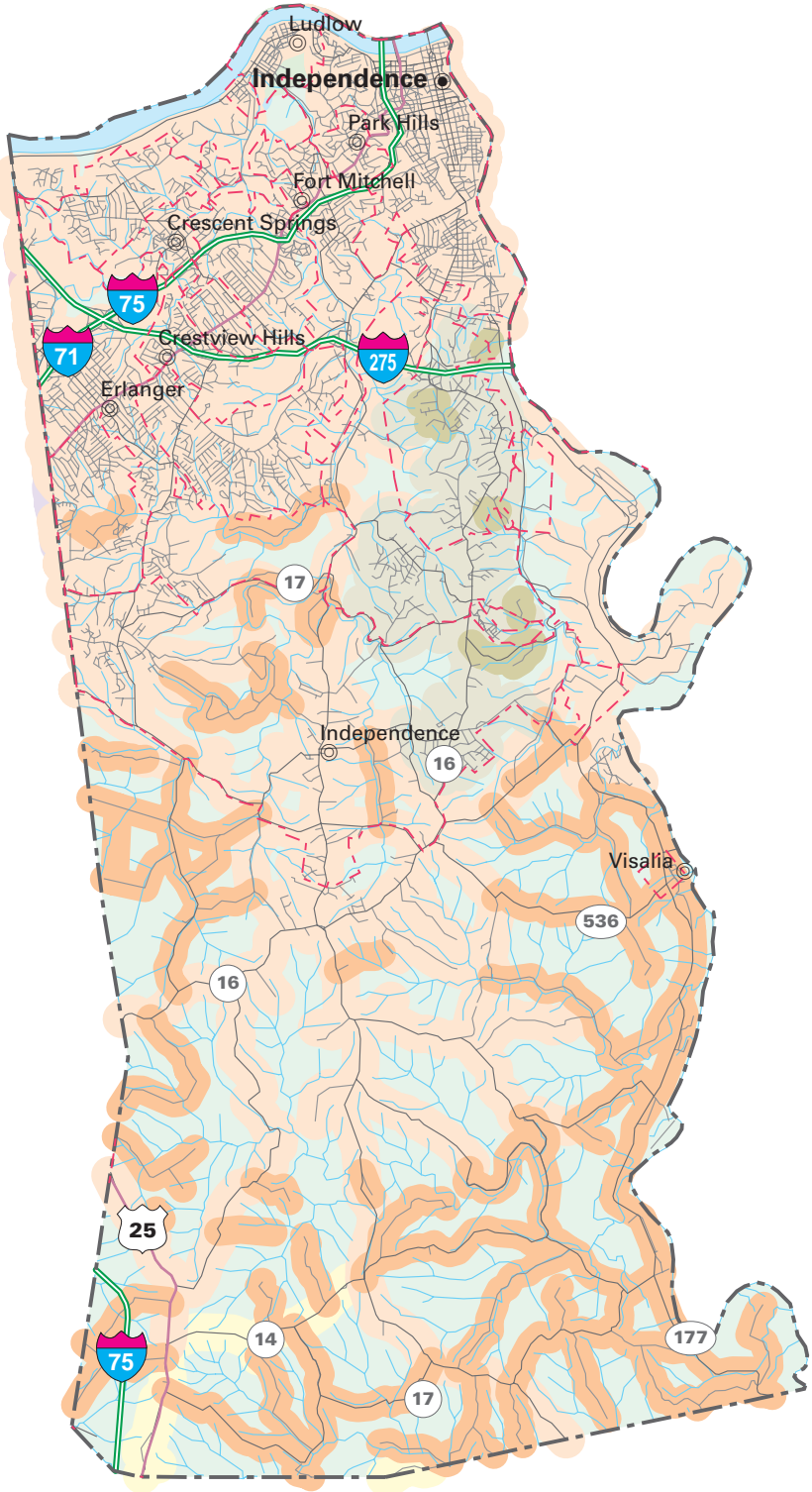
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Final GIS & Cartographic Operations By:  
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#### WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		TAYLOR MILL WATER DEPARTMENT
		NORTHERN KENTUCKY WATER SERVICE DISTRICT
		LUDLOW WATER WORKS
		FLORENCE WATER AND SEWER COMMISSION
		BULLOCK PEN WATER DISTRICT
		BROMLEY WATER WORKS
		BOONE COUNTY WATER AND SEWER DISTRICT

district, Northern Kentucky Water Service District; 2 private systems; and 1 non-community systems. A few customers in the county are also served by Boone County Water District, Bullock Pen Water District, and Florence Water and Sewer Commission.

### **BROMLEY WATER WORKS**

PWSID: ..... 0590042  
 System Type:..... COMMUNITY  
 Owner Type: ..... MUNICIPAL  
 Surface Source:  
 Purchase Source: ..... NORTHERN KENTUCKY WATER SERVICE DISTRICT  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production:..... 0.00  
 Total Tank Storage Capacity (gallons): ..... 0.00  
 Total Service Connections: ..... 301.00  
 Number of Employees:..... 1.00  
 Treatment Operator Class: ..... 1D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... Not available  
 O/M costs 1997: ..... Not available  
 O/M costs per Service Connection: ..... Not available  
 Net Revenue 1997: ..... Not available  
 Total Water Produced 1997 (gallons):..... Not available  
 Water Sold 1997 (gallons):..... Not available  
 Unaccounted-for Water 1997 (%): ..... Not available

The City of Bromley purchases its water from the Northern Kentucky Water Service District. However, the city's master meter is not functional, so Bromley sends the meter readings from each house to NKWSD for billing calculation. Bromley serves 289 residential customers and 17 commercial customers. The city has no treatment, storage, or pumping facilities of its own. Fire hydrants are used for flushing the system. The water department staffs one full-time employee.

Bromley serves 99 percent of its population. It also serves a limited number of residences outside the city limits, but does not accept new customers outside the city. Bromley's primary water distribution problem stems from the aged nature of its infrastructure. The west side of town has 3/4inch pipes, which have chronically low or insufficient pressure. Because of the highly developed structure of Bromley at present, no significant future residential growth is anticipated; however, the aged system is in need of overhaul and update to adequately serve its citizenry.

**NORTHERN KENTUCKY WATER SERVICE DISTRICT**

PWSID: ..... 0590220  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT  
 Surface Source:..... OHIO RIVER  
 Purchase Source: .....NEWPORT WATER DISTRICT  
 Well Source:  
 Sells Water to: .....WALTON WATERWORKS DEPARTMENT  
 Treatment Plant Capacity (MGD):..... 54.00  
 Percent Daily Average Production:..... 66.00  
 Total Tank Storage Capacity (gallons):..... 270,000,000.00  
 Total Service Connections: ..... 61,762.00  
 Number of Employees:..... 122.00  
 Treatment Operator Class:.....4D  
 Distribution Operator Class:.....4A  
 Customer Rate for 1,000 Gallons:..... 2.44  
 O/M costs 1997:..... 13,460,508.31  
 O/M costs per Service Connection: ..... 228.25  
 Net Revenue 1997:..... 289,190.18  
 Total Water Produced 1997 (gallons):..... 975,527,000.00  
 Water Sold 1997 (gallons):..... 10,223,225,700.00  
 Unaccounted-for Water 1997 (%): ..... 10.91

The Northern Kentucky Water Service District draws water for treatment from the Ohio River and the Licking River. The District has 40,532 service connections in Kenton County and 21,230 service connections in Campbell County, serving a population of approximately 200,000. It has 53,995 residential customers who used a total volume in 1998 of 4,023,840,4000 gallons, 3,297 commercial customers who used 1,717,084,500 gallons, and 95 industrial customers who used 585,145,500 gallons. The average daily production of the Northern Kentucky Water Service District's two water treatment plants was a combined 30,000,000 gallons per day in 1997. The District also purchases an average of 3,000,000 gallons per day from the Newport Water Department. The district also supplies the systems of the City of Bromley, the Ludlow Public Works, the City of Taylor Mill, Boone County Water District, City of Florence, Tri-Village Water, Pendleton County Water, and Walton Waterworks. There is a storage capacity of 269,500,000 gallons in 18 tanks located throughout the district.

The Northern Kentucky Water Service District is responsible for all of Kenton and Campbell Counties, excluding those incorporated areas that choose to be excluded. Within the past few years, the district has grown dramatically as it has assumed responsibility for new areas. Virtually all households in the northern, urban areas of Kenton and Campbell

Counties are served, albeit through very aged infrastructure. The rural, southern portions of these counties remain largely unserved. The district's big challenge within the next 20 years will be reaching those areas, which have population densities that appear startlingly low to a district accustomed to operating in the dense Kentucky portion of Cincinnati.

#### **TAYLOR MILL WATER DEPARTMENT**

PWSID: ..... 0590424  
 System Type: ..... COMMUNITY  
 Owner Type: ..... MUNICIPAL  
 Surface Source:  
 Purchase Source: ..... NORTHERN KENTUCKY WATER SERVICE DISTRICT  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD): ..... 0.00  
 Percent Daily Average Production: ..... 0.00  
 Total Tank Storage Capacity (gallons): ..... 325,000.00  
 Total Service Connections: ..... 4,031.00  
 Number of Employees: ..... 8.00  
 Treatment Operator Class: ..... 2D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons: ..... Not available  
 O/M costs 1997: ..... Not available  
 O/M costs per Service Connection: ..... Not available  
 Net Revenue 1997: ..... Not available  
 Total Water Produced 1997 (gallons): ..... Not available  
 Water Sold 1997 (gallons): ..... Not available  
 Unaccounted-for Water 1997 (%): ..... Not available

The Taylor Mill Water Department purchases its water from the Northern Kentucky Water Service District. There is through-flow in the system with water entering in the north end of the city, and exiting back into the Northern Kentucky Water Service District's system on the south end of town. The District serves 4,031 customers who used 371,061,500 gallons last year. The District has no treatment or pumping facilities, but it does have a storage capacity of 325,000 gallons in a tank at Taylor Mill Elementary. The Taylor Mill Water Department has eight full time employees.

Almost all residents of Taylor Mill are already being served by city water. A few short extensions are planned to reach the most remote households.

#### **LUDLOW WATER WORKS**

PWSID: ..... 0590261  
 System Type: ..... COMMUNITY  
 Owner Type: ..... MUNICIPAL  
 Surface Source:

Purchase Source: ..... NORTHERN KENTUCKY WATER SERVICE DISTRICT  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production:..... 0.00  
 Total Tank Storage Capacity (gallons):..... 0.00  
 Total Service Connections: ..... 1,700.00  
 Number of Employees:..... 2.00  
 Treatment Operator Class: .....2D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... Not available  
 O/M costs 1997:..... Not available  
 O/M costs per Service Connection: ..... Not available  
 Net Revenue 1997: ..... Not available  
 Total Water Produced 1997 (gallons):..... Not available  
 Water Sold 1997 (gallons):..... Not available  
 Unaccounted-for Water 1997 (%): ..... Not available

## OTHER SYSTEMS

### **ROSEDALE MOBILE HOME PARK INC**

Rosedale Mobile Home Park Inc is located in Kenton County. The system serves a population of 346 and has 105 service connections. The private, community system purchases water from the northern Kentucky Water District.

### **VISALIA ELEMENTARY SCHOOL**

Visalia Elementary School is located in Kenton County. The system serves a population of 224 and has 1 service connection. The local, non-transient, non-community system has treatment capacity of 2,250 gallons per day and water is purchased from Northern Kentucky water Service District.

### **KENTON MARINA**

Kenton Marina is located in Kenton County. The system serves a population of 40 and has 1 service connection. The private, transient, non-community system water is purchased from Rauh Water District. The charge for the first 5000 gallons of water was \$24.85.

## PRIVATE DOMESTIC SYSTEMS:

About 11,500 people in the county rely on private domestic water supplies: 1,200 on wells and 10,300 on hauled water or other sources.



The alluvium along the Ohio River is the best source of ground water in the county. Many properly constructed drilled wells will produce several hundred gallons per minute from the alluvium, with most wells able to produce enough for a domestic supply at depths of less than 100 feet. Water is hard or very hard but otherwise of good quality.

In the Licking River valley and the lower sections of the larger creek valleys in Kenton County most drilled wells will produce enough water for a domestic supply at depths of less than 100 feet. Some wells located in the smaller creek valleys will produce enough water for a domestic supply except during dry weather. In the upland areas of Kenton County that encompasses approximately 60% of the county, most drilled wells will not produce enough water for a dependable domestic supply except along drainage lines that may produce enough water except during dry weather. Ground water in these areas is hard or very hard and may contain salt or hydrogen sulfide, especially at depths greater than 100 feet.

## OWEN COUNTY

### (Owen County Water Service Area Map)

- Estimated 1999 population of 10,200--67% on public water
- Estimated 2020 population of 11,800--92% on public water
- 165 miles of water lines, with plans for 320 additional miles
- Estimated funding needs for public water 2000-2005--\$3,160,000
- Estimated funding needs for public water 2006-2020--\$10,400,000

Owen County had an estimated population of 10,240 (4,230 households) in 1999 with a projected population of 11,800 (5,300 households) in 2020. Public water is provided to about 2/3 of the county's residents. In areas of the county not served by public water, about 1 of 5 households rely on private domestic wells and 4 of 5 on hauled water and other sources. About 1,330 customers will be added to public water service through new line extensions in 2000-2020.

#### *Estimated Costs - Proposed Projects, 2000-2005*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	In \$1000	in \$1000	in \$1000	in \$1000	in \$1000
OWEN								-
Carroll Water Dist. #1	9.4	61	330					330
Tri-Village W/D	34.0	256	1,200					1,200
Carroll Co. W/D	94.0	61	330				1,300	1,630
Total	137.4	378	1,860				1,300	3,160

#### *Estimated Costs - Proposed Projects, 2006-2020*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
OWEN								-
Carroll Water Dist. #1	12.7	50	450					450
Tri-Village W/D	156.0	850	5,500					5,500
Carroll Co. W/D	12.7	50	450					450
Owenton					4,000			4,000
Total	181.4	950	6,400		4,000			10,400

### PUBLIC WATER SYSTEMS

Owen County has 6 public or semi-public water systems: 4 community--1 municipal, Owenton Water Works; 1 water district, Tri-Village Water District; 2 private systems; and 2 non-community systems. Parts of the county are also served by Carroll County Water District #1, Georgetown Municipal Water, and Henry County Water District #2.

# WATER SERVICE AREAS

## OWEN COUNTY

### Kentucky

*Prepared By:*  
**Water Resource Development Commission**

Department for Local Government  
1024 Capital Center Drive, Suite 340  
Frankfort, Kentucky 40601-8204  
502-573-2382 -- 502-573-2939 fax  
<http://dlgnt1.state.ky.us/wrdc/>

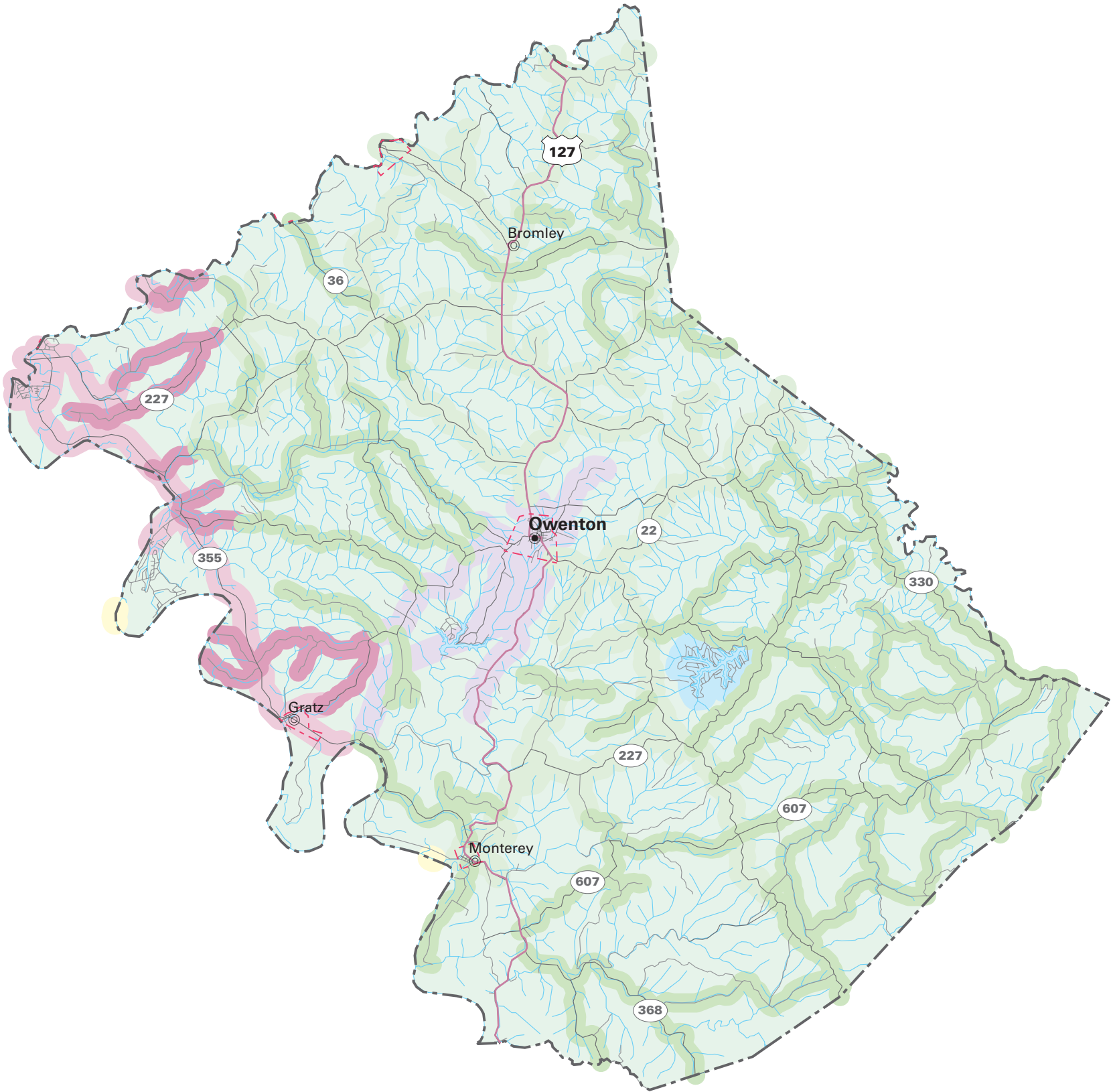
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#### WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		TRI-VILLAGE WATER DISTRICT
		OWENTON CITY WATER WORKS
		HENRY COUNTY WATER DISTRICT #2
		ELK LAKE WATER COMPANY
		CARROLL COUNTY WATER DISTRICT #1

**OWENTON CITY WATER WORKS**

PWSID: ..... 0940337  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:..... SEVERN CREEK  
 Purchase Source:  
 Well Source:  
 Sells Water to: ..... TRI-VILLAGE WATER DISTRICT  
 Treatment Plant Capacity (MGD):..... 1.40  
 Percent Daily Average Production:..... 44.00  
 Total Tank Storage Capacity (gallons):..... 100,000.00  
 Total Service Connections: ..... 1,060.00  
 Number of Employees:..... 9.00  
 Treatment Operator Class:..... 2D  
 Distribution Operator Class:..... 3A  
 Customer Rate for 1,000 Gallons:..... Not available  
 O/M costs 1997:..... Not available  
 O/M costs per Service Connection: ..... Not available  
 Net Revenue 1997:..... Not available  
 Total Water Produced 1997 (gallons):..... Not available  
 Water Sold 1997 (gallons):..... Not available  
 Unaccounted-for Water 1997 (%): ..... Not available

The Owenton Water Works draws its water from Severn Creek, which it then pumps into Lower Thomas Lake, from which it is then pumped to the water treatment plant. Owenton has 1,060 service connections serving a population of 4,300. It has 955 residential customers who used a total volume in 1998 of 132,975,600 gallons, 75 commercial customers who used 14,554,000 gallons, and 1 industrial customer who used 4,200,000 gallons. The average daily production of the Owenton Water Works water treatment plant was 500,000 gallons per day in 1997. They also supply wholesale water to Tri-Village Water District. There is a storage capacity of 500,000 gallons in 2 tanks. The Owenton Water Works has 9 full-time employees.

It is estimated that Owenton serves about 90 percent of its residents with city water. They anticipate significant population growth with the arrival of NASCAR generated business. They plan to move their intake on Severn Creek down to the Kentucky River, to avoid the inadequacy the current location would suffer during a drought. Owenton also plans double the capacity of their existing treatment plant in order to meet the demands of a growing population.

**TRI-VILLAGE WATER DISTRICT**

PWSID: ..... 0940430  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT  
 Surface Source:  
 Purchase Source: ..... OWENTON WATER WORKS  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production:..... 0.00  
 Total Tank Storage Capacity (gallons): ..... 777,000.00  
 Total Service Connections: ..... 1,400.00  
 Number of Employees:..... 5.00  
 Treatment Operator Class: ..... 2D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... 5.69  
 O/M costs 1997:..... 333,844.00  
 O/M costs per Service Connection: ..... 237.11  
 Net Revenue 1997:..... 50,531.00  
 Total Water Produced 1997 (gallons):..... 0.00  
 Water Sold 1997 (gallons):..... 82,381,900.00  
 Unaccounted-for Water 1997 (%): ..... 22.12

The Tri-Village Water District includes much of rural Owen County, and purchases its water from Owenton Water Works. The District has 1,400 service connections serving 1,260 customers in Owen County, 90 customers in Gallatin County, and 20 customers in Grant County. It has 1,304 residential customers using a total volume in 1998 of 76,379,000 gallons and 34 commercial customers who used 3,576,000 gallons. The average daily usage for the last twelve months was 398,000 gallons per day of a total available capacity of source of 500,000 gallons per day. The District has no treatment or pumping facilities. There is a storage capacity of 777,000 gallons in 7 tanks located throughout the District.

The general manager of the system indicates that 85 percent of the households in the district are already being served. However, serving Owen County is a daunting task, as it is rural, and the population relatively sparse. Some of the public roads are no longer maintained, so were not included in the preparation of this plan. Carroll County Water District No. 1 has annexed the southwest portion of Owen County into its service area, helping fill in the large geographic gaps in service. In addition, two developed communities in rural Owen County operate their own private water treatment facilities. Despite these factors, large areas of Owen County remain to be served. Approximately 28 miles of waterline extensions are

planned in southeastern Owen County with the next five years. Beyond these, much funding will be necessary to serve the remainder of the service area.

#### **ELK LAKE WATER COMPANY**

PWSID: ..... 0940119  
System Type:..... COMMUNITY  
Owner Type: ..... PRIVATE  
Surface Source: ..... ELK LAKE RESERVOIR  
Purchase Source:  
Well Source:  
Sells Water to:  
Treatment Plant Capacity (MGD):..... 0.15  
Percent Daily Average Production:..... 15.00  
Total Tank Storage Capacity (gallons): ..... 100,000.00  
Total Service Connections: ..... 0.00  
Number of Employees:..... 0.00  
Treatment Operator Class: ..... 1D  
Distribution Operator Class:..... 2A  
Customer Rate for 1,000 Gallons:..... 12.69  
O/M costs 1997:..... 75,930.00  
O/M costs per Service Connection: ..... 232.91  
Net Revenue 1997: ..... 910.00  
Total Water Produced 1997 (gallons):..... 9,688,000.00  
Water Sold 1997 (gallons): ..... 6,900,000.00  
Unaccounted-for Water 1997 (%): ..... 14.02

#### **GLENWOOD HALL RESORT**

Glenwood Hall Resort is located in Owen County. The system serves a population of 613 and has 186 service connections. The private, community system has treatment capacity of 288,000 gallons per day and storage capacity of 212,000 gallons. The water source is wells. The charge for the first 5000 gallons of water was \$54.94. The system produced 11,247,000 gallons and sold 6,603,000gal. for the period. Overall system losses were 36.85% for the same period.

#### **OTHER SYSTEMS**

##### **BILLS PLACE**

Bills Place is located in Owen County. The system serves a population of 40 and has 1 service connection. The private, transient, non-community system water source is Henry County Water District.

**FAIRVIEW GROCERY & RESTAURANT**

Fairview Grocery & Restaurant is located in Owen County. The system serves a population of 40 and has 1 service connection. The private, transient, non-community system water source is Henry County Water District.

**PRIVATE DOMESTIC SYSTEMS:**

About 3,200 residents of Owen County rely on private domestic water supplies: 600 on wells and 2,600 on hauled water and other sources.

In some of the bottoms of the Kentucky River and Eagle Creek, most drilled wells will produce enough water for a domestic supply at depths of less than 100 feet. Some wells located in the smaller creek valleys and in some less productive areas along the Kentucky River and Eagle Creek will produce enough water for a domestic supply except during dry weather. In the upland areas of Owen County that encompasses approximately 80% of the county, most drilled wells will not produce enough water for a dependable domestic supply except along drainage lines that may produce enough water except during dry weather. Ground water in these areas is hard or very hard and may contain salt or hydrogen sulfide, especially at depths greater than 100 feet.

## PENDLETON COUNTY

### (Pendleton County Water Service Area Map)

- Estimated 1999 population of 14,300--67% on public water
- Estimated 2020 population of 17,600--83% on public water
- 175 miles of water lines, with plans for 170 additional miles
- Estimated funding needs for public water 2000-2005--\$840,000
- Estimated funding needs for public water 2006-2020--\$12,090,000

Pendleton County had an estimated population of 14,273 (5,250 households) in 1999 with a projected population of 17,600 (7,500 households) in 2020. Public water is provided to about 2/3 of the county's residents. In areas of the county not served by public water, most of the households rely on hauled water and other sources. About 1,225 customers will be added to public water service through new line extensions in 2000-2020.

#### *Estimated Costs - Proposed Projects, 2000-2005*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
<b>PENDLETON</b>								-
East Pendleton W/D								-
Pendleton W/D	4.8	85	230					230
Corinth W/D	17.3	131	610					610
Williamstown W/D								-
West Carroll W/D								-
<b>Total</b>	<b>22.1</b>	<b>216</b>	<b>840</b>					<b>840</b>

#### *Estimated Costs - Proposed Projects, 2006-2020*

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
<b>PENDLETON</b>								-
East Pendleton W/D	65.0	328	2,600					2,600
Pendleton W/D	79.0	665	3,200				1,200	4,400
Williamstown W/D	2.0	14	90					90
West Carroll W/D								-
Falmouth					5,000			5,000
<b>Total</b>	<b>146.0</b>	<b>1,007</b>	<b>5,890</b>		<b>5,000</b>		<b>1,200</b>	<b>12,090</b>

### PUBLIC WATER SYSTEMS

Pendleton County has 4 public community water systems: 2 municipal, Butler Waterworks and Falmouth Water Department; and 2 water districts, East Pendleton and Pendleton



# WATER SERVICE AREAS

## PENDLETON COUNTY

### Kentucky

*Prepared By:*  
**Water Resource Development Commission**

Department for Local Government  
1024 Capital Center Drive, Suite 340  
Frankfort, Kentucky 40601-8204  
502-573-2382 -- 502-573-2939 fax  
<http://dlgnt1.state.ky.us/wrdc/>

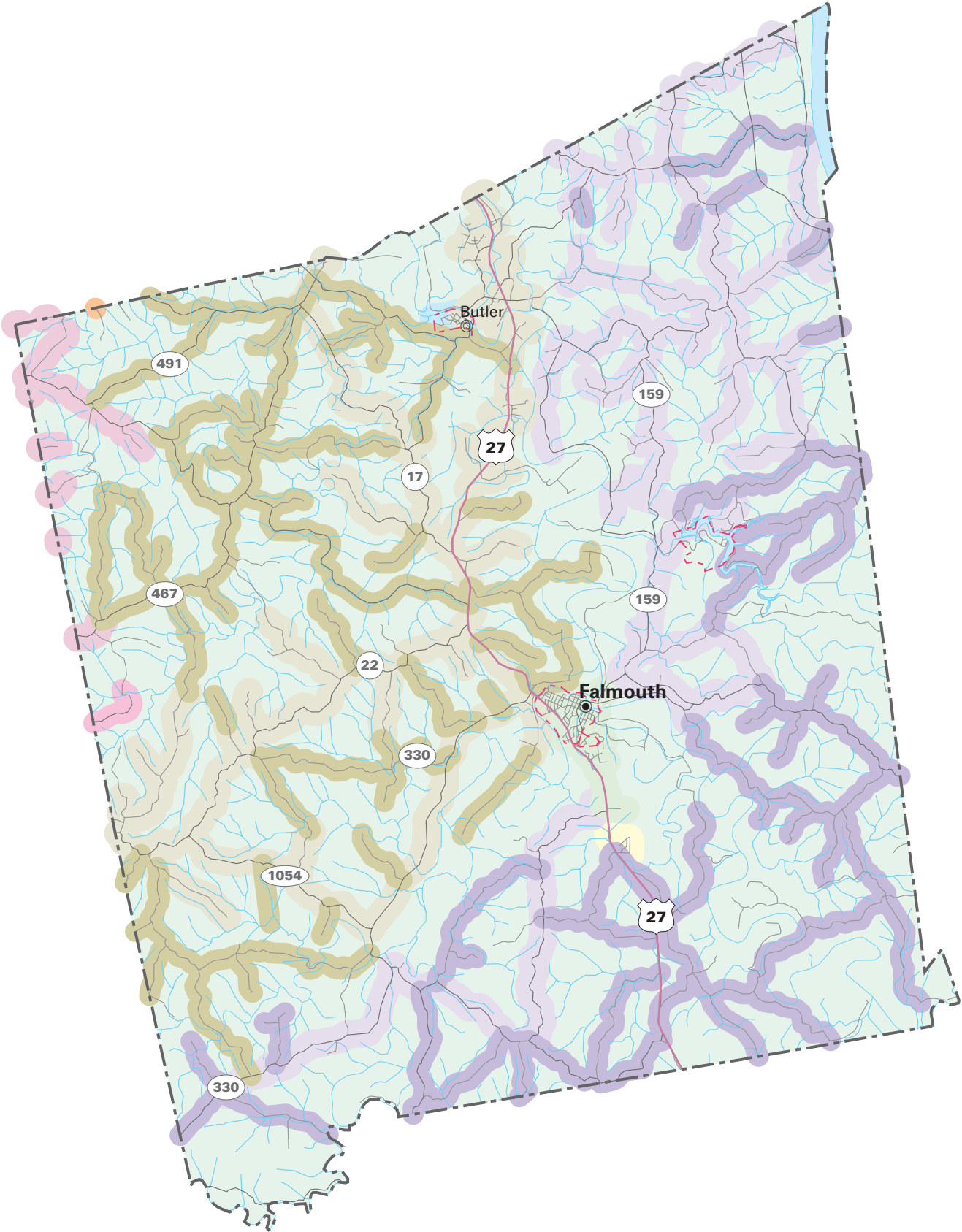
Bob Arnold, Chairman  
Lawrence Wetherby, Executive Director

Final GIS & Cartographic Operations By:  
Kent Anness & Kim Prough

Data Collection & GIS Input By:  
Kentucky Area Development Districts



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#### WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		WILLIAMSTOWN MUNICIPAL WATER DEPARTMENT
		PENDLETON COUNTY WATER DISTRICT/SOUTH
		NORTHERN KENTUCKY WATER SERVICE DISTRICT
		FALMOUTH WATER DEPARTMENT
		EAST PENDLETON WATER DISTRICT
		EAST PENDLETON COUNTY WATER DIVISION #2
		BUTLER WATER WORKS
		BULLOCK PEN WATER DISTRICT

Water Districts. Smaller areas of the county are also served by Bracken County Water District, Bullock Pen Water District, and Harrison County Rural Water Association.

### **BUTLER WATER WORKS**

PWSID: ..... 0960051  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:..... LICKING RIVER  
 Purchase Source:  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.19  
 Percent Daily Average Production:..... 53.00  
 Total Tank Storage Capacity (gallons): ..... 212,000.00  
 Total Service Connections: ..... 327.00  
 Number of Employees:..... 1.00  
 Treatment Operator Class: ..... 1D  
 Distribution Operator Class:..... 2A  
 Customer Rate for 1,000 Gallons:..... Not available  
 O/M costs 1997:..... Not available  
 O/M costs per Service Connection: ..... Not available  
 Net Revenue 1997: ..... Not available  
 Total Water Produced 1997 (gallons):..... Not available  
 Water Sold 1997 (gallons):..... Not available  
 Unaccounted-for Water 1997 (%): ..... Not available

The Butler Waterworks draws its water from the Licking River. The system has approximately 327 service connections serving a population of 625. It has 299 residential customers who in 1998 used a total volume in of 19,098,600 gallons, 24 commercial customers who used 1,752,000 gallons, and 2 industrial customers who used 6,054,200 gallons. The average daily production of the Butler Waterworks water treatment plant was 76,750 gallons per day in 1997. There is a storage capacity of 212,000 gallons in one standpipe. The Butler Waterworks has one full-time employee.

Water service for the city of Butler is scheduled to be taken over by Pendleton County Water District within the next five years. 91 percent of Butler's population is currently being served, but the city experienced a dramatic setback in 1997 when the town was ravaged by flooding of the Licking River.

### **EAST PENDLETON WATER DISTRICT**

PWSID: ..... 0960112  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT

Surface Source:  
Purchase Source: ..... CITY OF FALMOUTH WATER DEPARTMENT  
Well Source:  
Sells Water to:  
Treatment Plant Capacity (MGD):..... 0.00  
Percent Daily Average Production:..... 0.00  
Total Tank Storage Capacity (gallons):..... 460,000.00  
Total Service Connections: ..... 1,080.00  
Number of Employees:..... 4.00  
Treatment Operator Class: .....2D  
Distribution Operator Class:  
Customer Rate for 1,000 Gallons:..... 6.89  
O/M costs 1997:..... 386,771.00  
O/M costs per Service Connection: ..... 359.45  
Net Revenue 1997:..... 38,986.00  
Total Water Produced 1997 (gallons):..... 0.00  
Water Sold 1997 (gallons):..... 72,139,000.00  
Unaccounted-for Water 1997 (%): ..... 5.59

The East Pendleton Water District purchases water from the Falmouth Water District. East Pendleton has 1,080 service connections serving mostly Pendleton County with a few in households in Campbell County. Oak Haven is served by Falmouth through the Falmouth system, but East Pendleton is billed directly from Falmouth's master meter, and manages all administrative functions of the Oak Haven service. East Pendleton Water District serves 1,074 residential customers using a total volume in 1998 of 53,196,000 gallons, 6 commercial customers using 3,576,000 gallons, and 1 industrial customer using 14,970,000 gallons. The average daily usage for the last twelve months was 200,000 gallons per day. The district is strictly a water distributor, and has no treatment facilities. They have a total storage capacity of 460,000 gallons in 4 tanks located throughout the District. The East Pendleton Water District has 4 full-time employees.

The general manager of the system is very supportive of the goal of providing water service to all households in his district. He has been actively seeking funding to build waterline extensions. East Pendleton Water District serves the southern and eastern portions of Pendleton County, which is rural, with low population density, and a relatively impoverished area, which was only intensified by the floods that ravaged the area in 1997. 90 percent of the district's population is already being served, leaving the more remote households yet to be served, and dependent upon cisterns and trucked water supplies.

**EAST PENDLETON COUNTY WATER DIVISION #2**

PWSID: ..... 0960653  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT  
 Surface Source:  
 Purchase Source: ..... CITY OF FALMOUTH WATER DEPARTMENT  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production:..... 0.00  
 Total Tank Storage Capacity (gallons):..... 0.00  
 Total Service Connections: ..... 40.00  
 Number of Employees:..... 0.00  
 Treatment Operator Class: ..... 1D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... Not available  
 O/M costs 1997:..... Not available  
 O/M costs per Service Connection: ..... Not available  
 Net Revenue 1997:..... Not available  
 Total Water Produced 1997 (gallons):..... Not available  
 Water Sold 1997 (gallons):..... Not available  
 Unaccounted-for Water 1997 (%): ..... Not available

East Pendleton County Water District Division 2 is located in Pendleton County. The system serves a population of 132 and has 40 service connections. The water district, community system purchases water from Falmouth.

**FALMOUTH WATER DEPARTMENT**

PWSID: ..... 0960126  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:..... LICKING RIVER  
 Purchase Source:  
 Well Source:  
 Sells Water to: ..... EAST PENDLETON WATER DISTRICT  
 Treatment Plant Capacity (MGD):..... 2.00  
 Percent Daily Average Production:..... 41.00  
 Total Tank Storage Capacity (gallons): ..... 705,000.00  
 Total Service Connections: ..... 1,301.00  
 Number of Employees:..... 4.00  
 Treatment Operator Class: ..... 2D  
 Distribution Operator Class:..... 3A  
 Customer Rate for 1,000 Gallons:..... Not available  
 O/M costs 1997:..... Not available  
 O/M costs per Service Connection: ..... Not available  
 Net Revenue 1997:..... Not available  
 Total Water Produced 1997 (gallons):..... Not available  
 Water Sold 1997 (gallons):..... Not available  
 Unaccounted-for Water 1997 (%): ..... Not available

The City of Falmouth Water Department draws water from the Licking River. It has 1,300 residential customers who used a total volume in 1998 of 228,000,000 gallons, 100 commercial customers who used 42,750,000 gallons, and 3 industrial customers who used 14,250,000 gallons. The system supplies water to the Pendleton County Water District, the East Pendleton Water District, and Oak Haven subdivision. The average daily production of the City of Falmouth Water District's water treatment plant was 872,406 gallons per day in 1997. There is a storage capacity of 705,000 gallons in a tank and a reservoir located within the District. The City of Falmouth Water District has 4 full-time employees.

Nearly all of the residents of Falmouth are already being served by city water. The Water District has made great strides in recovering from the devastating flood in 1997 of the Licking River. Discussion is underway between all of the water districts in Pendleton County, including Falmouth, Butler, East Pendleton, and Pendleton County Water Districts, to consider merger into a single county water system. It seems unlikely that this will come to fruition in the foreseeable future, but the dedication and foresight of the managers of these systems is indeed noteworthy.

#### **PENDLETON COUNTY WATER DISTRICT**

PWSID: ..... 0960499  
 System Type:..... COMMUNITY  
 Owner Type: ..... WATER DISTRICT  
 Surface Source:  
 Purchase Source: ..... CITY OF FALMOUTH WATER DEPARTMENT  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production:..... 0.00  
 Total Tank Storage Capacity (gallons): ..... 256,000.00  
 Total Service Connections: ..... 1,436.00  
 Number of Employees:..... 6.00  
 Treatment Operator Class: .....2D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... 6.16  
 O/M costs 1997: ..... 478,825.00  
 O/M costs per Service Connection: ..... 351.30  
 Net Revenue 1997: ..... 1,376.00  
 Total Water Produced 1997 (gallons):..... 0.00  
 Water Sold 1997 (gallons): ..... 91,646,400.00  
 Unaccounted-for Water 1997 (%): ..... 12.70

The Pendleton County Water District purchases its water from the City of Falmouth and the Northern Kentucky Water Service District. The district has 1,356 residential service connections, with a usage of 69,602,939 gallons in 1998, 73 commercial service connections with a usage of 12,591,990 gallons and 7 industrial service connections with a usage of 9,452,020 gallons. The District has 992 customers in Pendleton County and 444 customers in Campbell County serving a total population of 4,000. The district used an average of 130,000 gallons per day from the City of Falmouth and 125,000 gallons per day from NKWSD. The district has no treatment facility of its own, but it does have two storage tanks with a total combined capacity of 256,000 gallons. The Pendleton County Water District has six full time employees.

Pendleton County Water District currently serves approximately 85 percent of the households within its jurisdiction. It is currently planning a major project that would add a new link to the Northern Kentucky Water Service District on KY 17, and take over service for the city of Butler. There remains a large geographic area in northwestern Pendleton County that needs to be served. Residents in this area have actively been petitioning for water service. The system general manager has been actively seeking funding for these projects, and hopes to be able to fulfill the residents' requests as soon as possible.

Pendleton County Water District/North is located in Pendleton County. The system serves a population of 2,336 and has 651 service connections. The water district system purchases water from northern Kentucky Water District.

Pendleton County Water District/South is located in Pendleton County. The system serves a population of 1,593 and has 483 service connections. The water district system has storage capacity of 256,000 gallons. The District purchases water from Falmouth.

## **PRIVATE DOMESTIC SYSTEMS**

About 4,500 residents of Pendleton County rely on private domestic water supplies, primarily on hauled water or other sources.

In the valley bottoms of the Licking River, South Fork of the Licking River, Ohio River and some of the major creeks most drilled wells will produce enough water for a domestic supply

at depths of less than 100 feet. Wells located in the valley bottoms of the larger creeks will produce enough water for a domestic supply except during dry weather. In the upland areas of Pendleton County that encompasses approximately 60% of the county, most drilled wells will not produce enough water for a dependable domestic supply, except along drainage lines which may produce enough water except during dry weather.

Throughout the county ground water is hard or very hard and may contain salt or hydrogen sulfide, especially at depths greater than 100 feet.