

Water-Resource Development: A Strategic Plan

Summary of Water Systems Lincoln Trail Area Development District

Water Resource Development Commission

October, 1999

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Lincoln Trail Area Development District

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REGIONAL OVERVIEW

(Lincoln Trail ADD Existing & Proposed Water Lines Map)

- Estimated 1999 population of 231,000--79% on public water
- Estimated 2020 population of 268,000--82% on public water
- 2,750 miles of water lines, with plans for 470 additional miles
- Estimated funding needs for public water 2000-2005--\$23,400,000
- Estimated funding needs for public water 2006-2020--\$14,700,000

The Lincoln Trail Area Development District region had an estimated population of 230,912 (88,828 households) in 1999 with a projected population of 267,700 (111,100 households) in 2020. There are 2,750 miles of water lines in the region serving 182,000 people, or 79% of the region's population. 470 miles of proposed water line extensions for the period 2000-2020 would provide service to an additional 4,400 households. About 49,000 people in the region rely on private domestic water systems: 33,200 on wells, and 15,700 on hauled water and other sources.

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

County	1999 Pop	On Public	2020 Pop	On Public
Breckinridge	17,600	8,800 (50%)	19,600	10,800 (55%)
Grayson	23,600	19,600 (83%)	26,800	22,500 (84%)
Hardin	83,500	75,200 (90%)	86,200	81,000 (94%)
Larue	13,100	7,900 (60%)	14,700	9,600 (65%)
Marion	16,400	15,600 (95%)	17,400	16,500 (95%)
Meade	29,800	16,100 (54%)	42,900	27,000 (63%)
Nelson	36,300	33,000 (91%)	48,600	45,200 (93%)
Washington	10,700	5,900 (55%)	11,400	7,900 (69%)
Region	231,000	182,000 (79%)	268,000	220,000 (82%)

EXISTING & PROPOSED WATER LINES

LTADD Kentucky

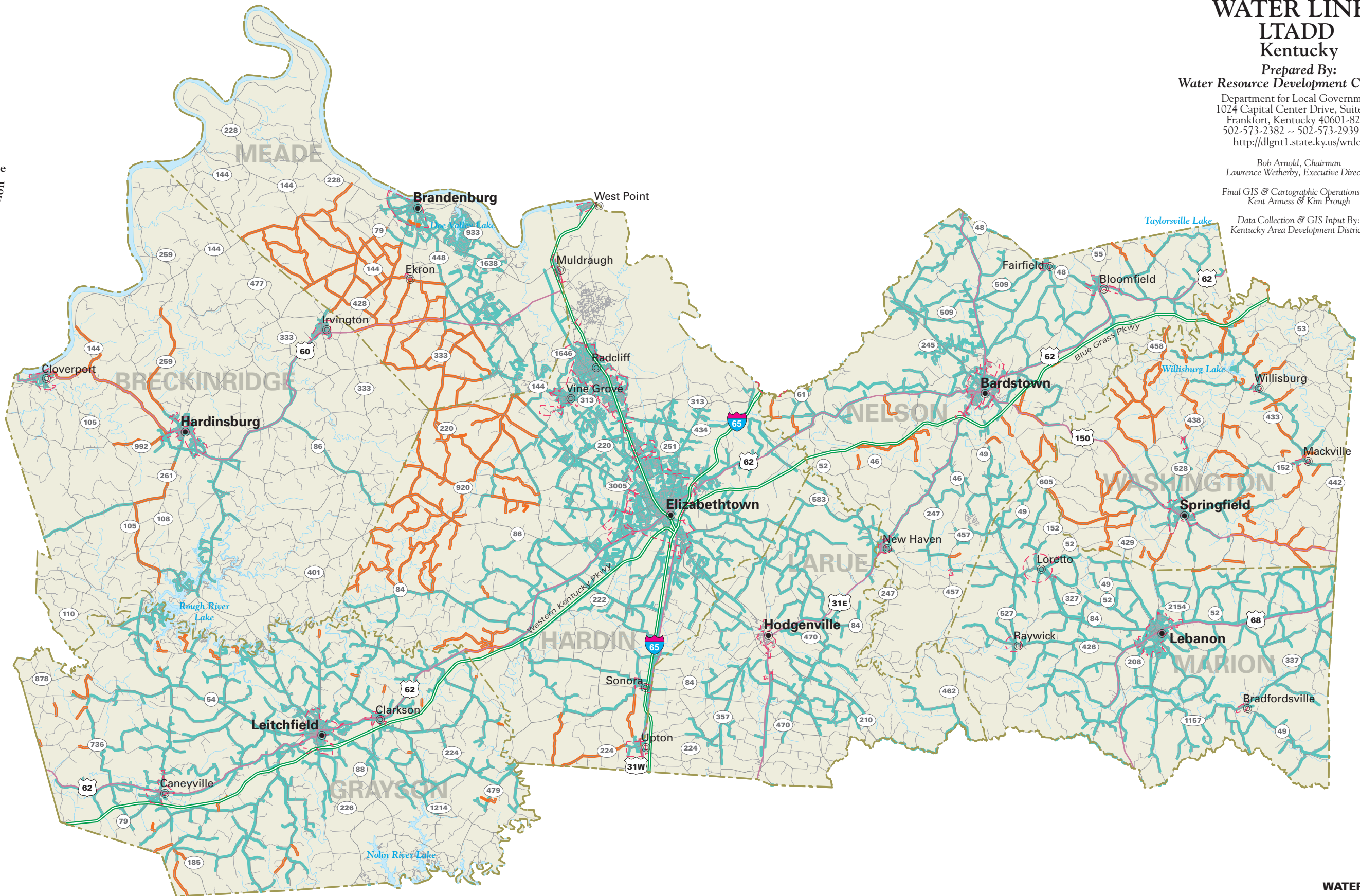
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LIMITATION OF LIABILITY: The Water Resource Development Commission has no reason to believe that there are any inaccuracies or defects in information incorporated in this work and make no representations of any kind, including, but not limited to, 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

36 public water systems serve the region: 29 community systems--17 municipal, 8 water districts, 3 private, 1 federal, and 7 non-community systems. There are 7 small (501 to 3,300 people served) community systems and 3 very small systems (less than 500 people served).

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

Estimated Costs - Proposed Projects, 2000-2005

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
BRECKINRIDGE								
City of Hardinsburg	24	237	1,000					1,000
TOTAL	24	237	1,000					1,000
GRAYSON								
Grayson County Water District	28	97	1,000				850	1,850
TOTAL	28	97	1,000				850	1,850
HARDIN								
Hardin Co. District #1	52	525	3,700				425	4,125
Hardin Co. District #2	33	436	2,268				425	2,693
TOTAL	85	961	5,968				850	6,818
LARUE	ALL	LINES	FUNDED					-
MARION	ALL	LINES	FUNDED					-
MEADE								
Meade County Water District	90	1040	4,000				2,000	6,000
TOTAL	90	1040	4,000				2,000	6,000
NELSON								
LaRue County Water district #1	11	67	325				850	1,175
Bardstown Municipal Water	34	250	1,045					1,045
TOTAL	45	317	1,370				850	2,220
WASHINGTON								
Springfield Water & Sewer Com.	110	700	3400				2,100	5,500
TOTAL	110	700	3,400				2,100	5,500
LINCOLN TRAIL	382	3,352	16,738	-	-	-	6,650	23,388

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
BRECKINRIDGE								-
City of Hardinsburg	10	203	900					900
TOTAL	10	203	900					900
								-
GRAYSON								-
Grayson County Water District								
TOTAL								
								-
HARDIN								-
Hardin Co. District #1	45	302	2,000					2,000
Hardin Co. District #2				7,400	300	800	1,250	9,750
TOTAL	45	302	2,000	7,400	300	800	1,250	11,750
								-
LARUE	ALL	LINES	FUNDED					-
								-
MARION	ALL	LINES	FUNDED					-
								-
MEADE								-
Brandenburg Water Works	5	46	300					300
Meade County Water District	23	500	1,500					1,500
TOTAL	28	546	1,800					1,800
								-
NELSON								-
Bloomfield	5	6	290					290
LaRue County Water district #1								-
Bardstown Municipal Water								-
TOTAL	5	6	290					290
								-
WASHINGTON								-
Springfield Water & Sewer Com.								-
TOTAL	0	0	-					0
								-
LINCOLN TRAIL	88	1,057	4,990	7,400	300	800	1,250	14,740

BRECKINRIDGE COUNTY

(Breckinridge County Water Service Area Map)

- Estimated 1999 population of 17,600--50% on public water
- Estimated 2020 population of 19,600--55% on public water
- 170 miles of water lines, with plans for 34 additional miles
- Estimated funding needs for public water 2000-2005--\$1,000,000
- Estimated funding needs for public water 2006-2020--\$900,000

Breckinridge County had an estimated population of 17,578 (7,276 households) in 1999 with a projected population of 19,636 (8,662 households) in 2020. Public water is provided to 3,900 customers, or about 50 percent of the county's residents. Even after proposed projects are considered there is still a significant portion of the county that will not be served. These areas are logistically and monetarily precluded from being served in the foreseeable future. In areas of the county not served by public water, about half the households rely on private domestic wells and half the households rely on other sources. About 440 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
BRECKINRIDGE								
City of Hardinsburg	24	237	1,000					1,000
TOTAL	24	237	1,000					1,000

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
BRECKINRIDGE								
City of Hardinsburg	10	203	900					900
TOTAL	10	203	900					900

PUBLIC WATER SYSTEMS

The residents of Breckinridge County are presently provided water by 6 providers: 3 municipal--The City of Hardinsburg, the City of Irvington and the City of Cloverport--2 private, community, and 1 non-community systems. Only the City of Hardinsburg is capable

WATER SERVICE AREAS BRECKINRIDGE COUNTY

Kentucky

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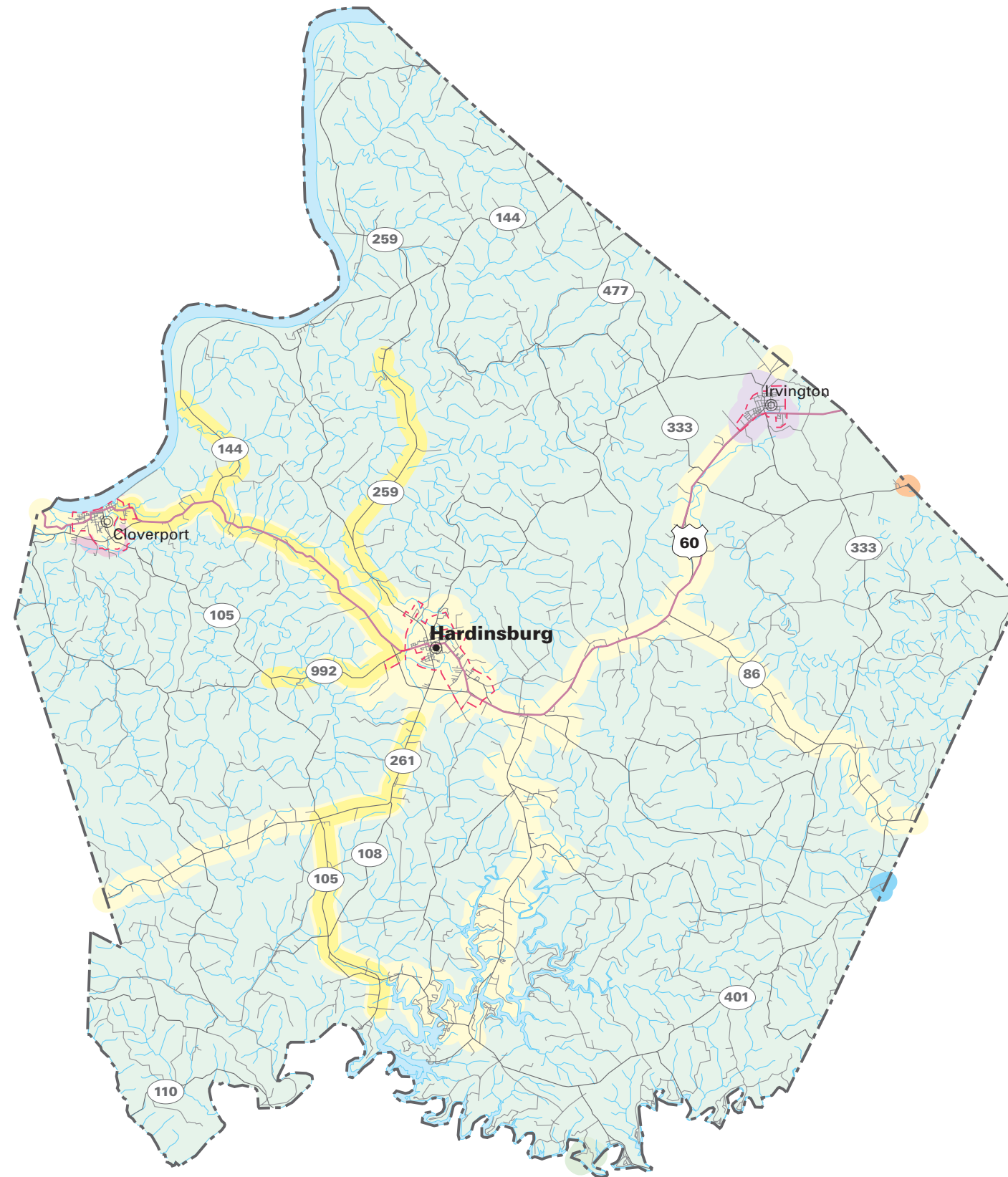
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WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		MEADE COUNTY WATER DISTRICT
		LEITCHFIELD WATER WORKS
		IRVINGTON WATER SYSTEM
		HARDINBURG WATER
		HARDIN COUNTY WATER DISTRICT #1
		CLOVERPORT WATER AND SEWER SYSTEM

of expansion. The others being very small communities and lacking funds to undertake such an endeavor.

There has been mention of a 3-4 MGD, \$6-\$8 million regional water treatment plant to be located near Cloverport. Since this is in the preliminary stages and has not been openly discussed by either municipality, it has not been included as a potential project, however it does deserve inclusion in the narrative.

HARDINSBURG WATER

PWSID: 0140966
 System Type:..... COMMUNITY
 Owner Type:..... MUNICIPAL
 Surface Source:..... ROUGH RIVER RESERVOIR
 Purchase Source:
 Well Source:
 Sells Water to:
 Treatment Plant Capacity (MGD):..... 1.80
 Percent Daily Average Production:..... 48.00
 Total Tank Storage Capacity (gallons): 1,160,000.00
 Total Service Connections: 2,776.00
 Number of Employees:..... 0.00
 Treatment Operator Class:2D
 Distribution Operator Class:.....3A
 Customer Rate for 1,000 Gallons:..... 4.74
 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 Hardinsburg gets its water from Rough River Lake. According to the Breckinridge County Water Supply Plan Rough River Lake has an adequate supply of water to support any future needs. The District currently services 2,776 customers in Breckinridge County. The Hardinsburg Water Treatment Plant, has a production capacity of approximately 1.8 million gallons per day. On the average, the plant produces approximately 695,000 gallons per day. The plant operates at approximately 39% of capacity. The City of Hardinsburg operates six storage tanks with a combined storage capacity of 1,162,000 gallons. The calculated charge for 4,000 gallons of treated water (residential usage) is currently \$18.35 within the city limits and \$19.55 outside the city limits, which when compared to the other water districts within Lincoln Trail ADD is considered reasonable.

After completion of proposed projects there will be approximately 3,841 total customers in the City of Hardinsburg Service Area.

CLOVERPORT WATER AND SEWER SYSTEM

PWSID: 0140079
 System Type:..... COMMUNITY
 Owner Type:..... MUNICIPAL
 Surface Source:
 Purchase Source:
 Well Source:
 Sells Water to:
 Treatment Plant Capacity (MGD):..... 0.40
 Percent Daily Average Production:..... 42.00
 Total Tank Storage Capacity (gallons): 0.00
 Total Service Connections: 614.00
 Number of Employees:..... 1.00
 Treatment Operator Class:
 Distribution Operator Class:..... 2BD
 Customer Rate for 1,000 Gallons:..... Not available
 O/M costs 1997:..... Not available
 O/M costs per Service Connection: Not available
 Net Revenue 1997: Not available
 Total Water Produced 1997 (gallons):..... Not available
 Water Sold 1997 (gallons):..... Not available
 Unaccounted-for Water 1997 (%): Not available

IRVINGTON WATER SYSTEM

PWSID: 0140206
 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): 0.00
 Total Service Connections: 0.00
 Number of Employees:..... 0.00
 Treatment Operator Class: 2D
 Distribution Operator Class:
 Customer Rate for 1,000 Gallons:..... Not available
 O/M costs 1997:..... Not available
 O/M costs per Service Connection: Not available
 Net Revenue 1997: Not available
 Total Water Produced 1997 (gallons):..... Not available
 Water Sold 1997 (gallons):..... Not available
 Unaccounted-for Water 1997 (%): Not available

OTHER SYSTEMS

RIVER BEND WATER SYSTEM

River Bend Water System is located in Breckinridge County. The private, community system serves a population of 200 and has 60 service connections. The water source is wells.

WILDWOOD ESTATES

Wildwood Estates is located in Breckinridge County. The system serves a population of 69 and has 21 service connections. The private, community system has treatment capacity of 28,800 gallons per day. The water source is wells.

CUSTER SCHOOL

Custer School is located in Breckinridge County. The system serves a population of 220 and has 1 service connection. The local, non-transient, non-community system has treatment capacity of 20,000 gallons per day. The water source is from cisterns.

PRIVATE DOMESTIC SYSTEMS

About 8,600 residents of Breckinridge County rely on private domestic water supplies: 4,300 on wells and 4,300 on other sources.

In the northwestern edge of Breckinridge County nearly all drilled wells in the alluvium of the Ohio River valley are adequate for domestic use with many wells yielding several hundred gallons per minute (gpm). Compound horizontal wells set in the alluvium may yield 5,000 gpm that is sufficient for a community or industrial supply. In the northern third, central highlands, and southeastern edge of Breckinridge County most drilled wells are adequate for a domestic supply. Yields as high as 100 gpm have been reported from wells penetrating fault zones. Depths of adequate wells range from 100 to 300 feet. In the remaining areas of the county only a few wells yield enough water for a domestic supply except in the lowland areas bordering streams where yields are sometimes sufficient for some wells to meet the supply needs for domestic use.

GRAYSON COUNTY

(Grayson County Water Service Area Map)

- Estimated 1999 population of 23,600--83% on public water
- Estimated 2020 population of 26,800--84% on public water
- 560 miles of water lines, with plans for 28 additional miles
- Estimated funding needs for public water 2000-2005--\$1,850,000
- Estimated funding needs for public water 2006-2020--\$0

Grayson County had an estimated population of 23,616 (9,659 households) in 1999 with a projected population of 26,811 (11,550 households) in 2020. Public water is provided to about 83 percent of the county's residents. In areas of the county not served by public water, about 2/3 of the households rely on private domestic wells and 1/3 of the households rely on other sources. About 100 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
GRAYSON								
Grayson County Water District	28	97	1,000				850	1,850
TOTAL	28	97	1,000				850	1,850

PUBLIC WATER SYSTEMS

The residents of Grayson County are presently provided water by six systems: 2 water districts, Grayson County Water District and Edmonson County Water District/Wax Plant; 2 municipalities, the Leitchfield Water Works and Caneyville Municipal Water Works; and 2 non-community systems. There are some areas of the county, which are impractical to serve by public water, mostly because of monetary constraints. There are other areas near Nolin Lake that are not feasible because there are no permanent inhabitants.

GRAYSON COUNTY WATER DISTRICT

PWSID: 0430616
 System Type:..... COMMUNITY
 Owner Type:..... WATER DISTRICT
 Surface Source:..... CANEYVILLE RESERVOIR
 Purchase Source: 259 SOUTH

WATER SERVICE AREAS GRAYSON COUNTY Kentucky

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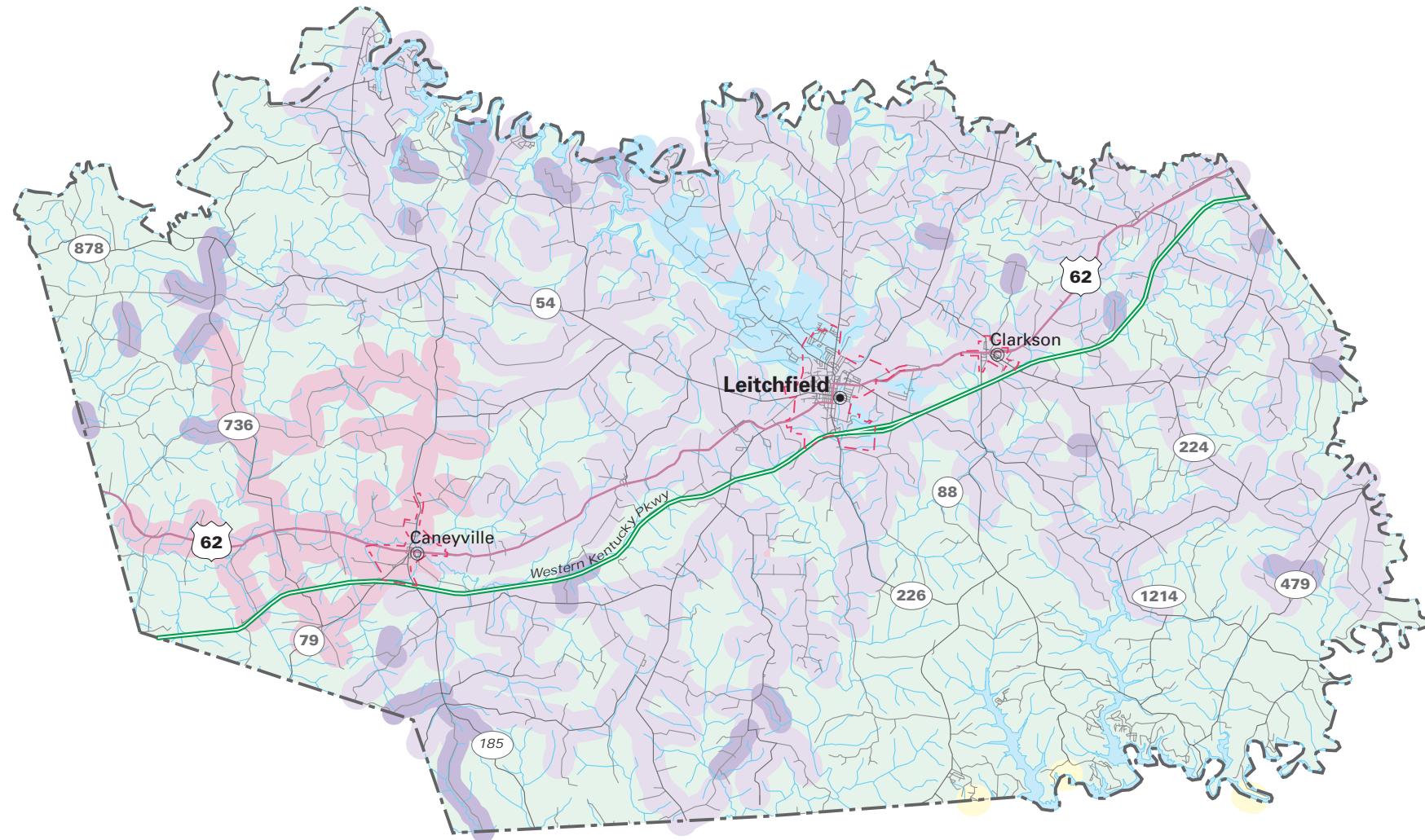
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WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		GRAYSON COUNTY WATER DISTRICT
		EDMONSON COUNTY WATER DISTRICT
		CITY OF LEITCHFIELD
		CITY OF CANEYVILLE WATER SYSTEM

Well Source:
 Sells Water to:

Treatment Plant Capacity (MGD):.....	0.29
Percent Daily Average Production:.....	0.00
Total Tank Storage Capacity (gallons):.....	1,000,000.00
Total Service Connections:	4,157.00
Number of Employees:.....	0.00
Treatment Operator Class:	2D
Distribution Operator Class:	
Customer Rate for 1,000 Gallons:.....	6.56
O/M costs 1997:.....	508,530.94
O/M costs per Service Connection:	123.40
Net Revenue 1997:	297,916.68
Total Water Produced 1997 (gallons):.....	0.00
Water Sold 1997 (gallons):.....	191,155,689.00
Unaccounted-for Water 1997 (%):	7.73

Grayson County Water District purchases its water from the City of Leitchfield, which in turn gets its water from the Rough River. According to the Grayson County Water Supply Plan Rough River has an adequate supply of water to support any future needs. The District currently services 4,157 customers in Grayson County. The City of Leitchfield Water Treatment Plant has a production capacity of approximately 2.7 million gallons per day. On the average, the plant produces approximately 2.0 million gallons per day. Approximately 74% of the design capacity is in use. Currently, the City of Leitchfield is in the process of upgrading the water treatment plant in order to alleviate problems with capacity. The District's storage system consists of five storage tanks located at various points within its service area. The total storage capacity of the district is 1,039,000 gallons, not including the storage capacity of the City of Leitchfield.

CANEYVILLE MUNICIPAL WATER WORKS

PWSID: 0430063
 System Type:..... COMMUNITY
 Owner Type:..... MUNICIPAL
 Surface Source:..... CANEYVILLE RESERVOIR
 Purchase Source:
 Well Source:
 Sells Water to:
 Treatment Plant Capacity (MGD):..... 0.00
 Percent Daily Average Production:..... 46.00
 Total Tank Storage Capacity (gallons):..... 123,000.00
 Total Service Connections: 680.00
 Number of Employees:..... 3.00
 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

LEITCHFIELD WATER WORKS

PWSID: 0430244
 System Type:..... COMMUNITY
 Owner Type:..... MUNICIPAL
 Surface Source:..... ROUGH RIVER
 Purchase Source:
 Well Source:
 Sells Water to:..... GRAYSON COUNTY WATER DISTRICT
 Treatment Plant Capacity (MGD):..... 2.70
 Percent Daily Average Production:..... 75.00
 Total Tank Storage Capacity (gallons):..... 200,000.00
 Total Service Connections: 2,500.00
 Number of Employees:..... 11.00
 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

EDMONSON COUNTY WATER DISTRICT/WAX PLANT

Edmonson County Water District/Wax Plant is located in Grayson County. The system serves a population of 12,612 and has 4,080 service connections. The district has treatment

capacity of 1,000,000 gallons per day. The water source is surface water from Nolin Reservoir.

OTHER SYSTEMS

ROUGH RIVER STATE PARK

Rough River State Park is located in Grayson County. The system serves a population of 200 and has 1 service connection. The state, non-transient, non-community system has treatment capacity of 144,000 gallons per day. The water source is surface water from Rough River Reservoir.

PINE KNOB DINER

Pine Knob Diner is located in Grayson County. The system serves a population of 250 and has 1 service connection. The private, transient, non-community system has treatment capacity of 2,000 gallons per day. The water source is wells.

PRIVATE DOMESTIC SYSTEMS

About 4,000 people in Grayson County rely on private domestic water supplies: 2,700 on wells, and 1,300 on other sources.

In the lowlands along the Rough River and the valleys draining into Caney Creek, and in the area extending 10 miles east and west from Leitchfield, most drilled wells are adequate for a domestic supply. Yields as high as 100 gpm have been reported from wells penetrating fault zones that are prominent in parts of Grayson County. Depths of adequate wells range from 100 to 300 feet. In the remaining areas of the county only a few wells yield enough water for a domestic supply except in the lowland areas bordering streams where yields are sometimes sufficient for some wells to meet the supply needs for domestic use.

HARDIN COUNTY

(Hardin County Water Service Area Map)

- Estimated 1999 population of 83,500--90% on public water
- Estimated 2020 population of 86,200--94% on public water
- 800 miles of water lines, with plans for 130 additional miles
- Estimated funding needs for public water 2000-2005--\$6,818,000
- Estimated funding needs for public water 2006-2020--\$11,750,000

Hardin County had an estimated population of 83,466 (31,520 households) in 1999 with a projected population of 86,175 (34,747 households) in 2020. Public water is provided to 28,400 customers, or 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 of the households rely on other sources. About 1,260 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
HARDIN								
Hardin Co. District #1	52	525	3,700				425	4,125
Hardin Co. District #2	33	436	2,268				425	2,693
TOTAL	85	961	5,968				850	6,818

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
HARDIN								
Hardin Co. District #1	45	302	2,000					2,000
Hardin Co. District #2				7,400	300	800	1,250	9,750
TOTAL	45	302	2,000	7,400	300	800	1,250	11,750

PUBLIC WATER SYSTEMS

The residents of Hardin County are presently provided water by Hardin County Water District #1, Hardin County Water District #2, the City of West Point, the City of Elizabethtown, the City of Vine Grove, and 1 federal community system. The City of Elizabethtown and the City of West Point have no potential expansion projects in mind and serve 100% of their service areas.

WATER SERVICE AREAS HARDIN COUNTY Kentucky

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<http://dlgnt1.state.ky.us/wrdc/>

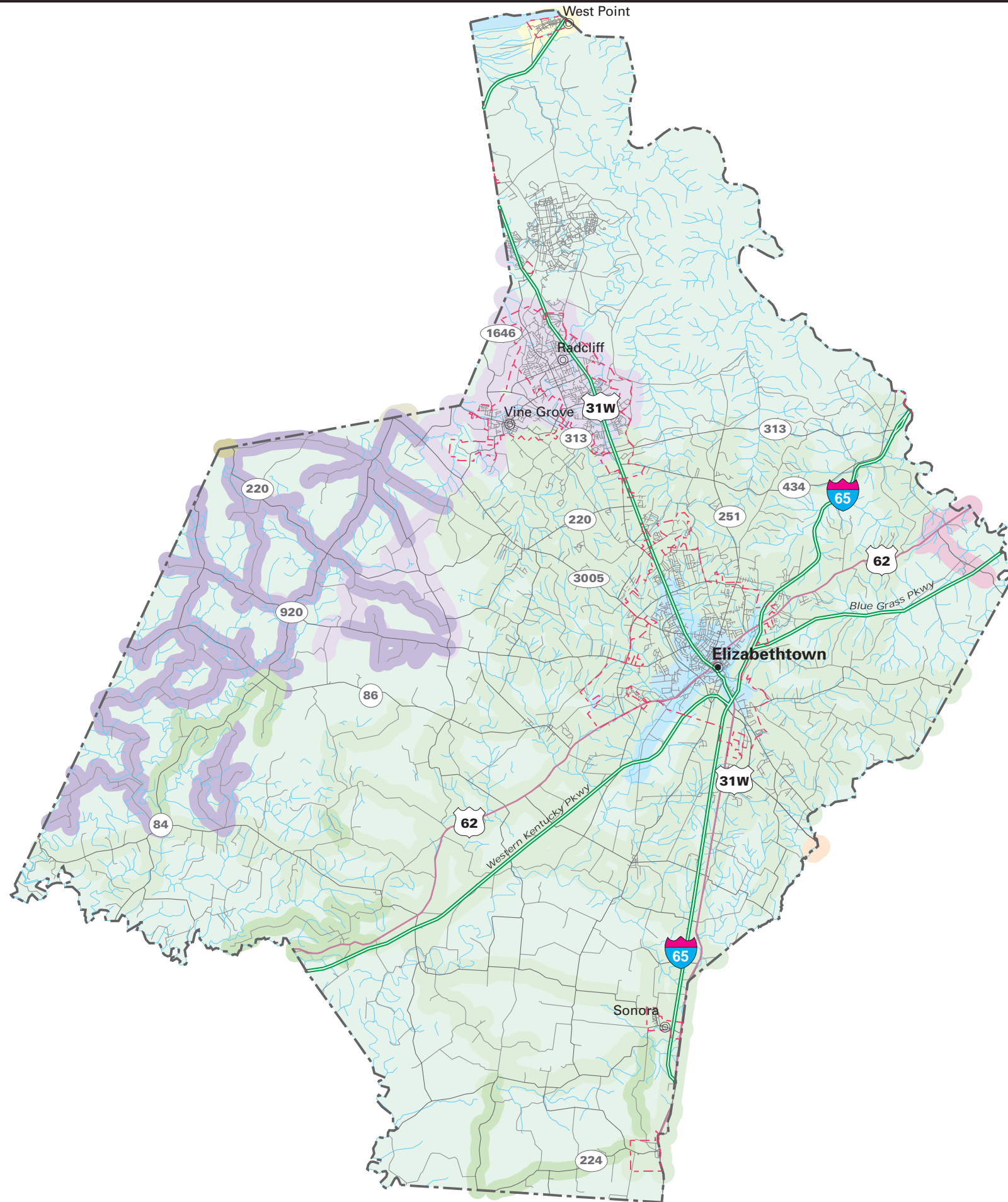
Bob Arnold, Chairman
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Final GIS & Cartographic Operations By:
Kent Anness & Kim Prough

Data Collection & GIS Input By:
Kentucky Area Development Districts



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WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		MEADE COUNTY WATER DISTRICT
		LARUE COUNTY WATER DISTRICT #1
		HARDIN COUNTY WATER DISTRICT #2
		HARDIN COUNTY WATER DISTRICT #1
		CITY OF WEST POINT
		CITY OF ELIZABETHTOWN
		CITY OF BARDSTOWN

HARDIN COUNTY WATER DISTRICT #1

PWSID:.....	0470393
System Type:.....	COMMUNITY
Owner Type:.....	WATER DISTRICT
Surface Source:.....	SANDERS SPRINGS
Purchase Source:	
Well Source:	
Sells Water to:	
Treatment Plant Capacity (MGD):.....	3.00
Percent Daily Average Production:.....	72.00
Total Tank Storage Capacity (gallons):.....	2,750,000.00
Total Service Connections:	8,882.00
Number of Employees:.....	24.00
Treatment Operator Class:.....	3D
Distribution Operator Class:.....	3A
Customer Rate for 1,000 Gallons:.....	3.77
O/M costs 1997:.....	1,425,577.00
O/M costs per Service Connection:	160.45
Net Revenue 1997:.....	60,428.00
Total Water Produced 1997 (gallons):.....	41,489,000.00
Water Sold 1997 (gallons):.....	906,889,000.00
Unaccounted-for Water 1997 (%):	11.86

Hardin County Water District #1 obtains water from Pirtle Spring, Gray Lane Well and they also purchase water from Ft. Knox Military Reservation. According to the Hardin County Water Supply Plan HCWD #1 has an adequate supply of water. The District currently services 8,882 customers in Hardin County. The Pirtle Spring Water Treatment Plant has a treatment capacity of 3.0 million gallons per day and averaged 1,973,850 gallons treated per day or roughly 66% of capacity. The District's storage system consists of four storage tanks located at various points within its service area. The total storage capacity of the district is 2,745,000 gallons.

Currently the district serves 8,882 customers. After the five projects proposed are completed, there will be there will be approximately 9,709 total customers in Hardin County Water District #1, and for all intents and purposes, the District will be roughly 100% serviced.

HARDIN COUNTY WATER DISTRICT #2

PWSID:.....	0470175
System Type:.....	COMMUNITY
Owner Type:.....	WATER DISTRICT
Surface Source:.....	NOLIN RIVER
Purchase Source:	
Well Source:	
Sells Water to:	

Treatment Plant Capacity (MGD):.....	2.70
Percent Daily Average Production:.....	70.00
Total Tank Storage Capacity (gallons):.....	4,200,000.00
Total Service Connections:	10,246.00
Number of Employees:.....	38.00
Treatment Operator Class:	3D
Distribution Operator Class:.....	3A
Customer Rate for 1,000 Gallons:.....	5.89
O/M costs 1997:.....	2,190,215.00
O/M costs per Service Connection:	215.70
Net Revenue 1997:	699,089.00
Total Water Produced 1997 (gallons):.....	680,024,900.00
Water Sold 1997 (gallons):.....	667,988,699.00
Unaccounted-for Water 1997 (%):	9.68

Hardin County Water District #2 obtains water from Nolin Lake and also purchases water from Hardin County Water District #1. According to the Hardin County Water Supply Plan HCWD #2 has an adequate supply of water. The District currently services 10,246 customers in Hardin County. The White Mills Water Treatment Plant has a treatment capacity of 2.7 million gallons per day and averaged 1.9 million gallons treated per day or roughly 70% of capacity. The District's storage system consists of eight storage tanks located at various points within its service area. The total storage capacity of the district is approximately 4,160,000 gallons.

Currently there are 10,246 customers. After the four projects proposed are completed, there will be approximately 10,687 total customers in Hardin County Water District #2, and the District will be roughly 100% serviced.

ELIZABETHTOWN WATER DEPARTMENT

PWSID: 0470118
 System Type:..... COMMUNITY
 Owner Type:..... MUNICIPAL
 Surface Source:..... GAITHERS SPRING
 Purchase Source:
 Well Source:
 Sells Water to:
 Treatment Plant Capacity (MGD):..... 0.00
 Percent Daily Average Production:..... 114.00
 Total Tank Storage Capacity (gallons):..... 0.00
 Total Service Connections: 7,453.00
 Number of Employees:..... 25.00
 Treatment Operator Class:3D
 Distribution Operator Class:.....4A
 Customer Rate for 1,000 Gallons:..... Not available
 O/M costs 1997:..... Not available
 O/M costs per Service Connection: Not available
 Net Revenue 1997:..... Not available
 Total Water Produced 1997 (gallons):..... Not available
 Water Sold 1997 (gallons):..... Not available
 Unaccounted-for Water 1997 (%): Not available

VINE GROVE

PWSID: 0470440
 System Type:..... COMMUNITY
 Owner Type:..... MUNICIPAL
 Surface Source:..... BRUSHY FORK
 Purchase Source: HARDIN COUNTY WATER DISTRICT #1
 Well Source:
 Sells Water to:
 Treatment Plant Capacity:..... 0.667
 Percent Daily Average Production: 0.00
 Total Tank Storage Capacity:..... 0.00
 Total Service Connections: 1450.00
 Number of Employees:..... NA
 Treatment Operator Class:2D
 Distribution Operator Class:.....3A
 Customer Rate for 1,000 Gallons:..... NA
 O/M costs 1997:..... NA
 O/M costs per Service Connection: NA
 Net Revenue 1997:..... NA
 Total Water Produced 1997:..... NA
 Water Sold 1997:..... NA
 Unaccounted-for Water 1997:..... NA

WEST POINT WATER DEPARTMENT

PWSID: 0470455
 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:.....	22.00
Total Tank Storage Capacity (gallons):.....	0.00
Total Service Connections:	450.00
Number of Employees:.....	3.00
Treatment Operator Class:	
Distribution Operator Class:.....	2BD
Customer Rate for 1,000 Gallons:.....	Not available
O/M costs 1997:.....	Not available
O/M costs per Service Connection:	Not available
Net Revenue 1997:	Not available
Total Water Produced 1997 (gallons):.....	Not available
Water Sold 1997 (gallons):.....	Not available
Unaccounted-for Water 1997 (%):	Not available

OTHER SYSTEMS

FORT KNOX / ENGR & HOUSING

Fort Knox / Engr & Housing is located in Hardin County. The system serves a population of 42,400 and has 3,290 service connections. The federal, community system has treatment capacity of 3,500,000 gallons per day. The water source is surface water Otter Creek.

PRIVATE DOMESTIC SYSTEMS

About 8,400 people in Hardin County rely on private domestic water supplies: 7,600 on wells and 800 on other sources.

In northern Hardin County nearly all drilled wells in the alluvium of the Ohio River valley are adequate for domestic use with many wells yielding several hundred gallons per minute (gpm). Compound horizontal wells set in the alluvium may yield 5,000 gpm, which is sufficient for a community or industrial use. In the Rough River lowlands in the southwestern corner of Hardin County most drilled wells are adequate for a domestic supply. Depths of drilled wells range from 60 to 300 feet. In much of central, eastern and northern Hardin County except in the lowlands of the mayor creeks and rivers, about three-fourth of the wells drilled yield enough water for a domestic supply. In the rest of the county very few wells yield enough water for a domestic supply except in a few lowland areas bordering streams where yields are sufficient for a few wells to meet the supply needs for domestic use.

Springs with flows ranging from a few gallons per minute too 3128 gpm are found throughout the county. Many of the springs are of the depression type and yield more than 100 gpm when pumped.

LARUE COUNTY

(Larue County Water Service Area Map)

- Estimated 1999 population of 13,100--60% on public water
- Estimated 2020 population of 14,700--65% on public water
- 235 miles of water lines
- Estimated funding needs for public water 2000-2005--\$0
- Estimated funding needs for public water 2006-2020--\$0

Larue County had an estimated population of 13,069 (5,482 households) in 1999 with a projected population of 14,703 (6,564 households) in 2020. Public water is provided to 3,200 customers, or about 60 percent of the county's residents. In areas of the county not served by public water, about 6 of 7 households rely on private domestic wells and 1 of 7 households rely on other sources.

Estimated Costs - Proposed Projects, 2000-2020

All Lines Funded

PUBLIC WATER SYSTEMS

Larue County Water District #1, the City of Hodgenville, and 2 non-community systems presently provide public water to the residents of Larue County.

LARUE COUNTY WATER DISTRICT #1

PWSID:.....	0620237
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):.....	100,000.00
Total Service Connections:	18,310.00
Number of Employees:.....	5.00
Treatment Operator Class:	2D
Distribution Operator Class:	
Customer Rate for 1,000 Gallons:.....	4.61
O/M costs 1997:.....	327,535.00
O/M costs per Service Connection:	180.96
Net Revenue 1997:.....	37,343.00

WATER SERVICE AREAS LARUE COUNTY Kentucky

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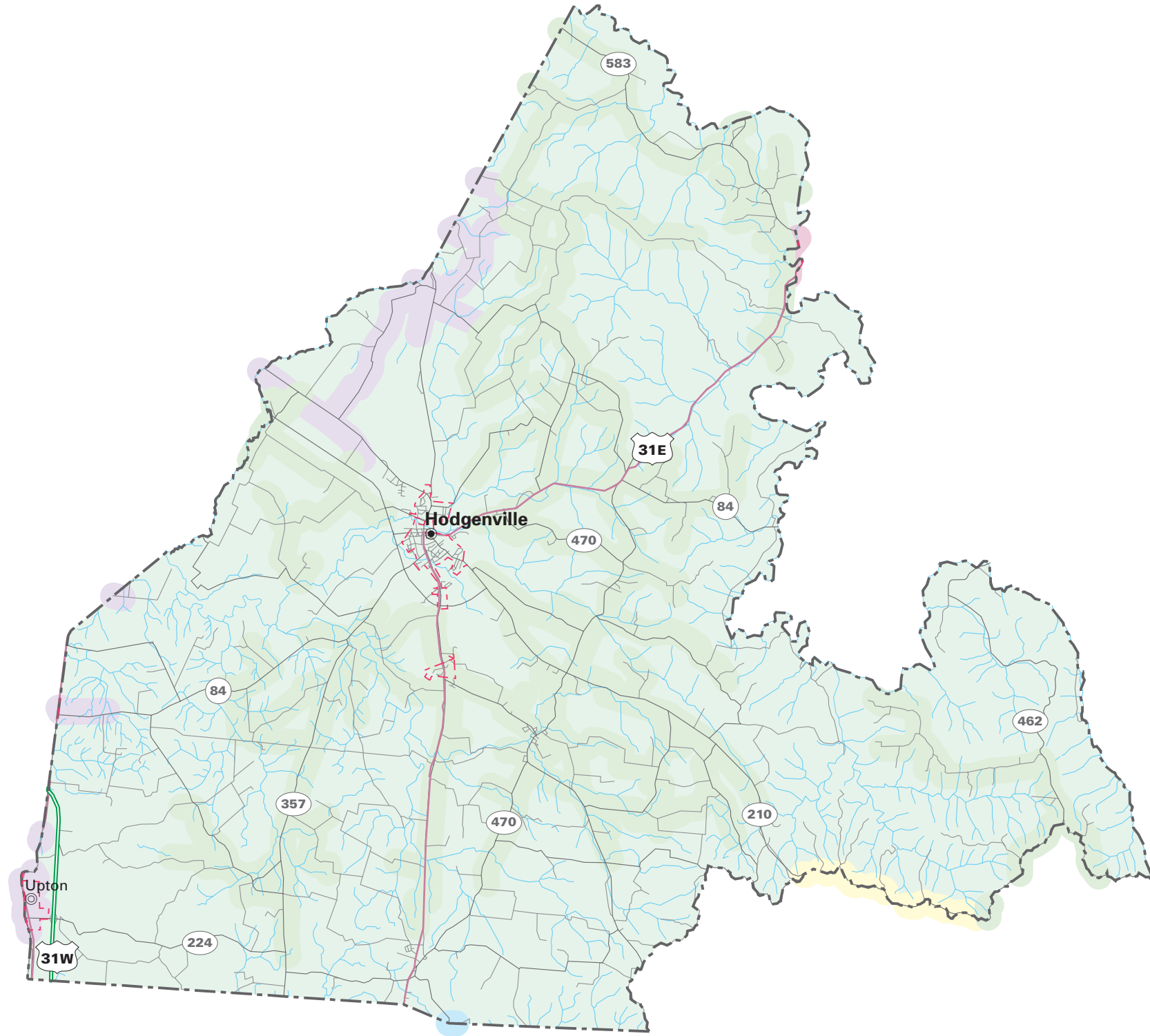
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WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		LARUE COUNTY WATER DISTRICT #1
		HARDIN COUNTY WATER DISTRICT #2
		GREENTAYLOR WATER DISTRICT
		GREEN RIVER VALLEY WATER DISTRICT
		CITY OF NEW HAVEN

Total Water Produced 1997 (gallons):.....	0.00
Water Sold 1997 (gallons):.....	118,839,000.00
Unaccounted-for Water 1997 (%):	5.07

Larue County Water District purchases its water from two primary sources: the City of Hodgenville and Green River Valley Water District, with four additional sources: the City of Bardstown, the City of New Haven, the City of Campbellsville and Hardin County Water District #2. According to the respective Water Supply Plans this represents an adequate supply of water. The District currently services 1,831 customers in Larue County. Two of the water districts that provide water to Larue County residents operate their own water treatment plants. The City of Hodgenville Water Treatment Plant has a treatment capacity of 500,000 gallons per day. In 1995 the plant treated an average of 406,000 gallons per day, or roughly at 81% capacity. The City of Hodgenville is currently in the process of upgrading its water treatment plant, this should alleviate an problems with diminished capacity. The Green River Valley Water District Treatment Plant has a treatment capacity of 4.0 million gallons per day and averaged 2,692,589 gallons treated per day or roughly 67% of capacity. As these are the two primary sources of water for Larue County Water District #1 and, as a whole, they are adequate enough to account for treated water for the LCWD #1. The District's storage system consists of five storage tanks located at various points within its service area. The total storage capacity of the district is 513,000 gallons

After the Western Larue Water Expansion Project is completed, there will be one area impractical for public water. This area is located in extreme eastern Larue County bordering on Marion County. According to the Larue County Water District #1 manager, this area is not serviceable because of cost constraints and topography. The Western Larue Water Expansion Project has already received funding.

Currently there are 1,831 customers. After completion of the proposed project there will be approximately 2,231 total customers in Larue and Nelson Counties.

HODGENVILLE WATER WORKS

PWSID:	0620200
System Type:.....	COMMUNITY
Owner Type:	MUNICIPAL
Surface Source:.....	NORTH FORK NOLIN RIVER
Purchase Source:	

Well Source:
 Sells Water to:

Treatment Plant Capacity:.....	0.504
Percent Daily Average Production:	93.00
Total Tank Storage Capacity:.....	0.00
Total Service Connections:	1335.00
Number of Employees:.....	NA
Treatment Operator Class:	2D
Distribution Operator Class:.....	3A
Customer Rate for 1,000 Gallons:.....	NA
O/M costs 1997:.....	NA
O/M costs per Service Connection:	NA
Net Revenue 1997:	NA
Total Water Produced 1997:.....	NA
Water Sold 1997:.....	NA
Unaccounted-for Water 1997:.....	NA

OTHER SYSTEMS

SLEEPY HOLLOW MOTEL & MARKET

Sleepy Hollow Motel & Market is located in Larue County. The system serves a population of 50 and has 1 service connection. The private, transient, non-community system has treatment capacity of 7,200. The water source is wells.

STUCKEY PECAN SHOP

Stuckey Pecan Shop is located in Larue County. The private, transient, non-community system serves a population of 75 and has 1 service connection.

PRIVATE DOMESTIC SYSTEMS

About 5,100 people in Larue County rely on private domestic water supplies: 4,400 on wells, and 700 on other sources.

In the western and central two-thirds of Larue County except in the lowlands of Nolin River and its major tributaries, about three-fourth of the wells drilled yield enough water for a domestic supply. In the rest of the county very few wells yield enough water for a domestic supply except in a few lowland areas bordering streams where yields are sufficient for a few wells to meet the supply needs for domestic use.

Springs with flows ranging from a few gallons per minute too 1330 gpm are found throughout the county. Many of the springs are of the depression type and yield more than 100 gpm when pumped.

MARION COUNTY

(Marion County Water Service Area Map)

- Estimated 1999 population of 16,400--95% on public water
- Estimated 2020 population of 17,400--95% on public water
- 375 miles of water lines
- Estimated funding needs for public water 2000-2005--\$0
- Estimated funding needs for public water 2006-2020--\$0

Marion County had an estimated population of 16,374 (6,343 households) in 1999 with a projected population of 17,416 (7,284 households) in 2020. Public water is provided to most of the county's residents. In areas of the county not served by public water, about 1/3 of the households rely on private domestic wells and 2/3 the households rely on other sources.

Estimated Costs - Proposed Projects, 2000-2020

All Lines Funded.

PUBLIC WATER SYSTEMS

The residents of Marion County are presently provided water by two systems: the Marion County Water District and the City of Lebanon.

MARION COUNTY WATER DISTRICT

PWSID: 0780268
 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): 728,000.00
 Total Service Connections: 4,091.00
 Number of Employees:..... 7.00
 Treatment Operator Class:2D
 Distribution Operator Class:
 Customer Rate for 1,000 Gallons:..... 4.21
 O/M costs 1997:..... 867,434.00
 O/M costs per Service Connection: 213.86
 Net Revenue 1997: 107,469.00
 Total Water Produced 1997 (gallons):..... 0.00

WATER SERVICE AREAS MARION COUNTY Kentucky

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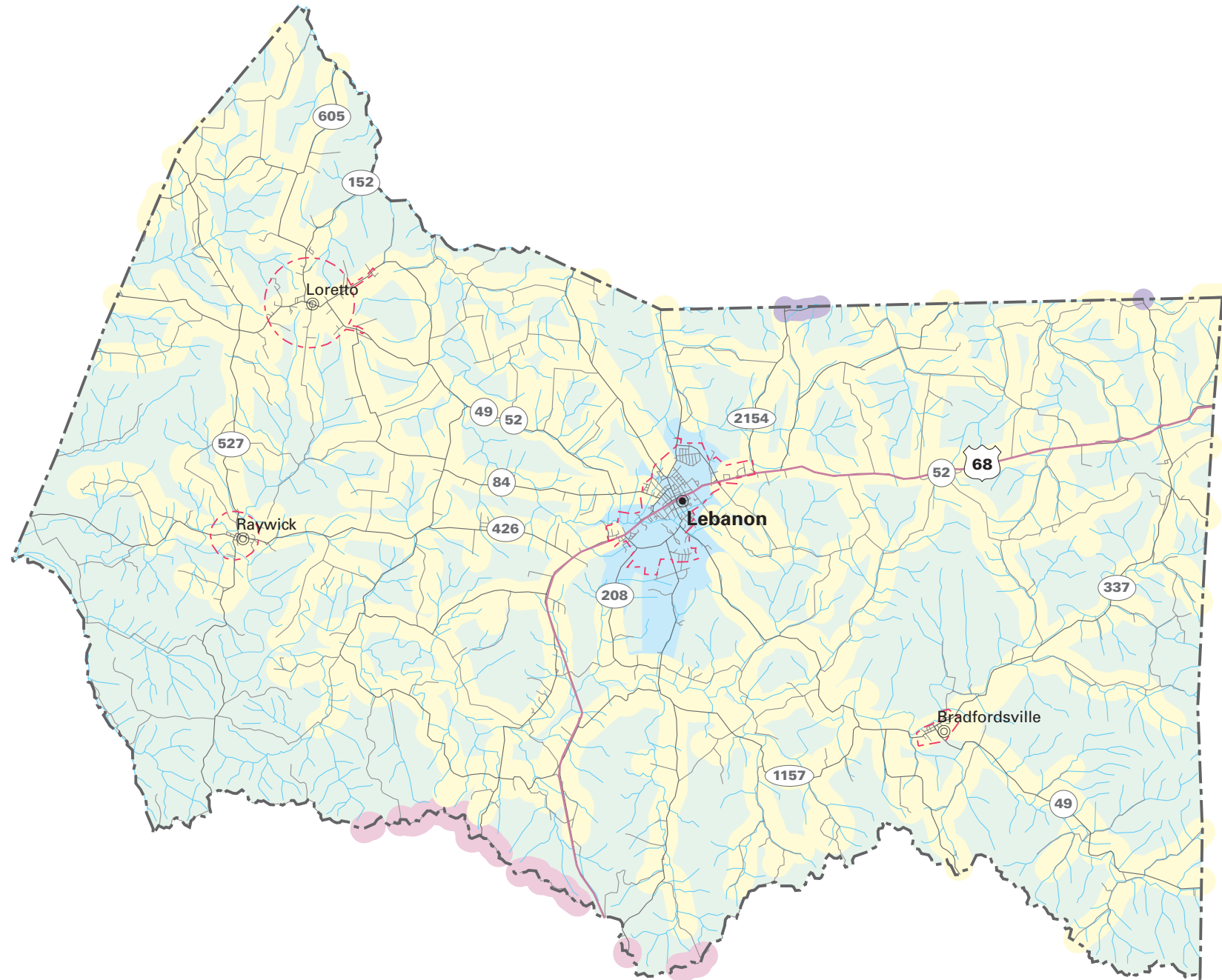
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WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		SPRINGFIELD WATER WORKS
		MARION COUNTY WATER DISTRICT
		CITY OF LEBANON
		CAMPBELLSVILLE MUNICIPAL WATER SYSTEM

Water Sold 1997 (gallons):.....	299,202,000.00
Unaccounted-for Water 1997 (%):	17.86

The Marion County Water District purchases its water from the City of Lebanon which in turn gets its water from the Rolling Fork River and Fagan Branch Reservoir. According to the Marion County Water Supply Plan, Rolling Fork River and Fagan Branch Reservoir have an adequate supply of water to support any future needs. The District currently services 4,276 customers in Marion County and a small portion of Nelson County. The City of Lebanon water treatment plant has a production capacity of approximately 4.0 million gallons per day. On the average, the plant produces approximately 2.0 million gallons per day. Approximately 55% of the design capacity is in use. The District's storage system consists of five storage tanks located at various points within its service area. The total storage capacity of the district is 728,000 gallons, not including the storage capacity of the City of Lebanon. A proposed project includes a 250,000-gallon storage tank, which will increase capacity to 978,000 gallons. After the Gap Knob Project is completed, there will be no remaining areas for the Marion County Water District to expand into. This project has already received funding.

Currently there are 4,276 customers. After completion of the proposed project there will be approximately 4,339 total customers in Marion and Nelson Counties. An area in the southeastern portion of the County is not likely to be served by public water. The area is mostly wooded and not currently inhabited by people or structures other than hunting cabins.

LEBANON WATER WORKS COMPANY INCORPORATED

PWSID: 0780241
System Type:..... COMMUNITY
Owner Type:..... MUNICIPAL
Surface Source:..... ROLLING FORK RIVER
Purchase Source:
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD):..... 4.50
Percent Daily Average Production:..... 88.00
Total Tank Storage Capacity (gallons):..... 940,000.00
Total Service Connections: 2,437.00
Number of Employees:..... 12.00
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

PRIVATE DOMESTIC SYSTEMS

About 800 people in Marion County rely on private domestic water supplies: 250 on wells, and 550 on other sources.

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

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

MEADE COUNTY

(Meade County Water Service Area Map)

- Estimated 1999 population of 29,800--54% on public water
- Estimated 2020 population of 42,900--63% on public water
- 180 miles of water lines, with plans for 120 additional miles
- Estimated funding needs for public water 2000-2005--\$6,000,000
- Estimated funding needs for public water 2006-2020--\$1,800,000

Meade County had an estimated population of 29,802 (9,700 households) in 1999 with a projected population of 42,900 (17,400 households) in 2020. If, indeed, this 50 percent projected increase in population occurs, it will have a significant impact on the public water systems. Public water is provided to about 54 percent of the county's residents. In areas of the county not served by public water, about 80 percent of the households rely on private domestic wells and 20 percent the households rely on other sources. About 1,590 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
MEADE								
Meade County Water District	90	1,040	4,000				2,000	6,000
TOTAL	90	1,040	4,000				2,000	6,000

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
MEADE								
Brandenburg Water Works	5	46	300					300
Meade County Water District	23	500	1,500					1,500
TOTAL	28	546	1,800					1,800

PUBLIC WATER SYSTEMS

Meade County Water District, the Brandenburg Water Works, Muldraugh Water Supply, Doe Valley Utilities, Inc., the Ekron Water Systems, and 5 non-community systems presently provide the residents of Meade County water.

WATER SERVICE AREAS MEADE COUNTY Kentucky

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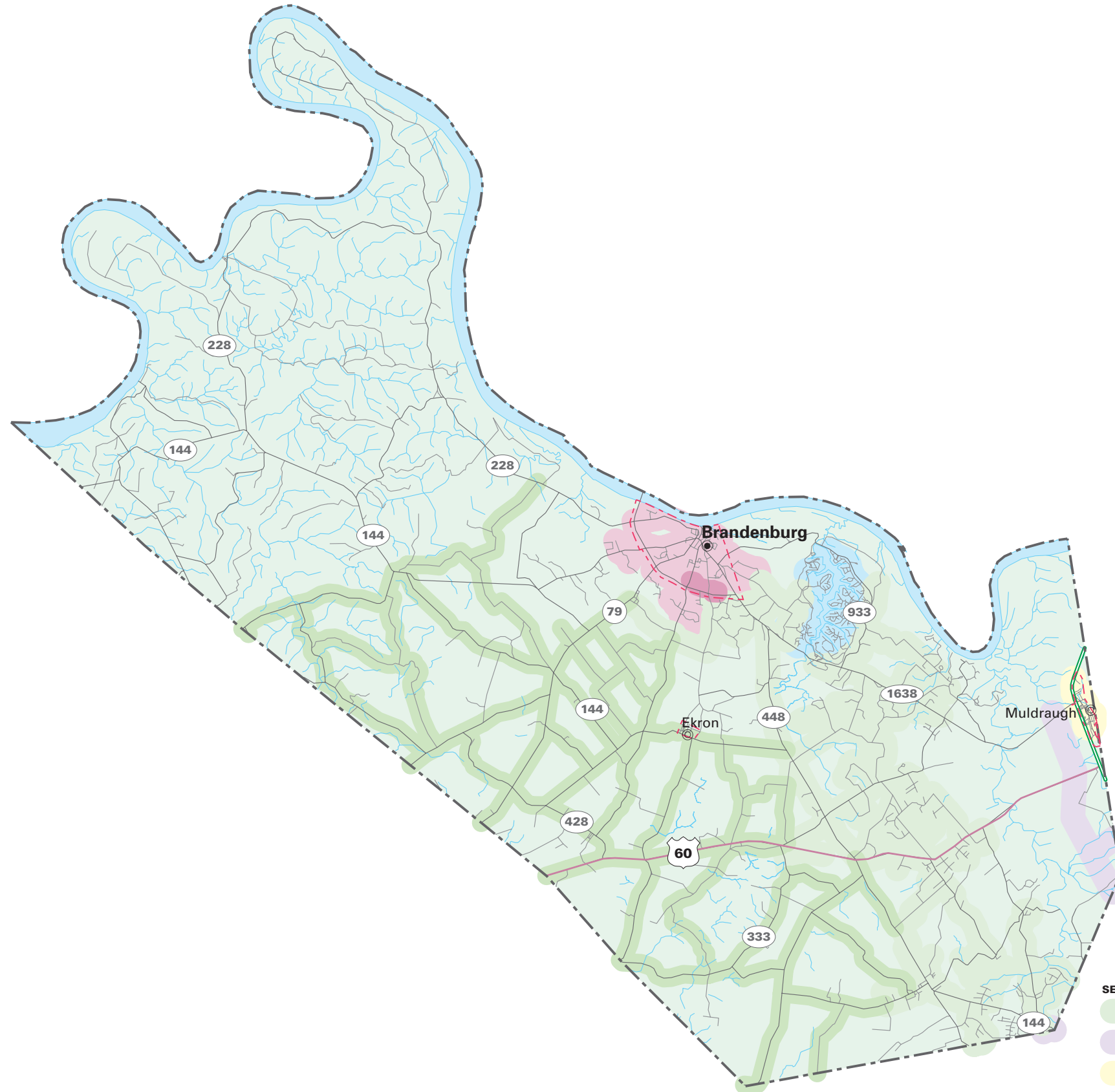
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WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		MEADE COUNTY WATER DISTRICT
		HARDIN COUNTY WATER DISTRICT #1
		CITY OF MULDRAUGH
		CITY OF DOE VALLEY
		BRANDENBURG WATER WORKS

MEADE COUNTY WATER DISTRICT

PWSID:.....	0820369
System Type:.....	COMMUNITY
Owner Type:.....	WATER DISTRICT
Surface Source:	
Purchase Source:	
Well Source:	Yes
Sells Water to:	
Treatment Plant Capacity (MGD):.....	0.00
Percent Daily Average Production:.....	3.00
Total Tank Storage Capacity (gallons):	400,000.00
Total Service Connections:	1,820.00
Number of Employees:.....	8.00
Treatment Operator Class:	
Distribution Operator Class:.....	2BD
Customer Rate for 1,000 Gallons:.....	8.01
O/M costs 1997:.....	438,083.00
O/M costs per Service Connection:	259.53
Net Revenue 1997:.....	156,102.00
Total Water Produced 1997 (gallons):.....	5,047,000.00
Water Sold 1997 (gallons):.....	100,025,046.00
Unaccounted-for Water 1997 (%):	3.36

Meade County Water District purchases its water from two primary sources: Brandenburg Water Works and Hardin County Water District #1. According to the respective Water Supply Plans, they have an adequate supply of water. The District currently services 1,820 customers in Meade County. The Brandenburg Water Works Water Treatment Plant has a treatment capacity of 701,000 gallons per day. The plant treated an average of 533,236 gallons per day in 1997, or roughly at 76% capacity. The City of Brandenburg is currently in the process of upgrading its water treatment plant, this should alleviate any problems with diminished capacity. The Pirtle Spring Water Treatment Plant for Hardin County Water District #1 has a treatment capacity of 3.0 million gallons per day and averaged 1,973,850 gallons treated per day or roughly 66% of capacity. The District's storage system consists of two storage tanks located at various points within its service area. The total storage capacity of the district is 400,000 gallons.

After the Payneville-Battletown Water Expansion Project is completed, there are no areas to be serviced within the Meade County Water District service area. For all intents and purposes, the District will be roughly 100% serviced. Currently there are 1,820 customers. After completion of the above-referenced project there will be approximately 2,420 total customers in Meade County Water District.

BRANDENBURG WATER WORKS

PWSID:.....	0820041
System Type:.....	COMMUNITY
Owner Type:.....	MUNICIPAL
Surface Source:	
Purchase Source:	
Well Source:	Yes
Sells Water to:	
Treatment Plant Capacity (MGD):.....	0.70
Percent Daily Average Production:.....	66.00
Total Tank Storage Capacity (gallons):	300,000.00
Total Service Connections:	1,041.00
Number of Employees:.....	4.00
Treatment Operator Class:	2D
Distribution Operator Class:.....	3A
Customer Rate for 1,000 Gallons:.....	3.77
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

Brandenburg Water Works obtains water from two wells adjacent to the Ohio River, #6 well and #7 well. According to the Meade County Water Supply Plan there is an adequate supply of water to service the City of Brandenburg. The Water Works currently services 1,041 customers in Meade County. The Brandenburg Water Works Water Treatment Plant has a treatment capacity of 701,000 gallons per day. The plant treated an average of 533,236 gallons per day in 1997, or roughly at 76% capacity. The City of Brandenburg is currently in the process of upgrading its water treatment plant, this should alleviate any problems with diminished capacity. The Water Works' storage system consists of two storage tanks located at various points within its service area. The total storage capacity of the Water Works is 300,000 gallons.

There are two expansion projects proposed by the Brandenburg Water Works involving new customers. When completed, there will no longer be a need to expand service beyond this as roughly 100% of residents within the service area will be provided with water. Currently there are 1,041 customers. After completion of the above referenced projects there will be approximately 1,087 total customers in Brandenburg Water Works. The Water Plant Upgrade Project has already begun.

MULDRAUGH WATER SUPPLY

PWSID: 0820481
 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):..... 0.00
 Total Service Connections: 300.00
 Number of Employees:..... 3.00
 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

DOE VALLEY UTILITIES INCORPORATED

PWSID: 0820641
 System Type:..... COMMUNITY
 Owner Type:..... PRIVATE
 Surface Source:..... DOE VALLEY LAKE
 Purchase Source:
 Well Source:
 Sells Water to:
 Treatment Plant Capacity (MGD):..... 0.00
 Percent Daily Average Production:..... 62.00
 Total Tank Storage Capacity (gallons):..... 0.00
 Total Service Connections: 0.00
 Number of Employees:..... 0.00
 Treatment Operator Class: 1D
 Distribution Operator Class:..... 2A
 Customer Rate for 1,000 Gallons:..... 3.50
 O/M costs 1997:..... 133,175.00
 O/M costs per Service Connection: 275.15
 Net Revenue 1997:..... 1,425.00
 Total Water Produced 1997 (gallons):..... 41,978,100.00
 Water Sold 1997 (gallons):..... 31,048,342.00
 Unaccounted-for Water 1997 (%): 8.96

EKRON WATER SYSTEM

Ekron Water System is located in Meade County. The system serves a population of 244 and has 74 service connections. The municipal, community system has treatment capacity of 94,000 gallons per day. The water source is wells.

Other Systems

BATTLETOWN ELEM SCHOOL

Battletown Elem School is located in Meade County. The system serves a population of 91 and has 1 service connection. The local, non-transient, non-community system has treatment capacity of 12,960 gallons per day. The water source is wells.

EKRON ELEMENTARY SCHOOL

Ekron Elementary School is located in Meade County. The system serves a population of 315 and has 1 service connection. The local, non-transient, non-community system has treatment capacity of 21,600 gallons per day. The water source is wells.

PAYNEVILLE ELEMENTARY SCHOOL

Payneville Elementary School is located in Meade County. The system serves a population of 225 and has 1 service connection. The local, non-transient, non-community system has treatment capacity of 12,960 gallons per day. The water source is wells.

OLIN CHEMICALS GROUP-DOE RUN

Olin Chemicals Group-Doe Run is located in Meade County. The system serves a population of 650 and has 1 service connection. The private, non-transient, non-community system has treatment capacity of 288,000 gallons per day. The water source is wells.

OTTER CREEK PARK

Otter Creek Park is located in Meade County. The system serves a population of 600 and has 238 service connections. The local, non-transient, non-community system has treatment capacity of 72,000 gallons per day. The water source is surface water from Otter Creek.

PRIVATE DOMESTIC SYSTEMS

About 13,700 people in Meade County rely on private domestic water supplies: 11,000 on wells, and 2,700 on other sources.

In northern Meade County nearly all drilled wells in the alluvium of the Ohio River valley are adequate for domestic use with many wells yielding several hundred gallons per minute (gpm). Compound horizontal wells set in the alluvium may yield 5,000 gpm, which is sufficient for a community or industrial supply. In the western corner of Meade County most drilled wells are adequate for a domestic supply. Depths of adequate wells range from 100 to 300 feet. In much of central and eastern Meade County except in the lowlands of the mayor creeks and rivers, about three-fourth of the wells drilled yield enough water for a domestic supply. In the lowlands very few wells yield enough water for a domestic supply except in a few lowland areas bordering streams where yields are sufficient for a few wells to meet the supply needs for domestic use.

Springs with flows ranging from a few gallons per minute too 2266 gpm are found throughout the county. Many of the springs are of the depression type and yield more than 100 gpm when pumped. The larger springs in the county have sufficient flows to be utilized for public or industrial water supplies.

NELSON COUNTY

(Nelson County Water Service Area Map)

- Estimated 1999 population of 36,300--91% on public water
- Estimated 2020 population of 48,600--93% on public water
- 360 miles of water lines, with plans for 50 additional miles
- Estimated funding needs for public water 2000-2005--\$2,220,000
- Estimated funding needs for public water 2006-2020--\$290,000

Nelson County had an estimated population of 34,277 (13,000 households) in 1999 with a projected population of 48,600 (20,000 households) in 2020. Public water is provided to over 90 percent of the county's residents. In areas of the county not served by public water, about half the households rely on private domestic wells and half the households rely on other sources. About 325 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
NELSON								
LaRue County Water district #1	11	67	325				850	1,175
Bardstown Municipal Water	34	250	1,045					1,045
TOTAL	45	317	1,370				850	2,220

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
NELSON								-
Bloomfield	5	6	290					290
LaRue County Water district #1								-
Bardstown Municipal Water								-
TOTAL	5	6	290					290

PUBLIC WATER SYSTEMS

The Nelson County water service system is unlike any of the other counties in the Lincoln Trail Area Development District. There are currently six water service distributors in the county: the City of Bardstown, the City of New Haven, the City of Bloomfield, North

WATER SERVICE AREAS

NELSON COUNTY

Kentucky

Prepared By:
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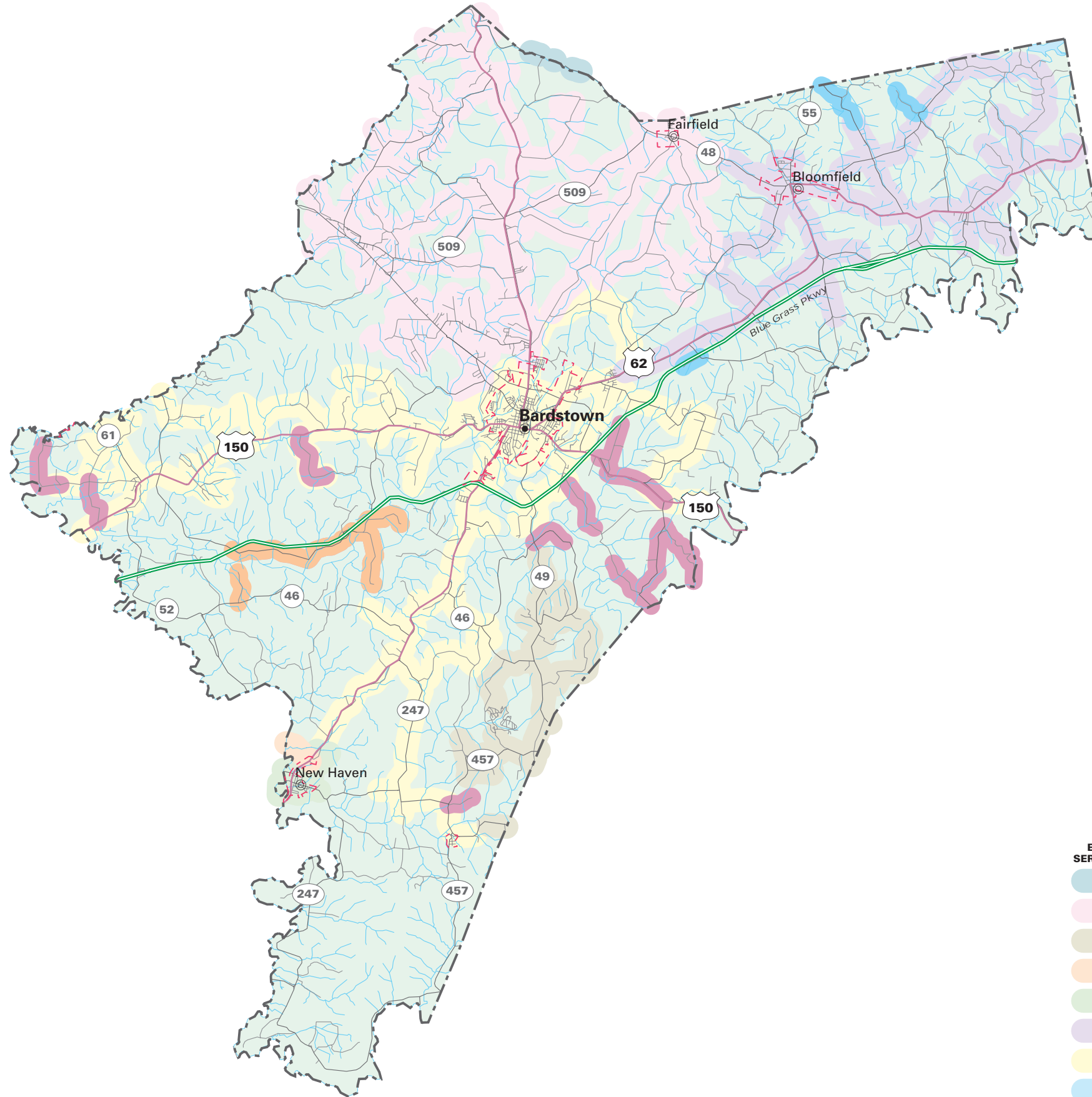
Bob Arnold, Chairman
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Final GIS & Cartographic Operations By:
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Data Collection & GIS Input By:
 Kentucky Area Development Districts



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WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		TAYLORSVILLE WATER WORKS
		NELSON COUNTY WATER DISTRICT
		MARION COUNTY WATER DISTRICT
		LARUE COUNTY WATER DISTRICT #1
		CITY OF NEW HAVEN
		CITY OF BLOOMFIELD
		CITY OF BARDSTOWN
		BLOOMFIELD WATER AND SEWERAGE DEPARTMENT
		BARDSTOWN MUNICIPAL WATER DEPARTMENT

Nelson Water District, Marion County Water District and Larue County Water District #1. There are also 4 non-community systems.

As the county is provided water by so many different entities, some of which are not headquartered in the county a different approach was necessary to undertake a plan for future expansion. The first step was to get an overall, countywide, perspective. After contacting the local Water Districts, the County Judge/Executive and the County Engineer, a plan of action was derived for the entire county. Roads within the county that currently do not have water service were indicated on a map. Of these areas there were primarily three projects as each would be under the jurisdiction of a separate entity. The total cost of the projects is approximately \$1.5-\$2.0 million, while serving approximately 250 customers with approximately 34 miles of water line. As indicated during the initial discussions, these are the only roads in the County that currently do not have service, all of them can be served; therefore, there are no areas in the County that can not be served.

Of the six water entities in Nelson County, the City of New Haven, North Nelson Water District and Marion County Water District have no anticipated expansions. Marion County Water District is currently expanding into a small portion of Nelson County.

LARUE COUNTY WATER DISTRICT #1

Larue County Water District purchases its water from two primary sources: the City of Hodgenville, Green River Valley Water District with four additional sources: the City of Bardstown, the City of New Haven, the City of Campbellsville and Hardin County Water District #2. According to the respective Water Supply Plans they have an adequate supply of water. Two of the water districts that provide water to Larue County residents operate their own water treatment plants. The City of Hodgenville Water Treatment Plant has a treatment capacity of 500,000 gallons per day. In 1995 the plant treated an average of 406,000 gallons per day, or roughly at 81% capacity. The City of Hodgenville is currently in the process of upgrading its water treatment plant, this should alleviate any problems with diminished capacity. The Green River Valley Water District Treatment Plant has a treatment capacity of 4.0 million gallons per day and averaged 2,692,589 gallons treated per day or roughly 67% of capacity. As these are the two primary sources of water for Larue

County Water District #1 and as a whole they are adequate enough to account for treated water for the LCWD #1, it would be too cumbersome to include the other sources. The District's storage system consists of five storage tanks located at various points within its service area. The total storage capacity of the district is 513,000 gallons. The calculated charge for 4,000 gallons of treated water (residential usage) is currently \$21.78 which, when compared to the other Water Districts within Lincoln Trail ADD, is considered quite reasonable.

The water district is currently undertaking a project that will bring water to the Howardstown area of Nelson County. At this time they are adding new roads to that project. Currently, within the Larue County Water District #1 Service Area in Nelson County there are a total of six roads with inhabitants that do not currently have water service. Working with the Nelson County Fiscal Court and the people of Nelson County, it is the goal of Larue County Water District #1 to serve these people.

BLOOMFIELD WATER AND SEWERAGE DEPARTMENT

PWSID: 0900031
 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): 485,000.00
 Total Service Connections: 1,201.00
 Number of Employees:..... 3.00
 Treatment Operator Class:2D
 Distribution Operator Class:
 Customer Rate for 1,000 Gallons:..... 4.66
 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 Bloomfield purchases its water from the City of Bardstown. According to the Nelson County Water Supply Plan, they have an adequate supply of water. The City of Bloomfield currently serves 1,201 customers in their service area. The Bardstown Municipal

water treatment plant has a treatment capacity of six million gallons per day. In 1997 the plant treated an average of 4.5 million gallons per day, or roughly at 75% capacity. The city's storage system consists of two storage tanks located at various points within its service area. The total storage capacity of the city is 485,000 gallons. The calculated charge for 4,000 gallons of treated water (residential usage) is currently \$15.25 within the city limits and \$22.05 outside the city limits, which when compared to the other municipal systems within Lincoln Trail ADD, is considered reasonable.

The city is currently undertaking a \$1,319,462 project that will bring water to several roads in the Bloomfield Service area of Nelson County. The project consists of 31.6 miles of line and 126 new customers. When this project is complete, the total number of customers will be approximately 1,327.

BARDSTOWN MUNICIPAL WATER DEPARTMENT

PWSID:.....	0900017
System Type:.....	COMMUNITY
Owner Type:.....	MUNICIPAL
Surface Source:.....	SYMPSON LAKE
Purchase Source:	
Well Source:	
Sells Water to:.....	LEBANON JUNCTION WATER WORKS
Treatment Plant Capacity (MGD):.....	6.00
Percent Daily Average Production:.....	75.00
Total Tank Storage Capacity (gallons):.....	4,000,000.00
Total Service Connections:.....	12,000.00
Number of Employees:.....	5.00
Treatment Operator Class:.....	3D
Distribution Operator Class:.....	4A
Customer Rate for 1,000 Gallons:.....	2.46
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

Bardstown Municipal Water Department obtains its water from Sympson Lake. Bardstown Municipal Water Department serves approximately 12,000 customers in the City of Bardstown, Nelson County, Washington County and Hardin County. According to the Nelson County Water Supply Plan, Bardstown has an adequate supply of water. The Bardstown Municipal Water Treatment Plant has a treatment capacity of six million gallons

per day. In 1997 the plant treated an average of 4.5 million gallons per day, or roughly at 75% capacity. The Water Department's storage system consists of 11 storage tanks located at various points within its service area. The total storage capacity of the district is 3,953,400 gallons. The calculated charge for 4,000 gallons of treated water (residential usage) is currently \$8.51 within the city limits and \$11.14 outside the city limits which, when compared to the other water districts within Lincoln Trail ADD, is considered very reasonable.

Currently the Water Department is considering expansion to several rural areas of Nelson County. Currently there are 12,000 customers of the Bardstown Municipal Water Department, after expansion, there should be approximately 170 additional customers.

NEW HAVEN MUNICIPAL WATER WORKS

PWSID: 0900312
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): 209,000.00
Total Service Connections: 534.00
Number of Employees:..... 4.00
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

NORTH NELSON COUNTY WATER DISTRICT

PWSID: 0900323
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):	0.00
Total Service Connections:	2,724.00
Number of Employees:	4.00
Treatment Operator Class:	2D
Distribution Operator Class:	
Customer Rate for 1,000 Gallons:	3.21
O/M costs 1997:	483,037.00
O/M costs per Service Connection:	198.29
Net Revenue 1997:	2,195.00
Total Water Produced 1997 (gallons):	0.00
Water Sold 1997 (gallons):	187,880,500.00
Unaccounted-for Water 1997 (%):	13.01

MARION COUNTY WATER DISTRICT

The Marion County Water District purchases its water from the City of Lebanon, which in turn gets its water from the Rolling Fork River and Fagan Branch Reservoir. According to the Marion County Water Supply Plan, Rolling Fork River and Fagan Branch Reservoir have an adequate supply of water to support any future needs. The District currently services 4,276 customers in Marion County and a small portion of Nelson County. The City of Lebanon water treatment plant has a production capacity of approximately 4.0 million gallons per day. On the average, the plant produces approximately 2.0 million gallons per day. Approximately 55% of the design capacity is in use. The district's storage system consists of five storage tanks located at various points within its service area. The total storage capacity of the district is 728,000 gallons, not including the storage capacity of the City of Lebanon. A proposed project includes a 250,000-gallon storage tank that will increase capacity to 978,000 gallons. The calculated charge for 4,000 gallons of treated water (residential usage) is currently \$20.70 which, when compared to the other water districts within Lincoln Trail ADD, is considered quite reasonable. The system had operating and management cost of \$880,283 and net revenue of \$107,469 for the period 12/31/96 - 12/31/97. The system purchased 364,525,000 gallons and sold 299,202,000 gallons for the period 12/31/96 - 12/31/97. Overall system losses were 18% for the same period. Operating and management costs per service connection are \$215.

OTHER SYSTEMS

ST. MARTIN DEPORRES DOMINICAN COMMUNITY

St. Martin Deporres Dominican Community is located in Nelson County. The system serves a population of 55 and has 2 service connections. The private, non-transient, non-community system has treatment capacity of 1,500 gallons per day. The water source is purchased from Gethsemani.

ST. ANNS SCHOOL

St. Anns School is located in Nelson County. The system serves a population of 40 and has 3 service connections. The local, non-transient, non-community system has treatment capacity of 10,000 gallons per day. The water source is wells.

HOWARDSTOWN MINI MART

Howardstown Mini Mart is located in Nelson County. The system serves a population of 50 and has 1 service connection. The private, transient, non-community system has treatment capacity of 6,000 gallons per day. The water source is wells.

ST. ROSE SCHOOL/DEPORRES DOMINICAN COMMUNITY

St. Rose School/Deporres Dominican Community is located in Nelson County. The system serves a population of 55 and has 1 service connection. The private, non-transient, non-community system purchases water from Bardstown.

PRIVATE DOMESTIC SYSTEMS

About 3,500 people in Nelson County rely on private domestic water systems, about half on wells, and half on other sources.

In the larger valley bottoms of the Rolling Fork and Beech Fork of the Salt River, most drilled wells in the valley will produce enough water for a domestic supply at depths of less than 100 feet. Wells located in the rest of the larger valleys throughout the county will produce enough water for a domestic supply except during dry weather. In the upland areas of Nelson County, which encompasses approximately 70% of the county, most drilled wells will not produce enough water for a dependable domestic supply except along drainage lines that may produce enough water except during dry weather.

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

WASHINGTON COUNTY

(Washington County Water Service Area Map)

- Estimated 1999 population of 10,700--55% on public water
- Estimated 2020 population of 11,400--69% on public water
- 100 miles of water lines, with plans for 110 additional miles
- Estimated funding needs for public water 2000-2005--\$5,500,000
- Estimated funding needs for public water 2006-2020--\$0

Washington County had an estimated population of 10,730 (4,200 households) in 1999 with a projected population of 11,400 (5,000 households) in 2020. Public water is provided to 2,480 customers, or about 55 percent of the county's residents. In areas of the county not served by public water, about 1/4 the households rely on private domestic wells and 3/4 the households rely on other sources. About 700 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
WASHINGTON							
Springfield Water & Sewer Com.	110	700	3400			2,100	5,500
TOTAL	110	700	3,400			2,100	5,500

PUBLIC WATER SYSTEMS

The residents of Washington County are presently provided water by The Springfield Water & Sewer Commission.

SPRINGFIELD WATER WORKS

PWSID: 1150415
 System Type:..... COMMUNITY
 Owner Type:..... MUNICIPAL
 Surface Source:..... CITY RESERVOIR
 Purchase Source:
 Well Source:
 Sells Water to:
 Treatment Plant Capacity (MGD):..... 2.00
 Percent Daily Average Production:..... 46.00
 Total Tank Storage Capacity (gallons): 750,000.00
 Total Service Connections: 2,480.00
 Number of Employees:..... 13.00

WATER SERVICE AREAS WASHINGTON COUNTY Kentucky

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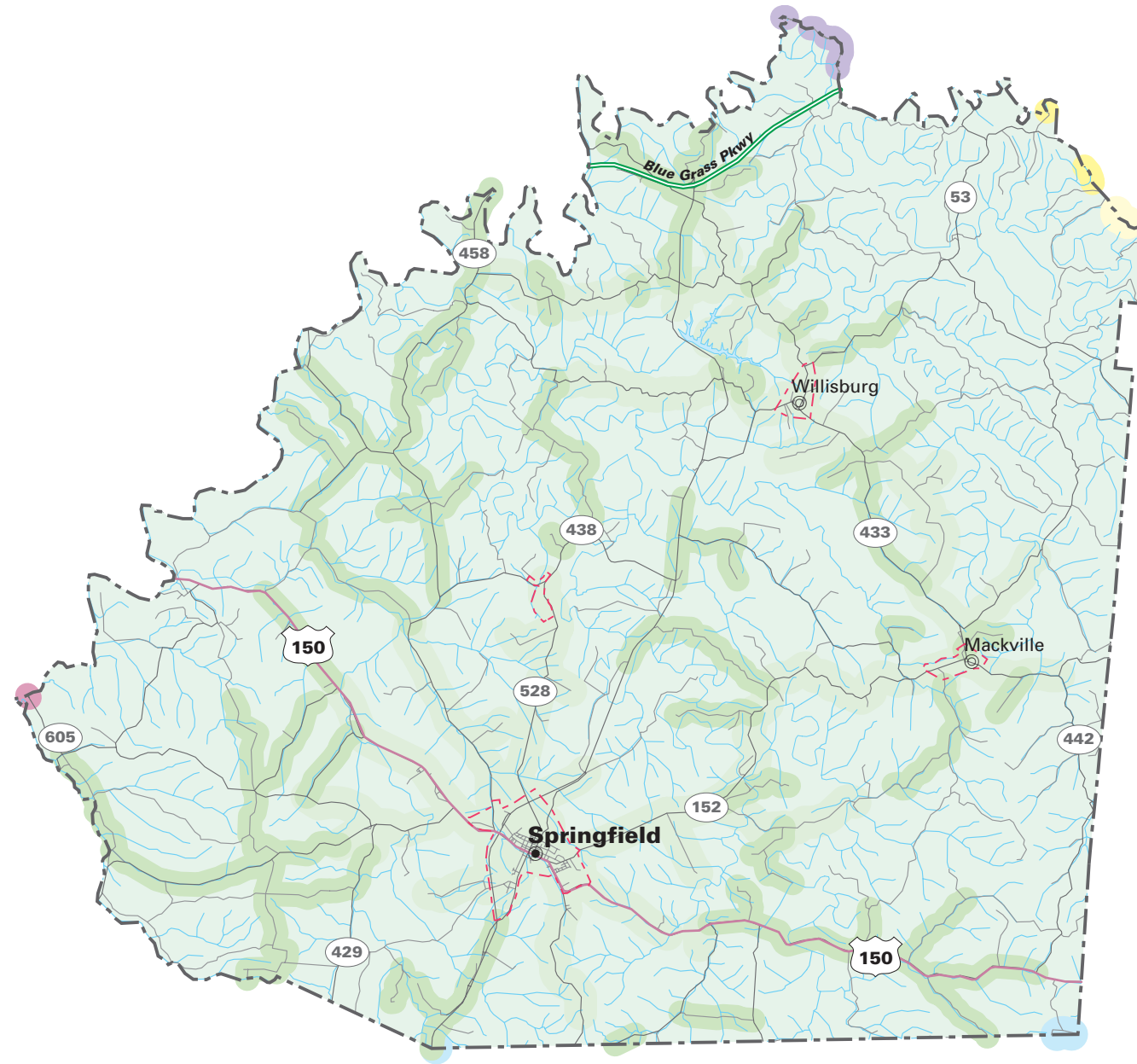
Bob Arnold, Chairman
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Final GIS & Cartographic Operations By:
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Data Collection & GIS Input By:
Kentucky Area Development Districts



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WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		SPRINGFIELD WATER WORKS
		SOUTH ANDERSON WATER DISTRICT
		NORTH MERCER WATER DISTRICT
		MARION COUNTY WATER DISTRICT
		BARDSTOWN MUNICIPAL WATER DEPARTMENT

Treatment Operator Class:	2D
Distribution Operator Class:.....	3A
Customer Rate for 1,000 Gallons:.....	5.34
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 Springfield Water and Sewer Commission gets its water from three primary sources: Willisburg Lake, City Reservoir and Allens Run. According to the Washington County Water Supply Plan Willisburg Lake, City Reservoir and Allens Run have an adequate supply of water to support any future needs. The district currently services 2,480 customers in Washington County. The Springfield water treatment plant has a production capacity of approximately 2.0 million gallons per day. On the average, the plant produces approximately 805,000 gallons per day. The plant operates at approximately 40% of capacity. The Water and Sewer Commission operates four storage tanks with a combined storage capacity of 750,000. The proposed project described below also includes five 100,000-gallon storage tanks to be situated at different locations throughout the service area. These proposed storage tanks would increase capacity to 1.25 million gallons. The calculated charge for 4,000 gallons of treated water (residential usage) is currently \$13.65 within the city limits of Springfield and \$29.01 outside of the City which, when compared to the other water districts within Lincoln Trail ADD, is considered reasonable.

After the three proposed projects are completed, there is nowhere remaining for the Springfield Water and Sewer Commission to expand. It is fair to say that once these projects are complete, Washington County will be roughly 100% serviced by water.

Currently there are 2,480 customers. After completion of the above referenced projects there will be approximately 3,680 total customers in the Springfield Water and Sewer Commission Service Area. The Water and Sewer Commission Manager does not believe there are any areas of the county that are not practical for public waters service.

PRIVATE DOMESTIC SYSTEMS

About 4,800 people in Washington County rely on private domestic water supplies: 1,200 on wells, and 3,600 on other sources.

Ground-water resources in Washington County are limited. Wells located in the larger valley bottoms throughout the county will produce enough water for a domestic supply except during dry weather. In the upland areas of Washington County, which encompasses approximately 85% of the county, most drilled wells will not produce enough water for a dependable domestic supply except along drainage lines that may produce enough water except during dry weather.

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