

# Water-Resource Development: A Strategic Plan

*Summary of Water Systems*

*Green River Area Development District*

*Water Resource Development Commission*

*October, 1999*

## CONTENTS

CONTENTS .....	2
MAP LISTING.....	3
REGIONAL OVERVIEW .....	4
DAVISS COUNTY .....	7
PUBLIC WATER SYSTEMS .....	7
EAST DAVIESS COUNTY WATER ASSOCIATION INCORPORATED.....	8
OWENSBORO MUNICIPAL UTILITIES.....	8
WHITESVILLE WATER WORKS.....	10
SOUTHEAST DAVIESS COUNTY WATER DISTRICT .....	11
WEST DAVIESS COUNTY WATER DISTRICT .....	11
OTHER SYSTEMS .....	12
GRANDVIEW WATER .....	12
PRIVATE DOMESTIC SYSTEMS .....	12
HANCOCK COUNTY .....	13
PUBLIC WATER SYSTEMS .....	13
HAWESVILLE WATER WORKS.....	14
LEWISPORT MUNICIPAL WATER WORKS.....	14
OTHER SYSTEMS .....	15
COMMONWEALTH ALUMINUM.....	15
WILLAMETTE INDUSTRIES CORRUGATED MED.....	15
WILLAMETTE INDUSTRIES BLEACHED PULP.....	15
PRIVATE DOMESTIC SYSTEMS .....	16
HENDERSON COUNTY.....	17
PUBLIC WATER SYSTEMS .....	17
HENDERSON COUNTY WATER DISTRICT .....	18
HENDERSON MUNICIPAL WATER AND SEWER UTILITIES .....	19
HENDERSON WATER AND SEWER UTILITY, SOUTH PLANT .....	20
OTHER SYSTEMS .....	20
ALCAN INGOT, SEBREE ALUMINIUM PLANT .....	20
TROCADERO PLAZA .....	20
ELLIS PARK RACE COURSE .....	20
PRIVATE DOMESTIC SYSTEMS .....	20
MCLEAN COUNTY .....	22
PUBLIC WATER SYSTEMS .....	23
SACRAMENTO WATER WORKS.....	23
BEECH GROVE WATER BOARD.....	24
LIVERMORE WATER WORKS .....	25
NORTH MCLEAN COUNTY WATER DISTRICT .....	26
ISLAND WATER DEPARTMENT.....	27
CALHOUN WATER WORKS .....	28
PRIVATE DOMESTIC SYSTEMS .....	29
OHIO COUNTY .....	30
PUBLIC WATER SYSTEMS .....	30
BEAVER DAM MUNICIPAL WATER AND SEWER SYSTEM.....	31
CENTERTOWN WATER SYSTEM.....	31
FORDSVILLE WATER DISTRICT .....	32
HARTFORD MUNICIPAL WATER WORKS .....	33
ROCKPORT WATER WORKS .....	34
OHIO COUNTY WATER DISTRICT .....	35
OTHER SYSTEMS .....	36
PERDUE FARMS INC.....	36

WESTERN KENTUCKY ENERGY CORPORATION/DB WILSON .....	36
PRIVATE DOMESTIC SYSTEMS .....	36
UNION COUNTY .....	38
PUBLIC WATER SYSTEMS .....	38
UNION COUNTY WATER DISTRICT .....	38
MORGANFIELD WATER WORKS.....	39
STURGIS WATER WORKS.....	40
UNIONTOWN WATER AND SEWER DEPARTMENT.....	41
PRIVATE DOMESTIC SYSTEMS .....	42
WEBSTER COUNTY.....	43
PUBLIC WATER SYSTEMS .....	43
CLAY WATER WORKS .....	43
DIXON WATER DEPARTMENT .....	44
PROVIDENCE WATER WORKS.....	45
SLAUGHTERS WATER WORKS.....	46
WEBSTER COUNTY WATER DISTRICT.....	47
SEBREE WATER DEPARTMENT.....	48
OTHER SYSTEMS: .....	49
WESTERN KENTUCKY ENERGY CORP/BIG RIVERS .....	49
PRIVATE DOMESTIC SYSTEMS .....	49

## MAP LISTING

(Green River ADD Existing & Proposed Water Lines Map) .....	4
(Daviness County Water Service Area Map).....	7
(Hancock County Water Service Area Map) .....	13
(Henderson County Water Service Area Map).....	17
(McClellan County Water Service Area Map).....	22
(Ohio County Water Service Area Map) .....	30
(Union County Water Service Area Map) .....	38
(Webster County Water Service Area Map) .....	43

# Green River Area Development District

3860 U.S. Highway 60, West  
 Owensboro, KY 42301  
 (502) 926-4433

## REGIONAL OVERVIEW

### (Green River ADD Existing & Proposed Water Lines Map)

- Estimated 1999 population of 204,000--92% on public water
- Estimated 2020 population of 213,000--92% on public water
- 2,660 miles of water lines, with plans for 380 additional miles
- Estimated funding needs for public water 2000-2005--\$69,000,000
- Estimated funding needs for public water 2006-2020--\$23,900,000

The Green River Area Development District region had an estimated population of 203,649 (83,018 households) in 1999 with a projected population of 213,000 (93,300 households) in 2020. There are 2,660 miles of water lines in the region serving about 185,200 people, or about 92% of the region's population. 380 miles of proposed water line extensions for the period 2000-2020 would provide service to an additional 920 households. About 16,800 people in the region rely on private domestic water systems: 14,900 on wells, and 1,900 on other sources.

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

County	1999 Pop	On Public	2020 Pop	On Public
Daviess	90,300	86,700 (96%)	94,100	90,300 (96%)
Hancock	9,200	6,900 (75%)	2,200	9,150 (75%)
Henderson	44,300	39,900 (90%)	44,200	40,200 (91%)
McLean	9,700	8,700 (90%)	9,500	8,930 (94%)
Ohio	22,000	19,800 (90%)	23,400	21,800 (93%)
Union	14,800	13,300 (90%)	17,300	15,600 (90%)
Webster	13,300	11,300 (85%)	12,600	11,200 (89%)
Region	204,000	187,000 (92%)	213,000	197,000 (92%)

41 public and semi-public water systems serve the region: 33 community systems--24 municipal, 7 water districts, 1 private, 1 water association; and 8 non-community systems.

# EXISTING & PROPOSED WATER LINES

GRADD  
Kentucky

Prepared By:

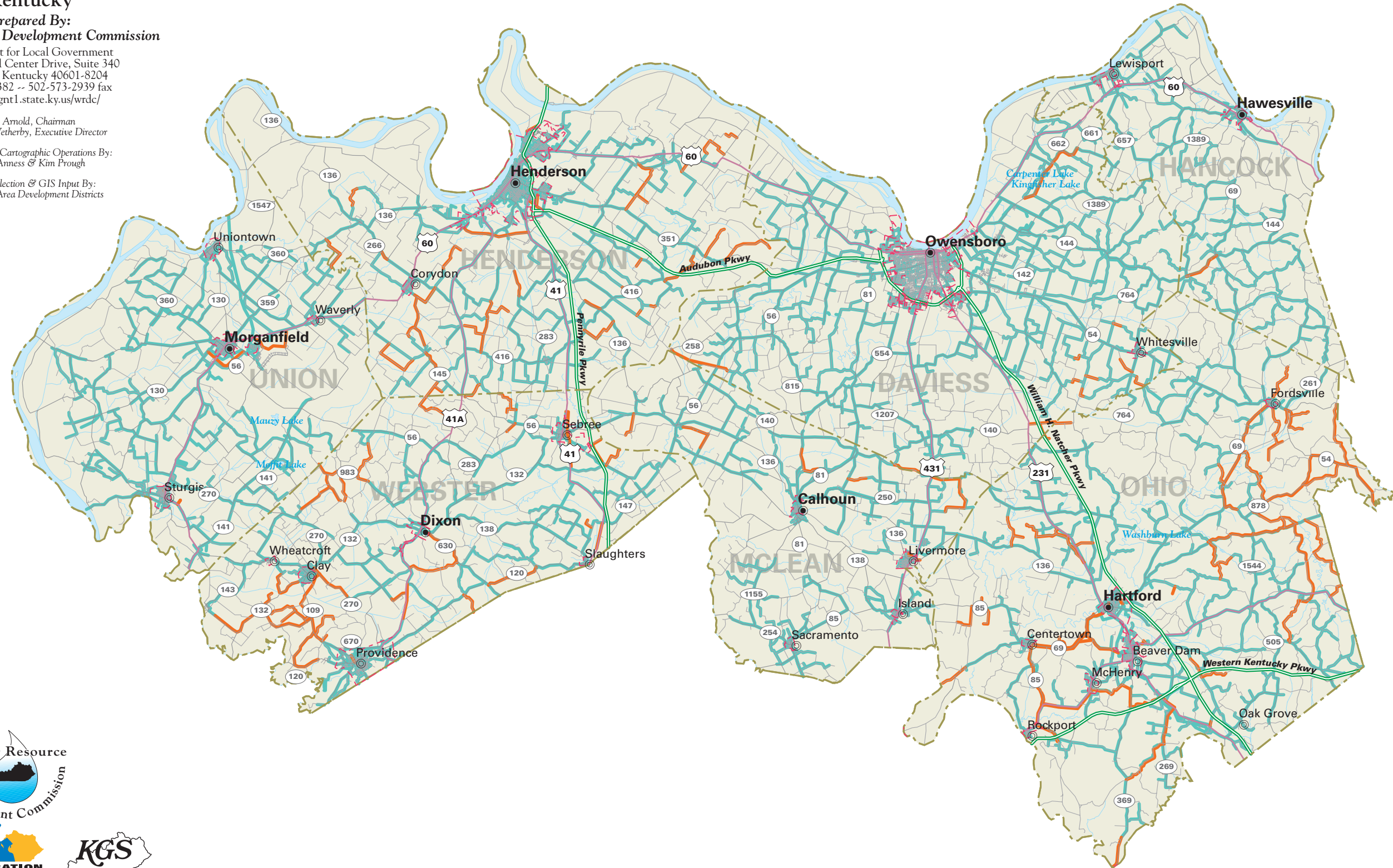
Water Resource Development Commission

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



# EXISTING & PROPOSED WATER LINES

GRADD  
Kentucky

Prepared By:

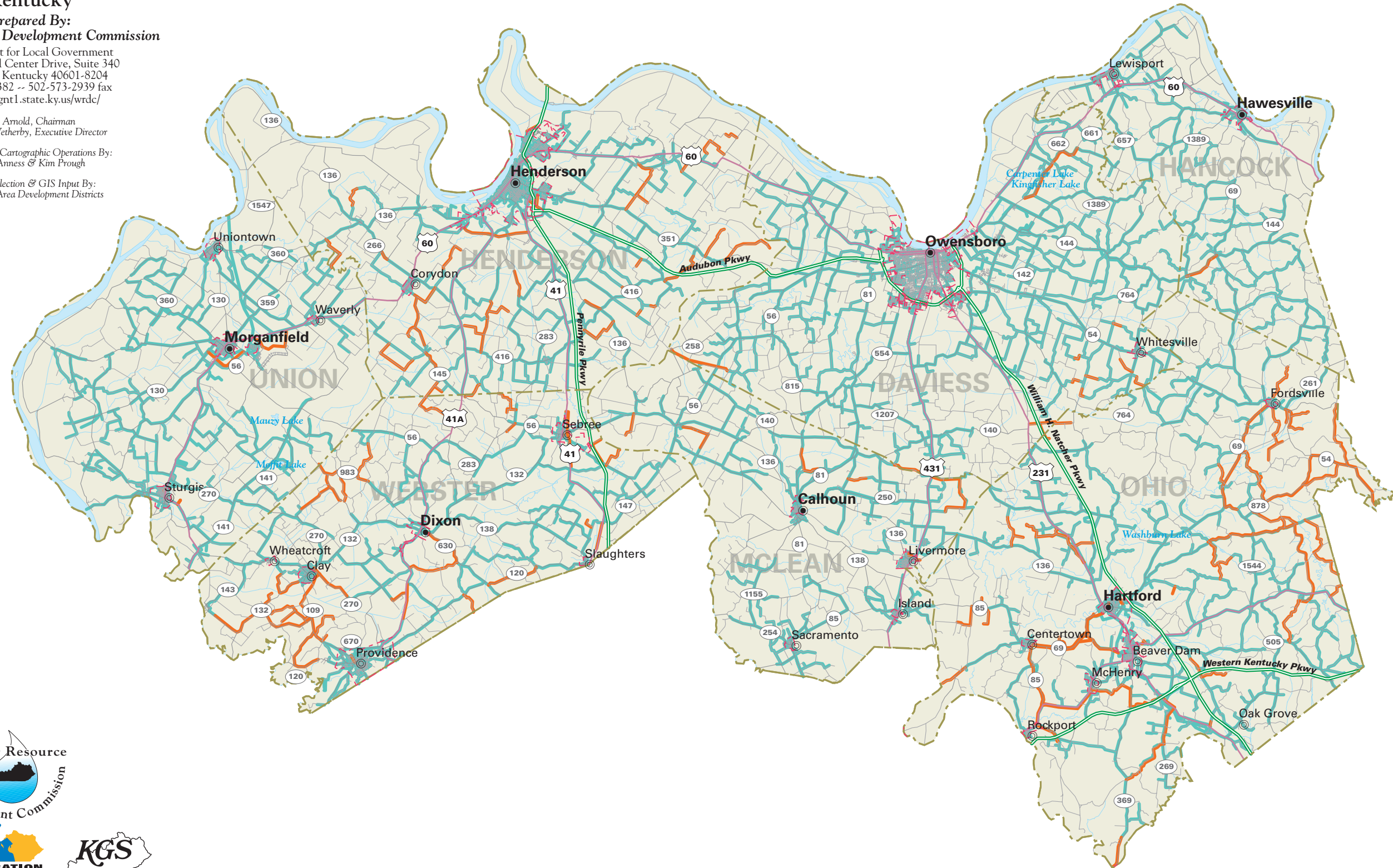
Water Resource Development Commission

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

There are 15 small (501 to 3,300 people served) community systems and 1 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	Miles	New Customers Number	Cost in \$1000	Rehab in \$1000	Source in \$1000	Treatment in \$1000	Tanks/Pumps in \$1000	Total in \$1000
<b>DAVIESS</b>								-
East Daviess County Water District				270			250	520
Whitesville	1	5	30				400	430
Owensboro			500				5,000	5,500
<b>TOTAL</b>	<b>1</b>	<b>5</b>	<b>530</b>	<b>270</b>			<b>5,650</b>	<b>6,450</b>
								-
<b>HANCOCK</b>								-
Hawsville				54		200	1,185	1,439
Lewisport	2	6	50			3,000		3,050
<b>TOTAL</b>	<b>2</b>	<b>6</b>	<b>50</b>	<b>54</b>		<b>3,200</b>	<b>1,185</b>	<b>4,489</b>
								-
<b>HENDERSON</b>								-
Henderson County Water District	55	120	1,250	1,250			1,515	4,015
Henderson.			474	6,730		18,207	2,328	27,739
<b>TOTAL</b>	<b>55</b>	<b>120</b>	<b>1,724</b>	<b>7,980</b>		<b>18,207</b>	<b>3,843</b>	<b>31,754</b>
								-
<b>McLEAN</b>								-
Beech Grove	5	43	53				300	353
Livermore	1	15	35			50		85
N. McLean County Water District	2		40	424			500	964
Calhoun				236		3,200		3,436
Island	4	12	100					100
Sacramento	6	125	145	5	250			400
<b>TOTAL</b>	<b>18</b>	<b>195</b>	<b>373</b>	<b>665</b>	<b>250</b>	<b>3,250</b>	<b>800</b>	<b>5,338</b>
								-
<b>OHIO</b>								-
Ohio County Water District	106	166	6,689	3,474			3,200	13,363
Centertown	14	106	555	2,245	50		500	3,350
Fordsville	10	73	280	9				289
Hartford				25				25
<b>TOTAL</b>	<b>130</b>	<b>345</b>	<b>7,524</b>	<b>5,753</b>	<b>50</b>		<b>3,700</b>	<b>17,027</b>
								-
<b>UNION</b>								-
Uniontown								-
Union County Water District				60			1,090	1,150
Sturgis	1	1	10	10				20
Morganfield					500			500
<b>TOTAL</b>	<b>1</b>	<b>1</b>	<b>10</b>	<b>70</b>	<b>500</b>		<b>1,090</b>	<b>1,670</b>
								-
<b>WEBSTER</b>								-
Webster County Water District	67	225	3,424				624	4,048

Sebree	1	2	12	5				17
Clay			10	509				519
Dixon								-
Providence								-
<b>TOTAL</b>	<b>68</b>	<b>227</b>	<b>3,446</b>	<b>514</b>			<b>624</b>	<b>4,584</b>
<b>GREEN RIVER</b>	<b>277</b>	<b>907</b>	<b>13,207</b>	<b>15,916</b>	<b>800</b>	<b>24,657</b>	<b>14,392</b>	<b>68,972</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>DAVISS</b>								-
Owensboro			.		3,400		5,000	8,400
<b>TOTAL</b>	-	-	-	-	3,400		5,000	8,400
								-
<b>HANCOCK</b>								-
Lewisport	1	10	30			.		30
<b>TOTAL</b>	<b>1</b>	<b>10</b>	<b>30</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>30</b>
								-
<b>HENDERSON</b>								-
Henderson.				1,550		6,355		7,905
<b>TOTAL</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,550</b>	<b>-</b>	<b>6,355</b>	<b>-</b>	<b>7,905</b>
								-
<b>McLEAN</b>								-
N. McLean County Water District	9		500		50			550
Calhoun							1,000	1,000
Sacramento				20			1,000	1,020
<b>TOTAL</b>	<b>9</b>	<b>-</b>	<b>500</b>	<b>20</b>	<b>50</b>	<b>-</b>	<b>2,000</b>	<b>2,570</b>
								-
<b>GREEN RIVER</b>	<b>10</b>	<b>10</b>	<b>530</b>	<b>1,820</b>	<b>3,450</b>	<b>10,755</b>	<b>7,350</b>	<b>23,905</b>



## DAVISS COUNTY

### (Daviness County Water Service Area Map)

- Estimated 1999 population of 90,300--96% on public water
- Estimated 2020 population of 94,100--96% on public water
- 655 miles of water lines, with plans for 1 additional mile
- Estimated funding needs for public water 2000-2005: \$6,450,000
- Estimated funding needs for public water 2006-2020: \$8,400,000

Daviness County had an estimated population of 90,324 (36,831 households) in 1999 with a projected population of 94,100 (41,500 households) in 2020. Public water is provided to about 96 percent of the county's residents. In areas of the county not served by public water, nearly all households rely on private domestic wells. Most of the county is already served, but 5 new 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>DAVISS</b>								-
East Daviness County Water District				270			250	520
Whitesville	1	5	30				400	430
Owensboro			500				5,000	5,500
<b>TOTAL</b>	<b>1</b>	<b>5</b>	<b>530</b>	<b>270</b>			<b>5,650</b>	<b>6,450</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>DAVISS</b>								-
Owensboro					3,400		5,000	8,400
<b>TOTAL</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>3,400</b>		<b>5,000</b>	<b>8,400</b>

### PUBLIC WATER SYSTEMS

The residents of Daviness County are presently provided water by 6 public water systems: 1 water association, East Daviness County Water Association; 3 municipal systems, Owensboro Municipal Utilities, Whitesville Water Works, and Grandview Water; and 2 water districts, Southeast Daviness County Water District, and West Daviness County Water District.

# WATER SERVICE AREAS

## DAVIESS 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/>

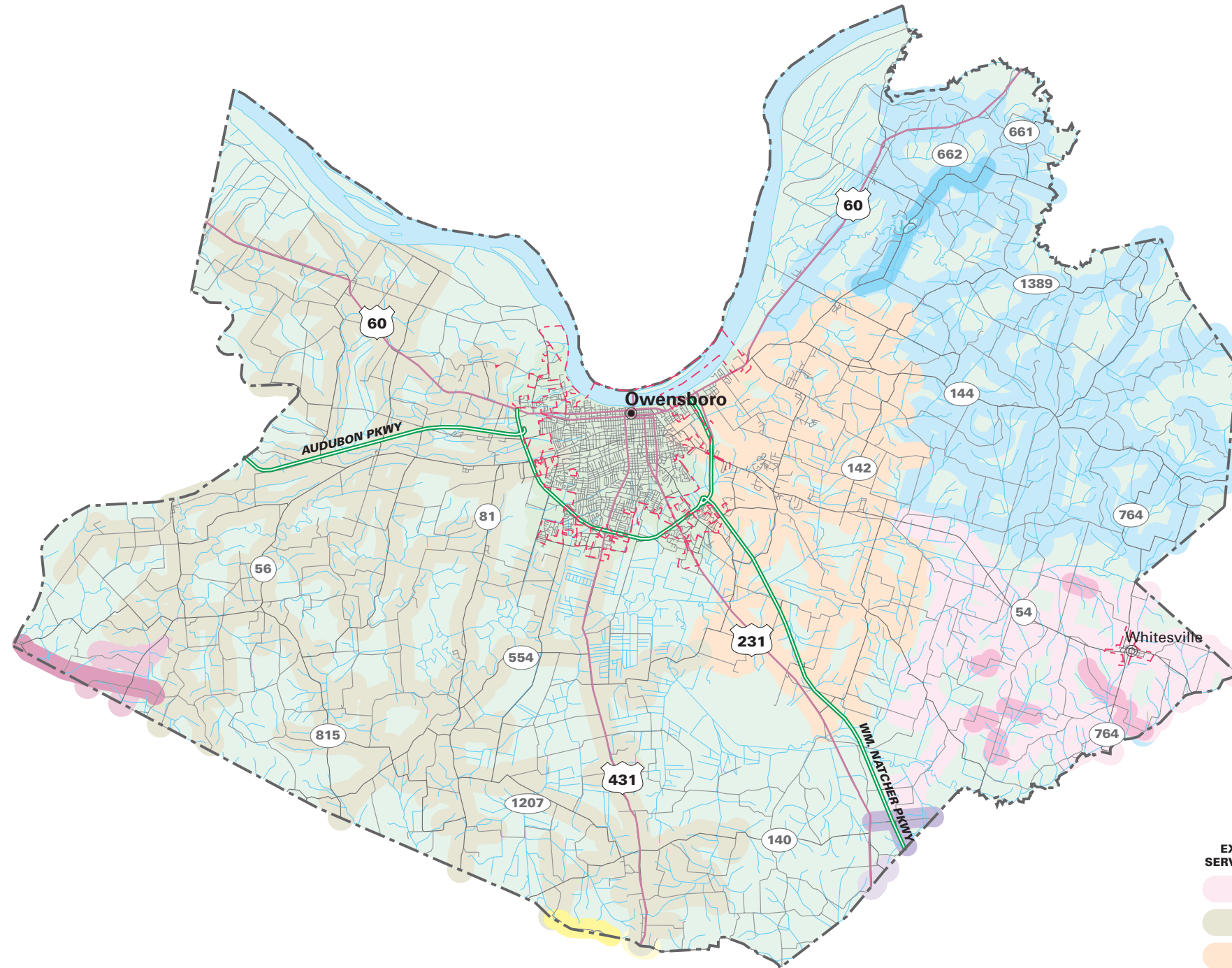
Bob Arnold, Chairman  
 Lawrence Wetherby, Executive Director

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

Data Collection & GIS Input By:  
 Kentucky Area Development Districts



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 SERVICE STATUS BY OWNER**

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		WHITESVILLE WATER WORKS
		WEST DAVIESS COUNTY WATER DISTRICT
		SOUTHEAST DAVIESS COUNTY WATER DISTRICT
		OWENSBORO MUNICIPAL UTILITIES
		OHIO COUNTY WATER DISTRICT
		NORTH MCLEAN COUNTY WATER DISTRICT
		EAST DAVIESS COUNTY WATER ASSOCIATION INCORPORATED
		BEECH GROVE WATER BOARD

**EAST DAVIESS COUNTY WATER ASSOCIATION INCORPORATED**

PWSID: ..... 0300109  
 System Type:..... COMMUNITY  
 Owner Type: ..... WATER ASSOCIATION  
 Surface Source:  
 Purchase Source: ..... OMU  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production: ..... 0.00  
 Total Tank Storage Capacity (gallons):..... 1,460,000.00  
 Total Service Connections: ..... 3,518.00  
 Number of Employees:..... 6.00  
 Treatment Operator Class:.....2D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... 3.99  
 O/M costs 1997:..... 722,993.00  
 O/M costs per Service Connection: ..... 211.90  
 Net Revenue 1997: ..... 7,469.00  
 Total Water Produced 1997 (gallons):..... 0.00  
 Water Sold 1997 (gallons):..... 238,495,762.00  
 Unaccounted-for Water 1997 (%): ..... 13.95

The East Daviess County Water Association purchases treated water from the City of Owensboro. The association currently services approximately 2,200 residences in Daviess County, 931 residences in Hancock County, and 350 residences in Ohio County. The system purchases 800,000-gallons per day from the Owensboro. The district maintains seven water tanks for a total storage capacity of 1,460,000-gallons. East Daviess County Water Association has four certified distribution operators. All other employees provide billing and financial oversight.

Other water districts surround the East Daviess County Water Association therefore there aren't many areas into which they can expand. The water district would like to upgrade some existing lines throughout the system. The district would also like to construct a 300,000-gallon tank along Hwy 69 to increase pressure throughout the entire district.

**OWENSBORO MUNICIPAL UTILITIES**

PWSID: ..... 0300336  
 System Type:..... COMMUNITY  
 Owner Type: ..... MUNICIPAL  
 Surface Source:  
 Purchase Source:  
 Well Source: ..... Yes  
 Sells Water to: ..... EAST DAVIESS COUNTY WATER ASSOCIATION INC.

Treatment Plant Capacity (MGD):.....	30.00
Percent Daily Average Production: .....	67.00
Total Tank Storage Capacity (gallons):.....	5,000,000.00
Total Service Connections: .....	23,103.00
Number of Employees:.....	35.00
Treatment Operator Class:.....	4D
Distribution Operator Class: .....	4A
Customer Rate for 1,000 Gallons:.....	1.61
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

Owensboro Municipal Utilities currently draw water from 34 wells. The district services approximately 22,000 customers. The district also sells water the East Daviess County Water District, the Southeast Daviess County Water District, and the West Daviess County Water District. The system operates two treatment plants with a combined design capacity of 30,000,000-gallons per day. On the average day the system produces approximately 20,000,000-gallons per day. The district maintains four storage tanks with a combine storage capacity of 5,000,000-gallons. The calculated charge for residential water usage is \$3.70 per 308 cubic feet (2,300 gallons). The water district has a total of 13 certified employees for operation and distribution. The other employees provide billing and financial oversight.

The water district has several projects it would like to undertake. The system would like to install four additional wells within the existing well field. Eventually, the system will have to locate an additional well field due to the fact that the existing field is restricted to grow due to the location of several industrial sites near the field. The system will also need to replace the existing water tank on Frederica Street and construct two additional tanks in the Bon Harbor area to meet the growing needs of the city. The district is also looking into replacing all water mains smaller than 8 inches with at least 12-inch mains. To meet current as well as future needs of the county, projects have been selected and ranked by the OMU system representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of region.

**WHITESVILLE WATER WORKS**

PWSID: ..... 0300467  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:  
 Purchase Source: .....SOUTHEAST DAVIESS COUNTY WATER DISTRICT  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production: ..... 0.00  
 Total Tank Storage Capacity (gallons):..... 450,000.00  
 Total Service Connections: ..... 1,089.00  
 Number of Employees:..... 3.00  
 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

Whitesville Water Works purchases treated water from the Southeast Daviess County Water District. The district currently serves over 1,000 residences. The district maintains two storage tanks for a total capacity of 450,000-gallons. The Whitesville Water District employees two certified treatment plant operators and distribution operators. The other employees provide billing and financial oversight.

The Whitesville Water District is surrounded by other existing water systems therefore there aren't any areas into which the district can extend. The system would like to loop several lines within the system to provide better pressure throughout the system. The system would also like to construct a 400,000-gallon storage tank to improve the pressure problems as well. To meet current as well as future needs of the county, projects have been selected and ranked by the Whitesville Water system representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of region.



**SOUTHEAST DAVIESS COUNTY WATER DISTRICT**

PWSID: ..... 0300387  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT  
 Surface Source:  
 Purchase Source: ..... CITY OF OWENSBORO  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production: ..... 0.00  
 Total Tank Storage Capacity (gallons):..... 1,500,000.00  
 Total Service Connections: ..... 4,905.00  
 Number of Employees:..... 1.00  
 Treatment Operator Class: .....3D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... 2.37  
 O/M costs 1997:..... 1,025,553.00  
 O/M costs per Service Connection: ..... 212.07  
 Net Revenue 1997: ..... 50,565.00  
 Total Water Produced 1997 (gallons):..... 0.00  
 Water Sold 1997 (gallons):..... 519,726,240.00  
 Unaccounted-for Water 1997 (%): ..... 8.06

**WEST DAVIESS COUNTY WATER DISTRICT**

PWSID: ..... 0300450  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT  
 Surface Source:  
 Purchase Source: ..... CITY OF OWENSBORO  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production: ..... 0.00  
 Total Tank Storage Capacity (gallons):..... 1,500,000.00  
 Total Service Connections: ..... 3,516.00  
 Number of Employees:..... 1.00  
 Treatment Operator Class: .....2D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... 2.57  
 O/M costs 1997:..... 741,964.00  
 O/M costs per Service Connection: ..... 213.82  
 Net Revenue 1997: ..... 28,719.00  
 Total Water Produced 1997 (gallons):..... 0.00  
 Water Sold 1997 (gallons):..... 318,505,450.00  
 Unaccounted-for Water 1997 (%): ..... 16.43

The Southeast Daviess County Water District and the West Daviess County Water District currently purchase treated water from the City of Owensboro. The two districts serve a total of over 8,000 residents. The two districts have a total storage capacity of 3,030,000-gallons.

One certified distribution operator operates both systems. The other employees provide billing and financial oversight.

## OTHER SYSTEMS

### **GRANDVIEW WATER**

Grandview Water System is located in Daviess County. The system serves a population of 171 and has 52 service connections. The municipal, community system purchases water from West Daviess County Water District.

## PRIVATE DOMESTIC SYSTEMS

About 3,500 people in Daviess County rely on private domestic water wells.

The alluvium along the Ohio River is the best source of ground water in the county. In northern Daviess County nearly all drilled wells from depths of less than 150 feet in the alluvium of the Ohio River valley are adequate for domestic use with most wells yielding more than 50 gallons per minute (gpm) with some wells yielding as much as 750 gpm. In most of central and southern Daviess County most wells from depths of less than 300 feet that penetrate sandstone are adequate for a domestic supply. In several small-localized areas in southern Daviess County, most wells yield little or no water.

Generally, ground water is hard to very hard and iron and salt may be present in objectionable amounts. Often in deep wells, ground water becomes too mineralized to use.

## HANCOCK COUNTY

### (Hancock County Water Service Area Map)

- Estimated 1999 population of 9,200--75% on public water
- Estimated 2020 population of 12,200--75% on public water
- 210 miles of water lines, with plans for 3 additional miles
- Estimated funding needs for public water 2000-2005: \$4,489,000
- Estimated funding needs for public water 2006-2020: \$30,000

Hancock County had an estimated population of 9,247 (3,588 households) in 1999 with a projected population of 12,200 (5,200 households) in 2020. Public water is provided to about 75 percent of the county's residents. In areas of the county not served by public water, about 4 of 5 households rely on private domestic wells and 1 of 5 households rely on other sources. About 16 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
HANCOCK								-
Hawesville				54		200	1,185	1,439
Lewisport	2	6	50			3,000		3,050
<b>TOTAL</b>	<b>2</b>	<b>6</b>	<b>50</b>	<b>54</b>		<b>3,200</b>	<b>1,185</b>	<b>4,489</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
HANCOCK								-
Lewisport	1	10	30					30
<b>TOTAL</b>	<b>1</b>	<b>10</b>	<b>30</b>	<b>-</b>		<b>-</b>	<b>-</b>	<b>30</b>

### PUBLIC WATER SYSTEMS

The residents of Hancock County are presently served by 5 public or semi-public water systems: 2 municipalities, Hawesville Water Works and Lewisport Municipal Water Works; and 3 non-community systems. In addition, the East Daviess Water District serves 931 residents of the county.

# WATER SERVICE AREAS HANCOCK 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/>

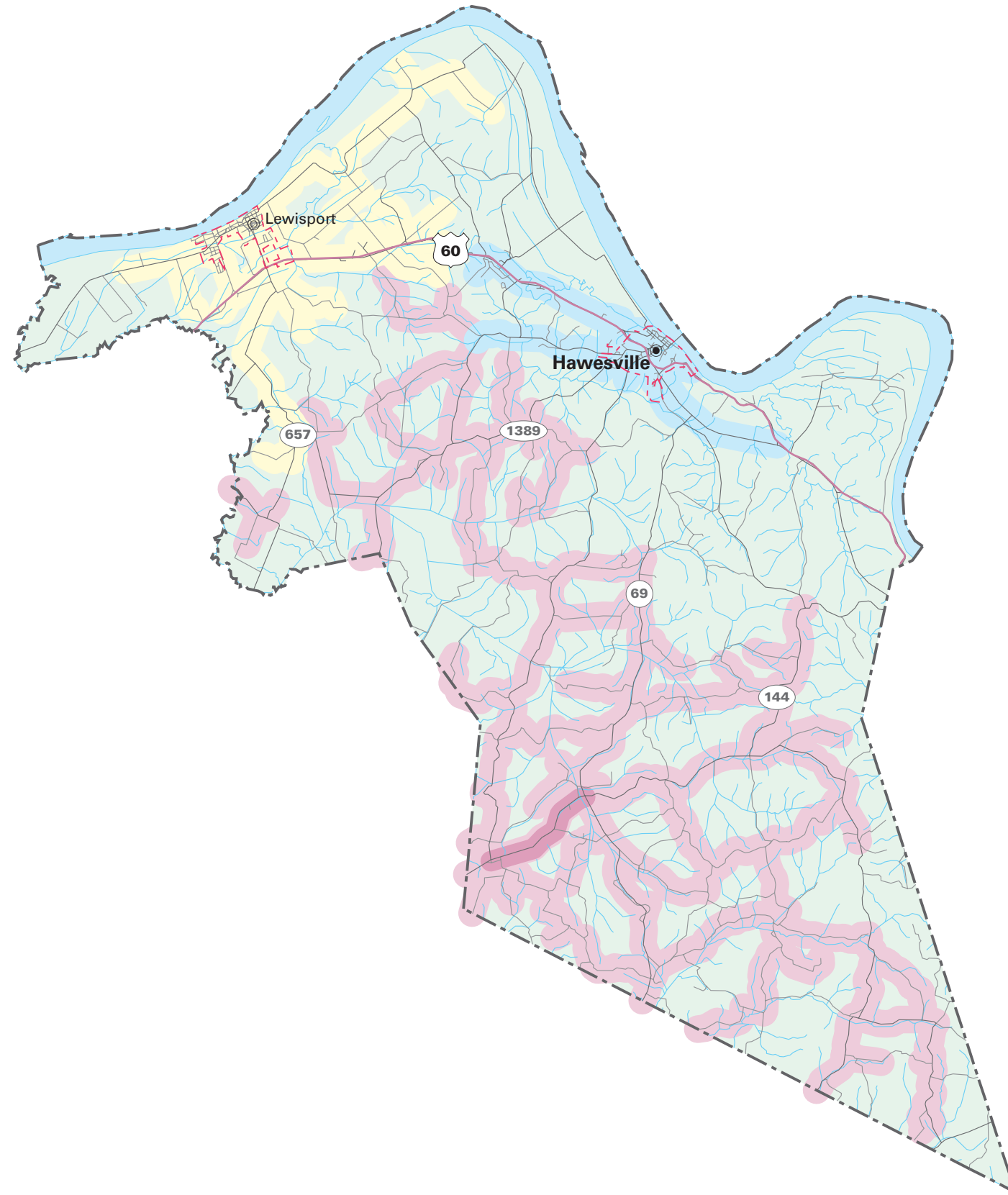
Bob Arnold, Chairman  
Lawrence Wetherby, Executive Director

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

Data Collection & GIS Input By:  
Kentucky Area Development Districts



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 SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		LEWISPORT MUNICIPAL WATER WORKS
		HAWESVILLE WATER WORKS
		EAST DAVIESS COUNTY WATER ASSOCIATION INCORPORATED

**HAWESVILLE WATER WORKS**

PWSID: ..... 0460182  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:  
 Purchase Source:  
 Well Source: ..... Yes  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.576  
 Percent Daily Average Production: ..... 60.00  
 Total Tank Storage Capacity (gallons):..... 535,000.00  
 Total Service Connections: ..... 930.00  
 Number of Employees:..... 7.00  
 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

Hawesville Water Works draws its water from four wells located along the Ohio River. The district currently services 930 customers. There are two treatment plants with a total capacity of 576,000 MGD. On a daily average 344,000 gallons of finished water is produced. The district’s storage capacity is 535,000 gallons stored by one elevated and three ground storage tanks.

The need for improvement within this system is increased storage capacity, increased pressure, and line improvements to eliminate water loss. The current plan is to phase out the oldest treatment plant by adding enough storage to serve the system.

**LEWISPORT MUNICIPAL WATER WORKS**

PWSID: ..... 0460248  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:  
 Purchase Source:  
 Well Source: ..... Yes  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.40  
 Percent Daily Average Production: ..... 60.00  
 Total Tank Storage Capacity (gallons):..... 550,000.00  
 Total Service Connections: ..... 917.00  
 Number of Employees:..... 6.00  
 Treatment Operator Class:.....2D



Distribution Operator Class: .....	2A
Customer Rate for 1,000 Gallons:.....	2.80
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

Lewisport draws its water from three wells located along the Ohio River. The city draws a daily average of 290,000 gallons. The permitted withdraw amount is 325,000 gallons daily. The district currently services 917 customers (795 residential, 58 commercial, 2 industrial, 11 institutional). Treatment is accomplished by one treatment plant with a capacity of 400,000 MGD. On a daily average 261,200 gallons of finished water is produced. The district's storage capacity is 550,000 gallons stored by three elevated water tanks. Based on 5,000 gallons, the average monthly water bill is \$14.00. Lewisport Municipal Water Works operates with 6 full-time employees.

The need for improvement within this system is the construction of a new treatment plant. The current plant operates an average of 18 hours per day. There is also a need for increased storage and replacement of several lines.

## OTHER SYSTEMS

### **COMMONWEALTH ALUMINUM**

Commonwealth Aluminum is located in Hancock County. The system serves a population of 1,000 and has 1 service connection. The private, non-transient, non-community system has treatment capacity of 101,800 gallons per day. The water source is wells.

### **WILLAMETTE INDUSTRIES CORRUGATED MED**

Willamette Ind. Corrugated Med is located in Hancock County. The system serves a population of 188 and has 1 service connection. The private, non-transient, non-community system has treatment capacity of 432,000 gallons per day. The water source is wells.

### **WILLAMETTE INDUSTRIES BLEACHED PULP**

Willamette Ind Bleached Pulp is located in Hancock County. The system serves a population of 1,888 and has 1 service connection. The private, non-transient, non-

community system has treatment capacity of 331,200 gallons per day. The water source is wells.

### **PRIVATE DOMESTIC SYSTEMS**

About 2,200 people in Hancock County rely on private domestic water systems: 1,750 on wells and 450 on other sources.

The alluvium along the Ohio River is the best source of groundwater in the county. In the northern edge of Hancock County nearly all drilled wells from depths of less than 150 feet in the alluvium of the Ohio River valley are adequate for domestic use. Most wells yield more than 50 gallons per minute (gpm) with some wells yielding as much as 750 gpm. In the northern three-quarters of Hancock County most wells from depths of less than 300 feet that penetrate sandstone are adequate for a domestic supply. In the southern quarter of the county only a few wells yield enough water for a domestic supply.

Generally, ground water is hard to very hard and iron and salt may be present in objectionable amounts. Often in deep wells, ground water becomes too mineralized to use.

## HENDERSON COUNTY

### (Henderson County Water Service Area Map)

- Estimated 1999 population of 44,300--90% on public water
- Estimated 2020 population of 44,200--91% on public water
- 440 miles of water lines, with plans for 55 additional miles
- Estimated funding needs for public water 2000-2005: \$31,754,000
- Estimated funding needs for public water 2006-2020: \$7,905,000

Henderson County had an estimated population of 44,347 (18,284 households) in 1999 with a projected population of 44,200 (20,000 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 90 percent of the households rely on private domestic wells and 10 percent on other sources. About 120 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>HENDERSON</b>								-
Henderson County Water District	55	120	1,250	1,250			1,515	4,015
Henderson.			474	6,730		18,207	2,328	27,739
<b>TOTAL</b>	<b>55</b>	<b>120</b>	<b>1,724</b>	<b>7,980</b>		<b>18,207</b>	<b>3,843</b>	<b>31,754</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>HENDERSON</b>								-
Henderson.				1,550		6,355		7,905
<b>TOTAL</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,550</b>		<b>6,355</b>	<b>-</b>	<b>7,905</b>

### PUBLIC WATER SYSTEMS

The residents of Henderson County are presently served by 5 public or semi-public water systems: 1 municipal system, Henderson Municipal Sewer and Water Utility and its South Plant; 1 water district, the Henderson County Water District; and 3 non-community

# WATER SERVICE AREAS HENDERSON 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/>

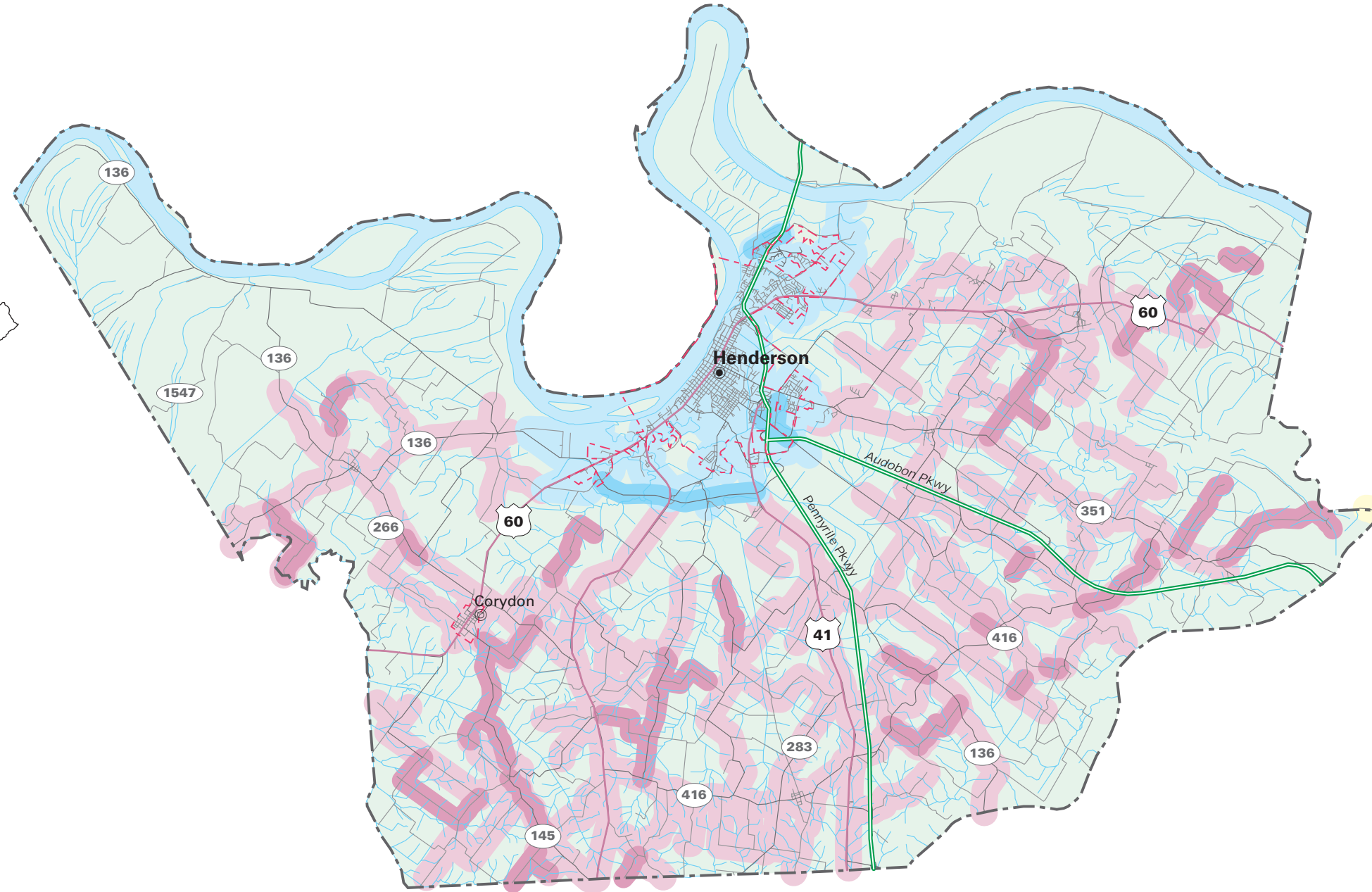
Bob Arnold, Chairman  
Lawrence Wetherby, Executive Director

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

Data Collection & GIS Input By:  
Kentucky Area Development Districts



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 SERVICE STATUS BY OWNER**

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		WEST DAVIESS COUNTY WATER DISTRICT
		HENDERSON MUNICIPAL WATER AND SEWER UTILITIES
		HENDERSON COUNTY WATER DISTRICT

systems. Henderson Municipal Water is the only water supplier in the county as other systems purchase water from them.

**HENDERSON COUNTY WATER DISTRICT**

PWSID: .....	0510189
System Type:.....	COMMUNITY
Owner Type:.....	WATER DISTRICT
Surface Source:	
Purchase Source:	
Well Source:	
Sells Water to:	
Treatment Plant Capacity (MGD):.....	0.00
Percent Daily Average Production: .....	0.00
Total Tank Storage Capacity (gallons):.....	1,650,000.00
Total Service Connections: .....	5,334.00
Number of Employees:.....	9.00
Treatment Operator Class:.....	3D
Distribution Operator Class:	
Customer Rate for 1,000 Gallons:.....	4.15
O/M costs 1997:.....	1,018,794.00
O/M costs per Service Connection: .....	193.39
Net Revenue 1997: .....	107,987.00
Total Water Produced 1997 (gallons):.....	0.00
Water Sold 1997 (gallons):.....	363,839,000.00
Unaccounted-for Water 1997 (%): .....	19.17

Henderson County Water District purchases its water supply from the City of Henderson via the Ohio River. Two booster-pumping stations move the water to the district. The district currently serves 5,334 customers (5,286 residential, 44 commercial, 4 schools) in Henderson County. Additionally, the district serves 174 customers in Webster County. Water is purchased at an average rate of 1.35 million gallons daily. The total available capacity is 3.15 million gallons daily. It is purchased at a price of \$1.0773 per 1000 gallons. Water storage is provided by 2 standpipe tanks and 6 elevated tanks, for a total storage capacity of 1,650,000 gallons. Henderson County Water District currently operates under 9 full time employees.

The need for improvements in Henderson County Water District results from water loss and increasing water safety standards. Henderson County’s present growth rate may exceed current storage capacity and ability to supply quality service. If the currently planned projects are completed, Henderson County Water District expecting to be able to comply with all regulations concerning the water system and improve service well into the future.



**HENDERSON MUNICIPAL WATER AND SEWER UTILITIES**

PWSID:.....	0510188
System Type:.....	COMMUNITY
Owner Type:.....	MUNICIPAL
Surface Source:.....	OHIO RIVER
Purchase Source:	
Well Source:	
Sells Water to:	
Treatment Plant Capacity (MGD):.....	12.00
Percent Daily Average Production: .....	63.00
Total Tank Storage Capacity (gallons):.....	7,580,000.00
Total Service Connections: .....	10,452.00
Number of Employees:.....	21.00
Treatment Operator Class:.....	3D
Distribution Operator Class: .....	4A
Customer Rate for 1,000 Gallons:.....	2.24
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 Henderson draws its water from the Ohio River. This district currently serves 10,452 customers (9,259 residential, 1,021 commercial, 58 industrial, 83 institutional, and 31 free). Also, the city serves Sebree in Webster County, Beech Grove in McLean County, and Tyson Chicken plant in McLean County. The average daily withdraw of water from the Ohio River is 7,630,000 gallons. A maximum daily withdraw of 12 million gallons is permitted. The system operates two water treatment plants with capacities of 12 million gallons daily. 3 elevated tanks, 2 ground storage tanks, and 1 standpipe tank provide water storage with total storage capacity of 7,580,000 gallons. The water system bases its rates on cubic feet of water. For a person that uses 400 to 600 cubic feet of water (2,992 to 7,481 gallons), their bill would be \$11.76. Henderson City Municipal Water currently operates under 21 full time employees.

The need for improvement for this district is in the form of water storage and quality. Proposed projects will greatly improve water quality to Henderson County residents. Water loss will also be addressed with the system upon completion of future projects. Water storage is an immediate need within this system due to the fact that the storage capacity has just over one day's use when compared to the average daily consumption.

### **HENDERSON WATER AND SEWER UTILITY, SOUTH PLANT**

Henderson Water and Sewer Utility, South Plant is located in Henderson County. The system serves a population of 500 and has 3 service connections. The system has treatment capacity of 4,000,000 gallons per day. The water source is the Green River. The system had gross revenue of operating and management cost of \$2,438,944 and net revenue of \$738,126 for the period 07/01/96 - 06/30/97.

### **OTHER SYSTEMS**

#### **ALCAN INGOT, SEBREE ALUMINIUM PLANT**

Alcan Ingot, Sebree Aluminium Plant is located in Henderson County. The system serves a population of 600 and has 1 service connection. The private, non-transient, non-community system has treatment capacity of 1,400,000 gallons per day. The water source is surface water from Green River.

#### **TROCADERO PLAZA**

Trocadero Plaza is located in Henderson County. The system serves a population of 25 and has 1 service connection. The private, transient, non-community system has treatment capacity of 3,840 gallons per day. The water source is wells.

#### **ELLIS PARK RACE COURSE**

Ellis Park Race Course is located in Henderson County. The system serves a population of 1,500 and has 2 service connections. The private, non-transient, non-community system has treatment capacity of 360,000 gallons per day. The water source is wells.

### **PRIVATE DOMESTIC SYSTEMS**

About 4,400 people in Henderson County rely on private domestic water supplies: 90 percent use wells, the remainder relying on other sources.

The alluvium along the Ohio River is the best source of ground water in the county. In northern Henderson County nearly all drilled wells from depths of less than 150 feet in the alluvium of the Ohio River valley are adequate for domestic use with most wells yielding more than 50 gallons per minute (gpm) with some wells yielding as much as 1,000 gpm. In the southern and central half of Henderson County most wells which penetrate sandstone's

from depths of less than 300 feet are adequate for a domestic supply. In the highlands of the eastern part of the county and in western Henderson County in the area around Smith Mills, only a few wells yield enough water for a domestic supply.

Generally, ground water is hard to very hard and iron and salt may be present in objectionable amounts. Often ground water becomes saltier with depth.

## MCLEAN COUNTY

### (McClean County Water Service Area Map)

- Estimated 1999 population of 9,700--90% on public water
- Estimated 2020 population of 9,500--94% on public water
- 240 miles of water lines, with plans for 27 additional miles
- Estimated funding needs for public water 2000-2005: \$5,338,000
- Estimated funding needs for public water 2006-2020: \$2,570,000

McLean County had an estimated population of 9,658 (4,051 households) in 1999 with a projected population of 9,500 (4,400 households) in 2020. Public water is provided to 3,650 customers, or about 90 percent of the county's residents. In areas of the county not served by public water, about 7 of 8 households rely on private domestic wells and 1 of 8 households rely on other sources. 195 households 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>McLEAN</b>								-
Beech Grove	5	43	53				300	353
Livermore	1	15	35			50		85
N. McLean County Water District	2		40	424			500	964
Calhoun				236		3,200		3,436
Island	4	12	100					100
Sacramento	6	125	145	5	250			400
<b>TOTAL</b>	<b>18</b>	<b>195</b>	<b>373</b>	<b>665</b>	<b>250</b>	<b>3,250</b>	<b>800</b>	<b>5,338</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>McLEAN</b>								-
N. McLean County Water District	9		500		50			550
Calhoun							1,000	1,000
Sacramento				20			1,000	1,020
<b>TOTAL</b>	<b>9</b>	<b>-</b>	<b>500</b>	<b>20</b>	<b>50</b>	<b>-</b>	<b>2,000</b>	<b>2,570</b>

# WATER SERVICE AREAS

## MCLEAN 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/>

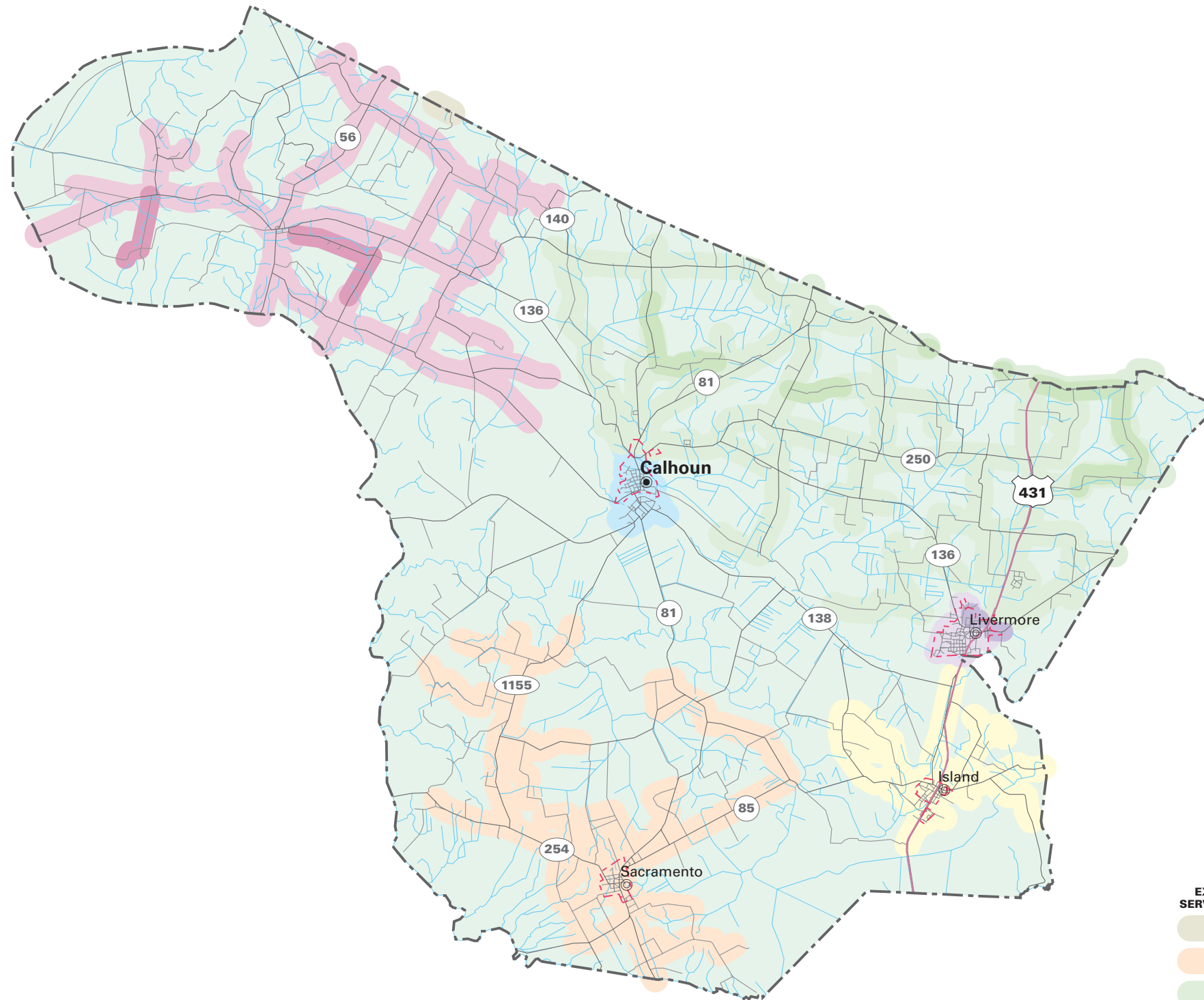
Bob Arnold, Chairman  
 Lawrence Wetherby, Executive Director

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

Data Collection & GIS Input By:  
 Kentucky Area Development Districts



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 SERVICE STATUS BY OWNER**

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		WEST DAVIESS COUNTY WATER DISTRICT
		SACRAMENTO WATER WORKS
		NORTH MCLEAN COUNTY WATER DISTRICT
		LIVERMORE WATER WORKS
		ISLAND WATER DEPARTMENT
		CALHOUN WATER WORKS
		BEECH GROVE WATER BOARD

## PUBLIC WATER SYSTEMS

The residents of McLean County are presently provided water by 6 public systems: 5 municipal, Sacramento Water Works, Beech Grove Water Board, Livermore Water Works, Island Water Department, and Calhoun Water Works; and 1 water district, North McLean County Water District.

### **SACRAMENTO WATER WORKS**

PWSID: ..... 0750907  
 System Type:..... COMMUNITY  
 Owner Type: ..... MUNICIPAL  
 Surface Source:  
 Purchase Source: ..... MULHENBERG COUNTY WATER DISTRICT  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production: ..... 0.00  
 Total Tank Storage Capacity (gallons):..... 250,000.00  
 Total Service Connections: ..... 704.00  
 Number of Employees:..... 3.00  
 Treatment Operator Class:.....2D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... 5.38  
 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 Sacramento Water Works currently purchases water from the Muhlenburg County Water District. The District currently services 705 households in McLean County. The Districts' storage system consists of one 250,000-gallon storage tank. The calculated charge for 5,000 gallons of treated water for residential customers is \$24.40 within the Sacramento City limits and \$29.40 outside the Sacramento City limits.

The need for water service expansion in the Sacramento Water Works district consists of primarily providing water to two subdivisions. All other projects consist of upgrading existing lines, the construction of a new 1,000,000-gallon storage tank, and the development of an alternate water source for emergencies. Upgrading lines and construction of a new tank will improve water pressure through out the system. According to the University of Louisville, McLean County will experience no growth or a decline in population over the

next twenty years. To meet current as well as the future needs of the county, projects have been selected and ranked by Sacramento Water Works representatives, elected officials, and members of the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of region.

**BEECH GROVE WATER BOARD**

PWSID:.....	0750529
System Type:.....	COMMUNITY
Owner Type:.....	MUNICIPAL
Surface Source:	
Purchase Source:.....	HENDERSON WATER 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:.....	420.00
Number of Employees:.....	2.00
Treatment Operator Class:.....	2D
Distribution Operator Class:	
Customer Rate for 1,000 Gallons:.....	6.75
O/M costs 1997:.....	151,181.05
O/M costs per Service Connection:.....	336.71
Net Revenue 1997:.....	11,616.54
Total Water Produced 1997 (gallons):.....	4,533,057.00
Water Sold 1997 (gallons):.....	3,926,386.00
Unaccounted-for Water 1997 (%):.....	13.38

The Beech Grove Water Board currently purchases its water from the West Daviess County Water District and the Henderson County Water District. Beech Grove currently serves approximately 420 households. The district's storage system consists of two tanks. The total storage capacity is 116,000 gallons. The calculated charge for 2,000 gallons of treated water for residential usage is \$13.50. The system only employs one certified distribution operator and one clerk for billing and financial oversight.

Beech Grove is currently looking at constructing two tanks, a 100,000-gallon and a 200,000-gallon. The system is also looking at extending lines out Hwy 56 and McGee Chapel Road. The water district would also like to tie several lines together to improve water pressure throughout the system. To meet current as well as future needs of the county, projects have been selected and ranked by the Beech Grover Water Board representative, elected officials,



and members of the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of region.

**LIVERMORE WATER WORKS**

PWSID: ..... 0750252  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:..... ROUGH RIVER  
 Purchase Source:  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.50  
 Percent Daily Average Production: ..... 41.00  
 Total Tank Storage Capacity (gallons):..... 270,000.00  
 Total Service Connections: ..... 741.00  
 Number of Employees:..... 3.00  
 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

Livermore Water works currently draws and treats water from Green and Rough Rivers. According the McLean County Water Supply Plan they have an adequate water supply to support future needs. The system currently serves 700 households in McLean County. They sells treated water to the North McLean County Water District. Livermore operates a water treatment plant with a 500,000 gallon per day treatment capacity. The water plant currently produces 80% of the designed daily capacity. The system maintains two water storage tanks for a total capacity of 470,000-gallons. The distribution system and the treatment system currently employees two certified treatment operators and distribution operators. The other employees provide billing and financial oversight.

The City of Livermore is currently pursuing four projects. Only two of the projects involve the extension of water lines. Since other water districts surround the water district, there are no unserved areas in which to expand. The other two projects involve work on the treatment plant. The current plant needs to be upgraded to meet new drinking water standards. Over a long period of time the water district would like to construct a new water

plant, a raw water intake and line, and to extend a line across the Green River. To meet current as well as the future needs of the county, projects have been selected and ranked by the McLean County system representative, elected officials, and the Green River Area Development District Water Supply Planning Council.

**NORTH MCLEAN COUNTY WATER DISTRICT**

PWSID: ..... 0750320  
 System Type:..... COMMUNITY  
 Owner Type: ..... WATER DISTRICT  
 Surface Source:  
 Purchase Source:  
 Well Source:  
 Sells Water to: .....CALHOUN WATER WORKS  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production: ..... 0.00  
 Total Tank Storage Capacity (gallons):..... 400,000.00  
 Total Service Connections: ..... 1,114.00  
 Number of Employees:..... 3.00  
 Treatment Operator Class: .....2D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... 3.82  
 O/M costs 1997:..... 303,397.00  
 O/M costs per Service Connection: ..... 272.10  
 Net Revenue 1997: ..... 60,704.00  
 Total Water Produced 1997 (gallons):..... 0.00  
 Water Sold 1997 (gallons):..... 94,308.00  
 Unaccounted-for Water 1997 (%): ..... 8.50

The North McLean County Water District currently purchases water from the City of Livermore, the City of Calhoun, and the West Daviess County Water District. The Water District currently serves 1,086 residential customers. The district’s storage capacity consists of two tanks with a combined storage capacity of 410,000-gallons. The North McLean County Water District employs two distribution operators and one person for billing and financial maintenance.

The water district has a multitude of small water mains that they are actively trying to upgrade. By upgrading many of these lines, pressure problems will be solved and the larger lines will allow for growth within the district. The water district would also like to add a 500,000-gallon water tank. This project will also serve to reduce the pressure problems that exist throughout the system. To meet current as well as future needs of the county, projects

have been selected and ranked by the McLean County system representatives, elected officials, and the Green River Area Development District Water Supply Planning Council.

**ISLAND WATER DEPARTMENT**

PWSID: ..... 0750207  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:  
 Purchase Source:  
 Well Source: ..... Yes  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.25  
 Percent Daily Average Production: ..... 50.00  
 Total Tank Storage Capacity (gallons):..... 150,000.00  
 Total Service Connections: ..... 512.00  
 Number of Employees:..... 4.00  
 Treatment Operator Class:.....2D  
 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 Island Water Department currently draws water from two wells. The city is planning to run a line that will interconnect with the city of Calhoun. This will allow the city to begin purchasing water from Calhoun and use the existing wells as a backup source. The system currently serves approximately 480 residents. The district operates a water treatment plant that has a production capacity of 259,000-gallons per day. The system currently maintains a 150,000-gallons storage tank. The system only employs one certified treatment plant operator and distribution operator. All other employees assist the operator in his duties and maintain financial records.

The Island Water Department only foresees the need to expand into one unserved area. This project will serve the “Knobs” area. Other water districts surround the District therefore; there aren’t any new areas in which to expand. To meet current as well as the future needs of the county, projects have been selected and ranked by the McLean County system representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of region.

**CALHOUN WATER WORKS**

PWSID:.....	0750055
System Type:.....	COMMUNITY
Owner Type:.....	MUNICIPAL
Surface Source:.....	GREEN RIVER
Purchase Source:.....	NORTH MCLEAN COUNTY WATER DISTRICT
Well Source:	
Sells Water to:	
Treatment Plant Capacity (MGD):.....	1.00
Percent Daily Average Production:.....	44.00
Total Tank Storage Capacity (gallons):.....	250,000.00
Total Service Connections:.....	507.00
Number of Employees:.....	3.00
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

Calhoun Water Works currently gets its water from the Green River and according to the county water supply plan has an adequate supply of raw water to support future needs. The system serves 506 households and sells water to the North McLean County Water District. The system will begin selling treated water to the City of Island within the next two years. The system operates a water treatment plant that has a production capacity of 1 million gallons per day. On an average, only 497,000 gallons per day are produced, or less than 45% of its designed capacity. The system maintains two tanks with a total capacity of 750,000-gallons. Calhoun Water currently employs three certified distribution and treatment plant operators. All other employees provide billing and financial oversight.

The City of Calhoun is surrounded by other existing water systems therefore there aren't many areas into which they can expand. The District would like to upgrade several lines within the system and if the county water districts decide to consolidate and purchase water from Calhoun then the treatment plant will have to be expanded. To meet current as well as future needs of the county, projects have been selected and ranked by the McLean County systems representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of the region.

## PRIVATE DOMESTIC SYSTEMS

About 950 residents of McLean County rely on private domestic water systems: 850 on wells and 100 on other sources.

In McLean County most wells from depths of less than 300 feet are adequate for a domestic supply. Wells located in the Green River flood plain can produce as much as 100 gallons of hard water per minute. In a thin highly faulted zone running east west across the county between the towns of Beach Grove and Nuckols, yields to drilled wells are unpredictable due to the faulting.

Generally, ground water is hard to very hard and iron and salt may be present in objectionable amounts. Often ground water becomes saltier with depth.

## OHIO COUNTY

### (Ohio County Water Service Area Map)

- Estimated 1999 population of 22,000--90% on public water
- Estimated 2020 population of 23,400--93% on public water
- 545 miles of water lines, with plans for 130 additional miles
- Estimated funding needs for public water 2000-2005: \$17,027,000
- Estimated funding needs for public water 2006-2020: \$0

Ohio County had an estimated population of 21,972 (8,933 households) in 1999 with a projected population of 23,400 (10,200 households) in 2020. Public water is provided to over 7,600 households, or almost 90 percent of the county's residents. In areas of the county not served by public water, about 4 of 5 households rely on private domestic wells and 1 of 5 on other sources. About 345 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>OHIO</b>								-
Ohio County Water District	106	166	6,689	3,474			3,200	13,363
Centertown	14	106	555	2,245	50		500	3,350
Fordsville	10	73	280	9				289
Hartford				25				25
<b>TOTAL</b>	<b>130</b>	<b>345</b>	<b>7,524</b>	<b>5,753</b>	<b>50</b>		<b>3,700</b>	<b>17,027</b>

### **PUBLIC WATER SYSTEMS**

The residents of Ohio County are presently provided water by 8 public and semi-public water systems: 7 community systems--5 municipal, Beaver Dam Municipal Water/Sewer System, Centertown Water System, Fordsville Water System, Hartford Municipal Water Works, Rockport Water Works; 1 water district, Ohio County Water District; 1 private system; and 1 non-community system.

# WATER SERVICE AREAS

## OHIO 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/>

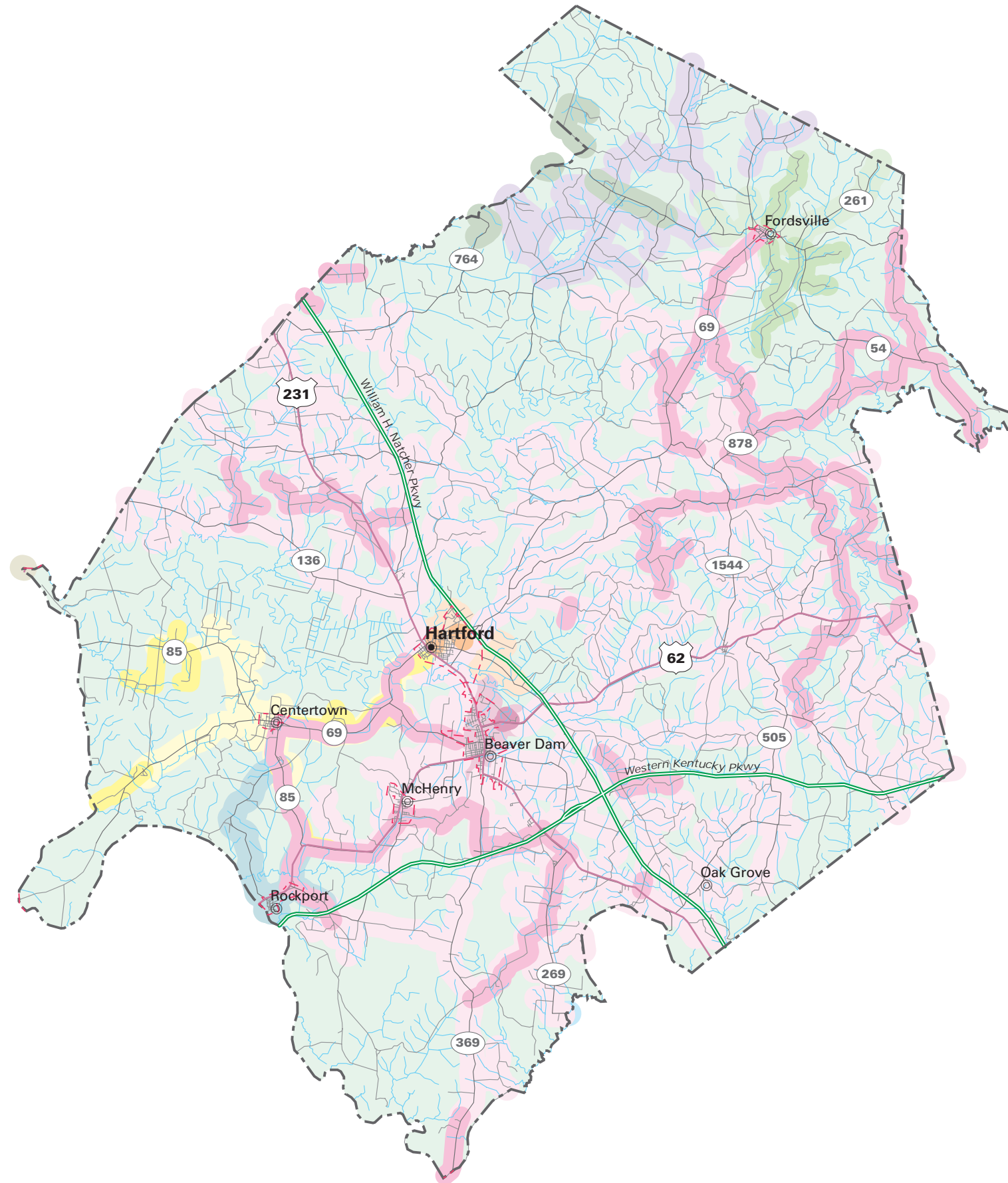
Bob Arnold, Chairman  
 Lawrence Wetherby, Executive Director

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

Data Collection & GIS Input By:  
 Kentucky Area Development Districts



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 SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		WHITESVILLE WATER WORKS
		ROCKPORT WATER WORKS
		OHIO COUNTY WATER DISTRICT
		LIVERMORE WATER WORKS
		HARTFORD MUNICIPAL WATER WORKS
		FORDSVILLE WATER DISTRICT
		EAST DAVIESS COUNTY WATER ASSOCIATION INCORPORATED
		CENTERTOWN WATER SYSTEM
		BUTLER COUNTY WATER SYSTEM INCORPORATED
		BEAVER DAM MUNICIPAL WATER AND SEWER SYSTEM



**BEAVER DAM MUNICIPAL WATER AND SEWER SYSTEM**

PWSID: ..... 0920025  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:  
 Purchase Source:  
 Well Source: ..... Yes  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production: ..... 72.00  
 Total Tank Storage Capacity (gallons):..... 0.00  
 Total Service Connections: ..... 1,424.00  
 Number of Employees:..... 6.00  
 Treatment Operator Class:  
 Distribution Operator Class: ..... 2BD  
 Customer Rate for 1,000 Gallons:..... 3.96  
 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 Beaver Dam Municipal Water/Sewer System purchases treated water from the Ohio County Water District (OCWD). The system currently services approximately 1,200 residences in the city of Beaver Dam. Beaver Dam maintains one 250,000-gallon tank and two wells for emergency use with a combined permitted withdrawal rate of 85,000-gallons per day. The Beaver Dam Municipal Water/Sewer System currently charges a residential rate of \$7.92 for the first 2,000 gallons

The Beaver Dam Municipal Water/Sewer System would like to extend a line for the benefit of a commercial entity with the project being fully funded by the commercial entity. To meet current as well as future needs of the county, proposed projects have been ranked by Beaver Dam Municipal Water/Sewer System representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of the region.

**CENTERTOWN WATER SYSTEM**

PWSID: ..... 0920070  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:  
 Purchase Source: ..... HARTFORD WATER WORKS

Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production: ..... 0.00  
 Total Tank Storage Capacity (gallons):..... 60,000.00  
 Total Service Connections: ..... 470.00  
 Number of Employees:..... 2.00  
 Treatment Operator Class:.....2D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... 4.69  
 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 Centertown Water System purchases treated water from the Hartford Municipal Water Works. The Centertown services approximately 462 residences in the city of Centertown. The system purchases 90,000-gallons per day from Hartford. Centertown maintains an elevated tank with a 60,000-gallon storage capacity. The calculated charge for residential water usage is \$9.38 per 2,000 gallons. The water district has 2 certified employees for operation and distribution. The other employees provide billing and financial oversight.

The Centertown Water System has several projects it would like to undertake. The district would like to upgrade all existing lines within the system containing asbestos lining. The district would also like to extend and upgrade existing lines that would allow a tie onto OCWD to eliminate the need to pump 14 hours per day. In addition, the district would like to install a 125,000-gallon tank. To meet current as well as future needs of the county, projects have been ranked by Centertown Water System representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of the region.

**FORDSVILLE WATER DISTRICT**

PWSID: ..... 0920136  
 System Type:..... COMMUNITY  
 Owner Type: ..... WATER DISTRICT  
 Surface Source:..... FORDSVILLE CITY LAKE  
 Purchase Source: ..... OHIO COUNTY WATER DISTRICT  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.12  
 Percent Daily Average Production: ..... 58.00

Total Tank Storage Capacity (gallons):.....	600,000.00
Total Service Connections: .....	377.00
Number of Employees:.....	3.00
Treatment Operator Class:.....	1D
Distribution Operator Class: .....	2A
Customer Rate for 1,000 Gallons:.....	6.00
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 Fordsville Water System currently draws water from Fordsville City Lake and has the ability to draw from the Ohio County Water District in an emergency or drought. The system currently services 330 residential customers in the city of Fordsville. Fordsville Water System operates a treatment plant with a design capacity of 122,000-gallons per day. The district maintains two storage tanks with a combined storage capacity of 600,000-gallons. On an average day the system produces approximately 100,000-gallons per day. The calculated charge for residential water usage is \$12.00 per 2,000 gallons. The water district has 3 certified employees for operation and distribution. The other employees provide billing and financial oversight.

The Fordsville Water System would like to like to complete several projects involving extending its existing lines. To meet current as well as future needs of the county, projects have been ranked by the Fordsville Water System representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of the region

**HARTFORD MUNICIPAL WATER WORKS**

PWSID: .....	0920181
System Type:.....	COMMUNITY
Owner Type: .....	MUNICIPAL
Surface Source:.....	ROUGH RIVER
Purchase Source:	
Well Source:	
Sells Water to: .....	CENTERTOWN WATER SYSTEM
Treatment Plant Capacity (MGD):.....	1.00
Percent Daily Average Production: .....	42.00
Total Tank Storage Capacity (gallons):.....	1,750,000.00
Total Service Connections: .....	1,048.00
Number of Employees:.....	4.00
Treatment Operator Class:.....	2D

Distribution Operator Class: .....	3A
Customer Rate for 1,000 Gallons:.....	4.86
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 Hartford Municipal Water Works currently draws water from Rough River. The system currently services 973 residential customers in the city of Hartford. Hartford Municipal Water Works operates a treatment plant with a design capacity of 1,000,000-gallons per day. The district maintains two storage tanks with a combined storage capacity of 1,175,000-gallons. On an average day the system produces approximately 500,000-gallons per day. The calculated charge for residential water usage is \$9.71 per 2,000 gallons. The water district has 4 certified employees for operation and distribution. The other employees provide billing and financial oversight.

The Hartford Municipal Water Works has four projects in its plans for the future. Projects include the upgrade existing lines to increase pressure and water volume for existing customers and the extension of existing lines to new customers. The water district would also like to extend lines to provide service for growth and development. To meet current as well as future needs of the county, projects have been ranked by Hartford Municipal Water Works system representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of the region.

**ROCKPORT WATER WORKS**

PWSID: .....	0920373
System Type:.....	COMMUNITY
Owner Type: .....	MUNICIPAL
Surface Source:.....	GREEN RIVER
Purchase Source:	
Well Source:	
Sells Water to:	
Treatment Plant Capacity (MGD):.....	0.00
Percent Daily Average Production: .....	27.00
Total Tank Storage Capacity (gallons):.....	55,000.00
Total Service Connections: .....	246.00
Number of Employees:.....	4.00
Treatment Operator Class:.....	1D

Distribution Operator Class: .....	2A
Customer Rate for 1,000 Gallons:.....	6.50
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 Rockport Water Works draws its water from the Green River. The district currently services approximately 238 residences in the city of Rockport. The system produces 75,000-gallons per day. The water district currently maintains a storage tank with a 55,000-gallon storage capacity. The calculated charge for residential water usage is \$13.00 per 2,000 gallons. The water district has 4 certified employees for operation and distribution. The other employees provide billing and financial oversight.

The Rockport Water Works is currently upgrading its water system. The entire distribution system is being replaced and a new 75,000-gallon storage tank is in construction. The city plans to close its water plant within the next five years and begin purchasing water from the Ohio County Water District.

**OHIO COUNTY WATER DISTRICT**

PWSID:.....	0920332
System Type:.....	COMMUNITY
Owner Type:.....	WATER DISTRICT
Surface Source:.....	GREEN RIVER
Purchase Source: .....	NORTH MCLEAN COUNTY WATER DISTRICT
Well Source:	
Sells Water to: .....	FORDSVILLE WATER DISTRICT
Treatment Plant Capacity (MGD):.....	2.08
Percent Daily Average Production: .....	73.00
Total Tank Storage Capacity (gallons):.....	250,000.00
Total Service Connections: .....	4,552.00
Number of Employees:.....	10.00
Treatment Operator Class:.....	2D
Distribution Operator Class: .....	3A
Customer Rate for 1,000 Gallons:.....	4.87
O/M costs 1997:.....	1,157,651.00
O/M costs per Service Connection: .....	251.06
Net Revenue 1997:.....	104,364.00
Total Water Produced 1997 (gallons):.....	604,882,000.00
Water Sold 1997 (gallons):.....	409,438,100.00
Unaccounted-for Water 1997 (%): .....	20.66

The Ohio County Water District currently draws water from the Green River and has the ability to obtain water from Butler County and North McLean County Water District on an emergency basis. The district sells water to the Beaver Dam Municipal Water/Sewer System and the Fordsville Water System. The system currently services 4,418 residential customers in the areas of Ohio County not served by other districts. OCWD operates a treatment plant with a design capacity of 2,080,000-gallons per day. On an average day the system produces approximately 1,535,000 gallons per day. The water district has 6 certified employees for operation and distribution. The other employees provide billing and financial oversight.

The Ohio County Water District has several projects it would like to undertake. The water district would like to complete several connections of existing lines to improve system pressure and the water flow volume. The district also proposes to complete several extension projects. To meet current as well as future needs of the county, projects have been ranked by the Ohio County Water District system representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of the region.

## **OTHER SYSTEMS**

### **PERDUE FARMS INC**

Perdue Farms Inc is located in Ohio County. The system serves a population of 400 and has 1 service connection. The private, community system has treatment capacity of 3,000,000 gallons per day. The water source is surface water from Green River.

### **WESTERN KENTUCKY ENERGY CORPORATION/DB WILSON**

Western Kentucky Energy Corp/Db Wilson is located in Ohio County. The system serves a population of 176 and has 1 service connection. The private, non-transient, non-community system has treatment capacity of 28,800 gallons per day. The water source is surface water from Green River.

## **PRIVATE DOMESTIC SYSTEMS**

About 2,150 people in Ohio County rely on private domestic water supplies: 1,750 on wells and 400 on other sources.

In the southern and western two-thirds of Ohio County most wells from depths of less than 300 feet are adequate for a domestic supply. Wells located in the Green River flood plain can produce as much as 100 gallons of hard water per minute. Most wells obtain their water from thick sandstone layers and will yield as much as 60 gpm. In the north-eastern third of the county only a few well yield enough water for a domestic supply except in the valley of the Rough River were most wells yield enough for a domestic supply. In a thin highly faulted zone running east west across the county between the towns of Beda and Dundee, yields to drilled wells are unpredictable due to the faulting. In the southern part of the county moderately mineralized water may be obtained locally from deep sandstone formations at depths of 1200 feet.

Generally, ground water is hard to very hard and iron and salt may be present in objectionable amounts. Often ground water becomes saltier with depth.



## UNION COUNTY

### (Union County Water Service Area Map)

- Estimated 1999 population of 14,800--90% on public water
- Estimated 2020 population of 17,300--90% on public water
- 350 miles of water lines, with plans for 1 additional mile
- Estimated funding needs for public water 2000-2005: \$1,670,000
- Estimated funding needs for public water 2006-2020: \$0

Union County had an estimated population of 14,824 (5,865 households) in 1999 with a projected population of 17,300 (6,600 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, nearly all the households rely on private domestic wells. One customer will be added to public water service through proposed new line extensions in 2000-2020.

### *Estimated Costs - Proposed Projects, 2000-2020*

COUNTY/System	Miles	New Customers Number	Cost in \$1000	Rehab In \$1000	Source in \$1000	Treatment in \$1000	Tanks/Pumps in \$1000	Total in \$1000
<b>UNION</b>								-
Uniontown								-
Union County Water District				60			1,090	1,150
Sturgis	1	1	10	10				20
Morganfield					500			500
<b>TOTAL</b>	<b>1</b>	<b>1</b>	<b>10</b>	<b>70</b>	<b>500</b>		<b>1,090</b>	<b>1,670</b>

### PUBLIC WATER SYSTEMS

The residents of Union County are presently served by four water systems: 1 water district, Union County Water District, and 3 municipal systems, Morganfield Water Works, Sturgis Water Works, and Uniontown Water and Sewer.

### **UNION COUNTY WATER DISTRICT**

PWSID: ..... 1130433  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT  
 Surface Source:  
 Purchase Source:  
 Well Source:

# WATER SERVICE AREAS UNION 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/>

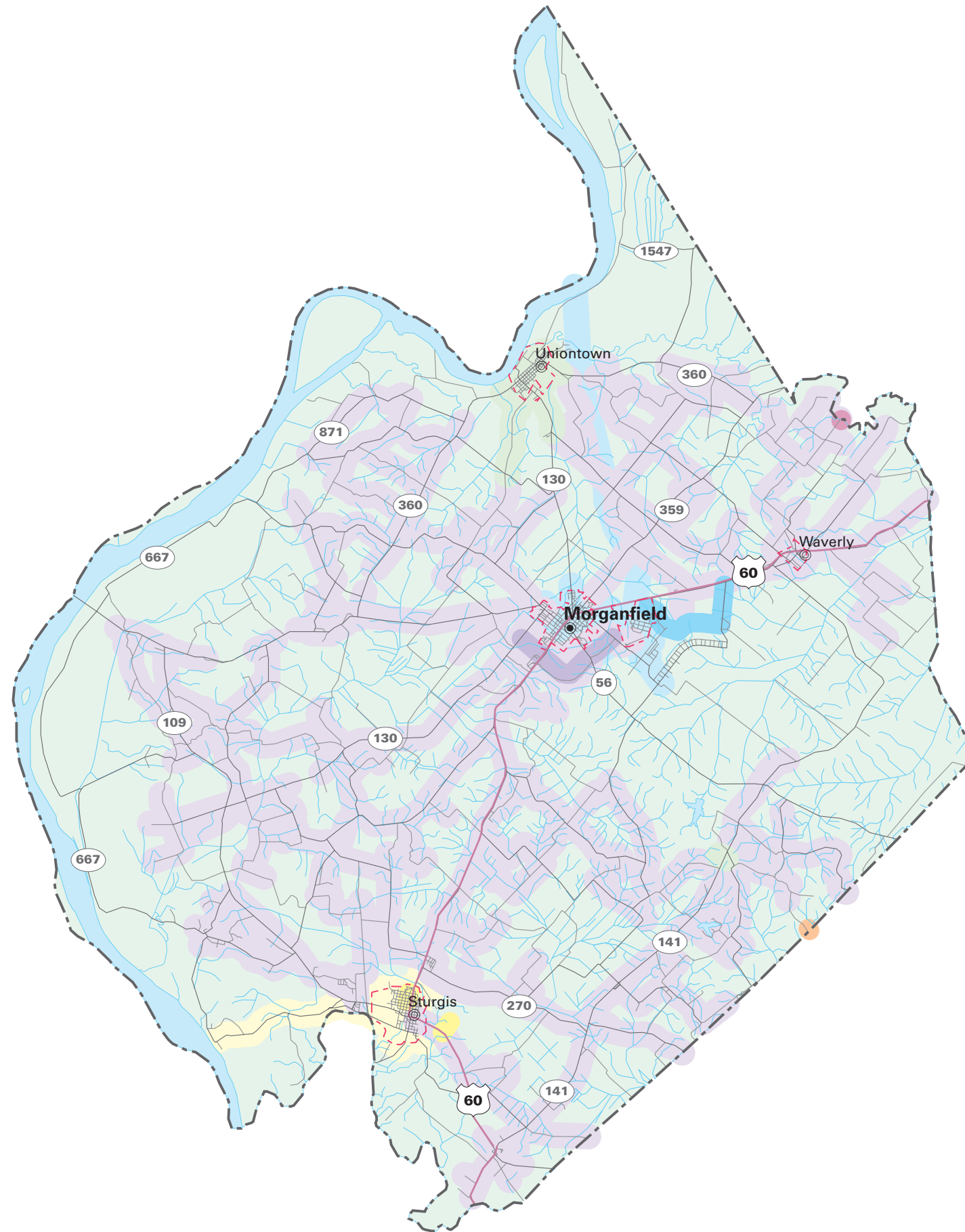
Bob Arnold, Chairman  
Lawrence Wetherby, Executive Director

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

Data Collection & GIS Input By:  
Kentucky Area Development Districts



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 SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		WEBSTER COUNTY WATER DISTRICT
		UNIONTOWN WATER AND SEWER DEPARTMENT
		UNION COUNTY WATER DISTRICT
		STURGIS WATER WORKS
		MORGANFIELD WATER WORKS
		HENDERSON COUNTY WATER DISTRICT

Sells Water to:.....	UNIONTOWN WATER AND SEWER DEPARTMENT
Treatment Plant Capacity (MGD):.....	0.00
Percent Daily Average Production: .....	0.00
Total Tank Storage Capacity (gallons):.....	1000,000.00
Total Service Connections: .....	1,773.00
Number of Employees:.....	4.00
Treatment Operator Class:.....	2D
Distribution Operator Class:	
Customer Rate for 1,000 Gallons:.....	3.70
O/M costs 1997:.....	579,143.00
O/M costs per Service Connection: .....	303.69
Net Revenue 1997: .....	84,059.00
Total Water Produced 1997 (gallons):.....	0.00
Water Sold 1997 (gallons):.....	208,050,816.00
Unaccounted-for Water 1997 (%): .....	17.29

Union County Water District purchases its water from Morganfield Water Works at a rate of \$0.78 per gallon. The district currently serves 1,773 customers (1,709 residential, 52 commercial, 9 institutional, and 3 government) including 7 in Webster County. 8 booster-pumping stations move water through the district. Storage is accomplished by 4 elevated tanks, and three ground storage tanks for a total storage capacity of 1,000,000 gallons.. Union County Water District operates under 4 full time employees.

The need for improvement in this system is increased storage capacity and pressure improvements. Proposed projects will satisfy both of these deficiencies.

**MORGANFIELD WATER WORKS**

PWSID: .....	1130293
System Type:.....	COMMUNITY
Owner Type: .....	MUNICIPAL
Surface Source:.....	OHIO RIVER
Purchase Source:	
Well Source:	
Sells Water to:.....	UNIONTOWN WATER AND SEWER DEPARTMENT
Treatment Plant Capacity (MGD):.....	6.00
Percent Daily Average Production: .....	54.00
Total Tank Storage Capacity (gallons):.....	1,400,000.00
Total Service Connections: .....	1,774.00
Number of Employees:.....	7.00
Treatment Operator Class:.....	2D
Distribution Operator Class: .....	4A
Customer Rate for 1,000 Gallons:.....	2.35
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

Morganfield Waters Works draws its water through a wet well along Ohio River. It draws an average of 1.8 million gallons of water daily. There is not a maximum amount of water specified for the removal of water. The system currently services 1,774 customers (1,539 residential, 225 commercial, 10 industrial). Additionally this system sells water to Union County Water District and Uniontown Water and Sewer. Treatment is done by one plant with a 6 million-gallon capacity. On an average, daily treatment consists of 1,500,000 gallons. Storage capacity is 1,400,000 gallons stored by 3 elevated tanks. Based on 5,000 gallons, the calculated water bill would be \$11.73. Morganfield Water Works operates under 7 full time employees.

The need in this system is for additional storage capacity. Based on the average consumption, there is not enough storage for one day of use if the source is contaminated.

**STURGIS WATER WORKS**

PWSID: ..... 1130422  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:.....OHIO RIVER  
 Purchase Source:  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 1.12  
 Percent Daily Average Production: ..... 23.00  
 Total Tank Storage Capacity (gallons):..... 500,000.00  
 Total Service Connections: ..... 1,230.00  
 Number of Employees:..... 9.00  
 Treatment Operator Class:.....2D  
 Distribution Operator Class: .....3A  
 Customer Rate for 1,000 Gallons:..... 2.68  
 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

Sturgis Water Works draws its water from the Ohio River. There is not a maximum amount of water specified for the removal of water. The district currently services 1,230 customers (1,097 residential, 133 commercial). Treatment is accomplished by one plant with a 1.2 million-gallon capacity. The average production of treated water is 350,000 gallons daily. The district's storage capacity is 500,000 gallons stored by one elevated tank. Based on 5,000

gallons, the calculated water bill would be \$13.42. Sturgis Water Works operates under 9 full time employees.

The need in this district is the upgrading of lines to improve service.

**UNIONTOWN WATER AND SEWER DEPARTMENT**

PWSID: ..... 1130434  
System Type:..... COMMUNITY  
Owner Type:..... MUNICIPAL  
Surface Source:.....OHIO RIVER  
Purchase Source: ..... MORGANFIELD WATRE WORKS  
Well Source:  
Sells Water to:  
Treatment Plant Capacity (MGD):..... 0.00  
Percent Daily Average Production: ..... 0.00  
Total Tank Storage Capacity (gallons):..... 250,000.00  
Total Service Connections: ..... 590.00  
Number of Employees:..... 1.00  
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

Uniontown Water and Sewer purchases its water from Morganfield Water Works.

Uniontown formerly produced its own water supply, but now uses their system as a backup. The district currently serves 590 customers (573 residential, 9 commercial, 4 industrial, 4 institutional). The average use of the system is 108 gallons daily. The system purchases the water at a rate of 108 gallons daily at a cost of \$1.20 per 1000 gallons. The district's storage capacity 250,000 gallons stored in two elevated tanks. Union County Water and Sewer operates under one full-time employee.

There is not a current need for water projects in this district. All serviceable areas are currently receiving water.

## PRIVATE DOMESTIC SYSTEMS

About 1,500 people in the county rely on private domestic water supplies: almost all on wells.

The alluvium along the Ohio River is the best source of ground water in the county. In the northern and western edges of the county, nearly all drilled wells from depths of less than 150 feet in the alluvium of the Ohio River valley are adequate for domestic use. Most wells yield more than 50 gallons per minute (gpm) with some wells yielding as much as 1,000 gpm. In over half of Union County most wells that penetrate sandstone formations from depths of less than 300 feet are adequate for a domestic supply. In the highlands of the southeastern part of the county in the old Camp Breckinridge area and in the Grundy Hill area southwest of Uniontown, only a few wells yield enough water for a domestic supply. In a thin highly faulted zone running east west across the county between the towns of Givens and The Rocks, yields to drilled wells are unpredictable due to the faulting.

Generally, ground water is hard to very hard and iron and salt may be present in objectionable amounts. Often ground water becomes saltier with depth.

## WEBSTER COUNTY

### (Webster County Water Service Area Map)

- Estimated 1999 population of 13,300--85% on public water
- Estimated 2020 population of 12,600--89% on public water
- 300 miles of water lines, with plans for 70 additional miles
- Estimated funding needs for public water 2000-2005: \$4,584,000
- Estimated funding needs for public water 2006-2020: \$0

Webster County had an estimated population of 13,278 (5,450 households) in 1999 with a projected population of 12,600 (5,500 households) in 2020. Public water is provided to 4,650 households, or about 85 percent of the county's residents. In areas of the county not served by public water, about 3/4 of the households rely on private domestic wells and 1/4 of the households rely on other sources. About 230 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>WEBSTER</b>								-
Webster County Water District	67	225	3,424				624	4,048
Sebree	1	2	12	5				17
Clay			10	509				519
Dixon								-
Providence								-
<b>TOTAL</b>	<b>68</b>	<b>227</b>	<b>3,446</b>	<b>514</b>			<b>624</b>	<b>4,584</b>

### PUBLIC WATER SYSTEMS

The residents of Webster County are presently provided water by 7 public and semi-public water systems: 6 community systems--5 municipal, Clay Water Works, Dixon Water Department, Providence Water Works, Sebree Water Department, Slaughters Water Works, and 1 water district, Webster County Water District; and 1 non-community system.

### **CLAY WATER WORKS**

PWSID: ..... 1170073  
 System Type:..... COMMUNITY  
 Owner Type: ..... MUNICIPAL  
 Surface Source:



# WATER SERVICE AREAS

## WEBSTER 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/>

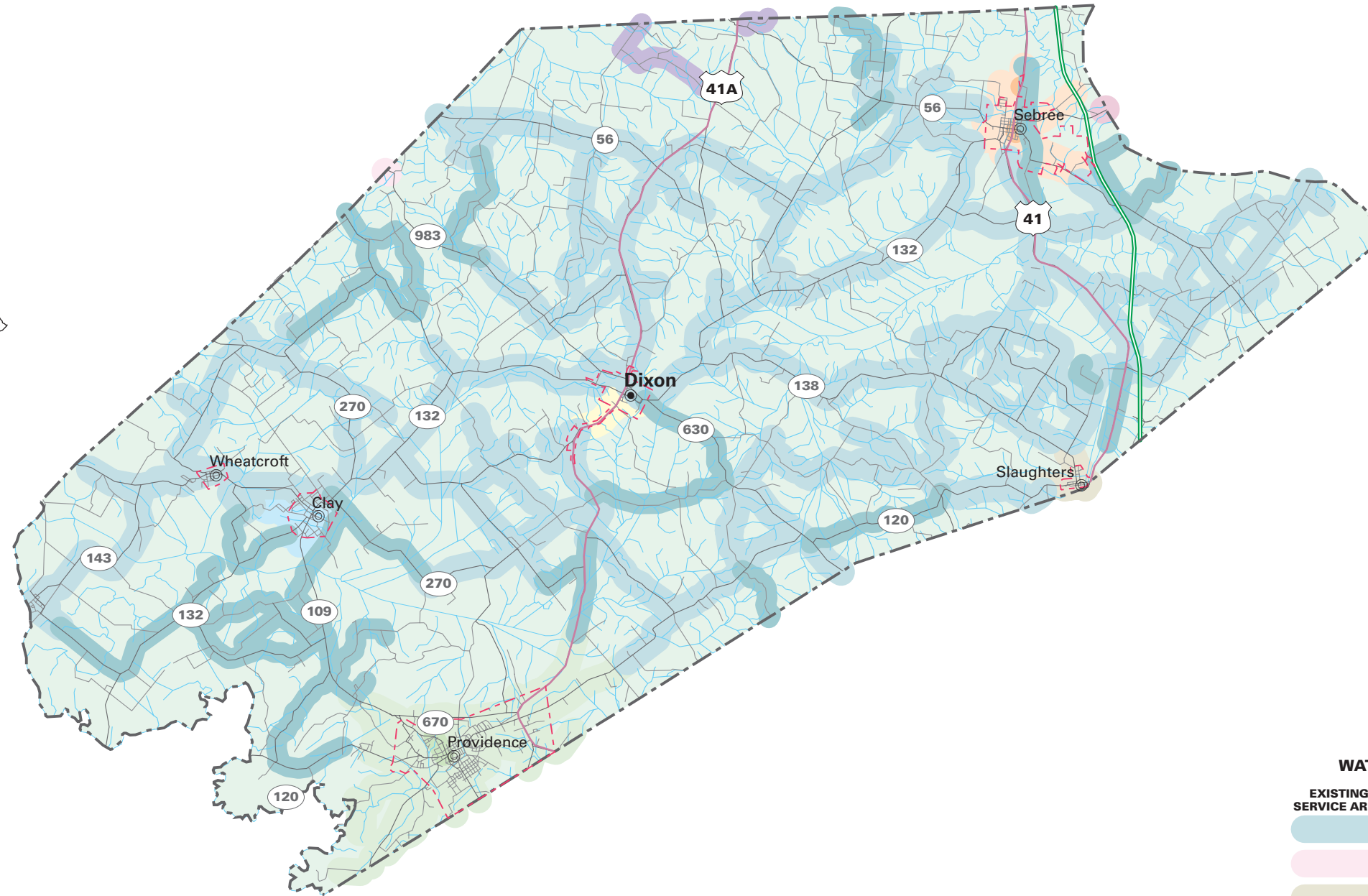
Bob Arnold, Chairman  
Lawrence Wetherby, Executive Director

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

Data Collection & GIS Input By:  
Kentucky Area Development Districts



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 SERVICE STATUS BY OWNER**

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		WEBSTER COUNTY WATER DISTRICT
		UNION COUNTY WATER DISTRICT
		SLAUGHTERS WATER WORKS
		SEBREE WATER DEPARTMENT
		PROVIDENCE WATER WORKS
		HENDERSON COUNTY WATER DISTRICT
		DIXON WATER DEPARTMENT
		CLAY WATER WORKS
		BEECH GROVE WATER BOARD

Purchase Source:  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production: ..... 0.00  
 Total Tank Storage Capacity (gallons):..... 500,000.00  
 Total Service Connections: ..... 650.00  
 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 Clay Water Works purchases treated water from the Webster County Water District (WCWD). Clay Water Works currently services approximately 617 residences in the city of Clay. The system purchases 120,000-gallons per day from WCWD. Clay maintains one 500,000-gallon tank. And a treatment plant with a design capacity of 162,800 gallons and a storage capacity of 60,000-gallons. On an average day the system produces approximately 120,000-gallons per day.

The Clay Water Works has multiple projects that it would like to undertake. The water district would like to upgrade some existing lines within the system. The district would also like to extend of lines to increase water pressure within certain areas. To meet current as well as future needs of the county, projects have been ranked by Clay Water Works system representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of the region.

**DIXON WATER DEPARTMENT**

PWSID: ..... 1170104  
 System Type:..... COMMUNITY  
 Owner Type: ..... MUNICIPAL  
 Surface Source:..... LAKE  
 Purchase Source:  
 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: .....	390.00
Number of Employees:.....	2.00
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 Dixon Water Department purchases treated water from the Webster County Water District (WCWD). The district currently services approximately 366 residences in the city of Dixon. The system purchases 70,000-gallons per day from WCWD.

The Dixon Water Works would like to upgrade existing 2-inch mains to 6-inch mains. The district would also like to extend a 4-inch line southwest out Hwy 41. To meet current as well as future needs of the county, projects have been ranked by Dixon Water Department system representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of the region.

**PROVIDENCE WATER WORKS**

PWSID:.....	1170361
System Type:.....	COMMUNITY
Owner Type:.....	MUNICIPAL
Surface Source:.....	TRADEWATER RIVER
Purchase Source:	
Well Source:	
Sells Water to:	
Treatment Plant Capacity (MGD):.....	1.50
Percent Daily Average Production: .....	49.00
Total Tank Storage Capacity (gallons):.....	500,000.00
Total Service Connections: .....	1,750.00
Number of Employees:.....	5.00
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 Providence Water Works currently draws water from New City Lake, Old City Lake, and the Tradewater River. The system currently services the residents in the city of Providence and the community of Diamond. Providence Water Works operates a treatment plant with a design capacity of 1,500,000 gallons per day. The district maintains two storage tanks with a combined storage capacity of 500,000 gallons. On an average day the system produces approximately 750,000 gallons per day to serve 1,750 customers. The water district has 2 certified employees for operation and distribution. The other employees provide billing and financial oversight.

The Providence Water Works would like to build a new 1.5-million gallon per day water treatment plant. The water district would also like to upgrade existing lines within the system, which have low pressure and a history of leakage problems. To meet current as well as future needs of the county, projects have been ranked by Providence Water Works system representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of the region

**SLAUGHTERS WATER WORKS**

PWSID: ..... 1170400  
 System Type:..... COMMUNITY  
 Owner Type:..... MUNICIPAL  
 Surface Source:  
 Purchase Source:  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 0.00  
 Percent Daily Average Production: ..... 0.00  
 Total Tank Storage Capacity (gallons):..... 500,000.00  
 Total Service Connections: ..... 254.00  
 Number of Employees:..... 1.00  
 Treatment Operator Class:..... 1D  
 Distribution Operator Class:  
 Customer Rate for 1,000 Gallons:..... 8.25  
 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 Slaughters Water Department purchases treated water from the Webster County Water District (WCWD). The district currently services approximately 239 residences in the city of Slaughters. The system purchases 40,000-gallons per day from WCWD. Slaughters Water Department currently maintains a storage tank with a 50,000-gallon storage capacity. The water district has 1 certified employees for operation and distribution. The other employees provide billing and financial oversight.

**WEBSTER COUNTY WATER DISTRICT**

PWSID: ..... 1170995  
 System Type:..... COMMUNITY  
 Owner Type:..... WATER DISTRICT  
 Surface Source:  
 Purchase Source:  
 Well Source:  
 Sells Water to:  
 Treatment Plant Capacity (MGD):..... 1.00  
 Percent Daily Average Production: ..... 84.00  
 Total Tank Storage Capacity (gallons):..... 300,000.00  
 Total Service Connections: ..... 1,220.00  
 Number of Employees:..... 11.00  
 Treatment Operator Class: .....2D  
 Distribution Operator Class: .....3A  
 Customer Rate for 1,000 Gallons:..... 6.70  
 O/M costs 1997:..... 614,547.00  
 O/M costs per Service Connection: ..... 480.11  
 Net Revenue 1997: ..... 79,622.00  
 Total Water Produced 1997 (gallons):..... 272,412,300.00  
 Water Sold 1997 (gallons):..... 262,676,237.00  
 Unaccounted-for Water 1997 (%): ..... 2.33

The Webster County Water District currently draws water from the Green River. The district sells water to Clay Water Works, Dixon Water Works, and Providence Water Works. The system currently services 1,200 customers in the areas of Webster County not served by other systems. WCWD operates a treatment plant with a design capacity of 1,000,000-gallons per day. On an average day the system produces approximately 750,000-gallons per day. The water district has 7 certified employees for operation and distribution. The other employees provide billing and financial oversight.

The Webster County Water District has several projects it would like to undertake. The water district proposes an interconnection with the Henderson South Treatment Plant to allow for an extension that would service the Webster County Industrial Park. The district

also proposes to complete several extension projects. To meet current as well as future needs of the county, projects have been ranked by Webster County Water District system representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of the region.

**SEBREE WATER DEPARTMENT**

PWSID: ..... 1170388  
System Type:..... COMMUNITY  
Owner Type:..... MUNICIPAL  
Surface Source:  
Purchase Source: ..... SEBREE WATER DEPARTMENT  
Well Source:  
Sells Water to:  
Treatment Plant Capacity (MGD):..... 0.00  
Percent Daily Average Production: ..... 0.00  
Total Tank Storage Capacity (gallons):..... 105,000.00  
Total Service Connections: ..... 643.00  
Number of Employees:..... 6.00  
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 Sebree Water Department serves 641 customers. The systems would like to connect existing lines to increase pressure and water volume for existing customers. The water district would also like to extend lines to provide service for planned developments. To meet current as well as future needs of the county, projects have been ranked by Sebree Water Department system representatives, elected officials, and the Green River Area Development District Water Supply Planning Council as being crucial to the future growth and development of the region.

## OTHER SYSTEMS:

### **WESTERN KENTUCKY ENERGY CORP/BIG RIVERS**

Western Kentucky Energy Corp/Big Rivers is located in Webster County. The system serves a population of 262 and has 2 service connections. The private, non-transient, non-community system has treatment capacity of 360,000 gallons per day. The water source is surface water from Green River.

## PRIVATE DOMESTIC SYSTEMS

About 2,000 people in Webster County rely on private domestic water supplies: 1,500 on wells and 500 on other sources.

In Webster County most wells that penetrate sandstone formations from depths of less than 300 feet are adequate for a domestic supply. In the highlands of the northwestern part of the county in the old Camp Breckinridge area only a few wells yield enough water for a domestic supply. In a thin highly faulted zone running east west across the county between the towns of Sebree and Tilden, yields to drilled wells are unpredictable due to the faulting.

Generally, ground water is hard to very hard and iron and salt may be present in objectionable amounts. Often ground water becomes saltier with depth.