

# Strategic Water Resource Development Plan

## *Summary of Wastewater Treatment Systems*

### *Northern Kentucky Area Development District*

*Water Resource Development Commission*

*March, 2000*

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## NORTHERN KENTUCKY AREA DEVELOPMENT DISTRICT

7505 Sussex Drive, Suite 8  
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### ADD Sewer Service (map)

- Estimated 1999 population of 376,000--74% on public sewer
- Estimated 2020 population of 425,000--72% on public sewer
- Estimated funding needs for public sewer 2000-2005--\$17,600,000
- Estimated funding needs for public sewer 2006-2020--\$ 27,600,000

The Northern Kentucky Development District region had an estimated population of 376,415 (146,976 households) in 1999 with a projected population of 452,500 (191,900 households) in 2020. Public sewer systems serve 279,000 area residents, or 74 percent of the population. About 97,000 people in the region currently rely on onsite treatment systems.

Estimated populations and public sewer service for the eight counties in the region is given below (11 public sewer systems serve the region):

<b>County</b>	<b>1999 Pop</b>	<b>On Public</b>	<b>2020 Pop</b>	<b>On Public</b>
Boone	81,600	53,000 (65%)	128,000	83,200 (65%)
Campbell	86,900	73,900 (85%)	91,000	77,400 (85%)
Carroll	9,500	5,200 (55%)	9,700	5,800 (60%)
Gallatin	7,200	2,200 (30%)	11,200	3,400 (30%)
Grant	21,000	6,300 (30%)	31,400	11,000 (35%)
Kenton	145,700	131,000 (90%)	152,000	137,000 (90%)
Owen	10,200	2,000 (20%)	11,800	2,400 (20%)
Pendleton	14,300	5,000 (35%)	17,600	6,200 (35%)
<b>Region</b>	<b>376,000</b>	<b>278,600 (74%)</b>	<b>453,000</b>	<b>326,000 (72%)</b>

# EXISTING & PROPOSED SEWER SERVICE

**NKADD**  
Kentucky

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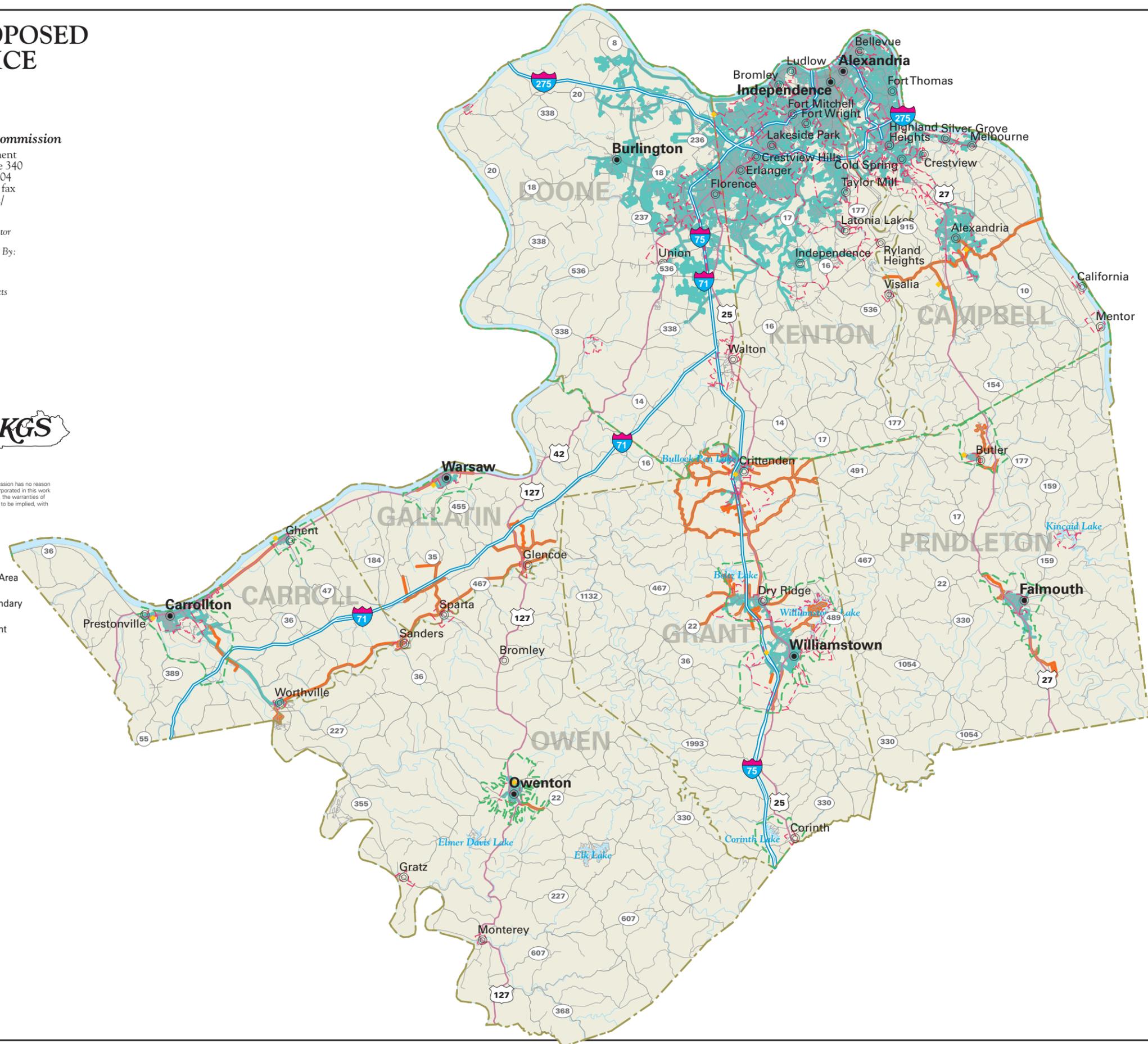
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- - - 201k Facility Planning Area
- - - Incorporated City Boundary
- ♦ Sewage Treatment Plant



**SEWER SERVICE**  
— Existing Sewer Service  
— Proposed Sewer Service

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

**Proposed Projects 2000-2005**

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
BOONE	Served by Sanitation District #1.	Capital funding is internal.	Major funding needed to	Correct I/I problems.	Amount to be	Determined.	
CAMPBELL	Served by Sanitation District #1.	Capital funding is internal.	Major funding needed to	Correct I/I problems.	Amount to be	Determined.	
KENTON	Served by Sanitation District #1.	Capital funding is internal.	Major funding needed to	Correct I/I problems.	Amount to be	Determined.	
CARROLL							-
Carrollton		10,000					10,000
							-
GALLATIN							none
							-
GRANT							-
Williamston		250					250
Dry Ridge							-
Crittenden		1500					1,500
Total		1,750					1,750
OWEN							-
Owenton		300					300
							-
PENDLETON							-
Butler	25	300					300
Falmouth	30	200	0	0	5,000	0	5,200
Total	55	500	-	-	5,000		5,500
Northern Kentucky ADD Total	55	12,550	0	0	5,000	0	17,550

**Proposed Projects 2006-2020**

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
BOONE	Served by Sanitation District #1.	Capital funding is internal.	Major funding needed to	Correct I/I problems.	Amount to be	Determined.	
CAMPBELL	Served by Sanitation District #1.	Capital funding is internal.	Major funding needed to	Correct I/I problems.	Amount to be	Determined.	
KENTON	Served by Sanitation District #1.	Capital funding is internal.	Major funding needed to	Correct I/I problems.	Amount to be	Determined.	
							-
CARROLL							-
Carrollton	160	2,800					2,800
							-
GALLATIN							-
By Carrollton		1,500					1,500
Warsaw		500					500
Total		2,000					2,000
							-
GRANT							-
Williamston Sewer District	184	1,860					1,860
Dry Ridge	350	2,500					2,500
Crittenden	Other	12,700					12,700
Total	534	17,060					17,060
							-
OWEN							-
							-
PENDLETON							-
Butler	40	1,500	-	-	3,000		4,500
Falmouth	38	1,225	-	-	-		1,225
Total	78	2,725	-	-	3,000		5,725
Northern Kentucky ADD Total	772	24,585			3,000		27,585

## BOONE COUNTY

### Boone County Sewer Service (map)

- Estimated 1999 population of 81,600--65% on public sewer
- Estimated 2020 population of 126,000--65% on public sewer
- Estimated funding needs for public sewer 2000-2005--self-funded
- Estimated funding needs for public sewer 2006-2020--self-funded

Boone County had an estimated population of 81,603 (30,413 households) in 1999 with a projected population of 128,000 (52,400 households) in 2020. Public sewer is provided to about 65 percent of the county's residents. About 10,600 households in the county use on-site wastewater treatment.

### BOONE COUNTY SEWER PLAN

#### *Proposed Projects 2000-2005*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
BOONE	Served by Sanitation District #1.	Capital funding is internal.	Major funding needed to	Correct I/I problems.	Amount to be	Determined.	

#### *Proposed Projects 2006-2020*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
BOONE	Served by Sanitation District #1.	Capital funding is internal.	Major funding needed to	Correct I/I problems.	Amount to be	Determined.	

#### SANITATION DISTRICT #1

Sanitation District #1 is a special district that serves customers in Boone, Kenton, and Campbell Counties. The system has a total of 82,000 customers.

The Dry Creek plant is located in Villa Hills. The treated effluent is discharged into the Ohio River. The plant was recently expanded. The facility does not have adequate space to provide for any significant future plant capacity expansion. The plant has a 24-hour design capacity of 46.5 mgd. The maximum hydraulic capacity is 90.0 mgd. Average flow during the

# SEWER SERVICE AREAS

## BOONE COUNTY

### Kentucky

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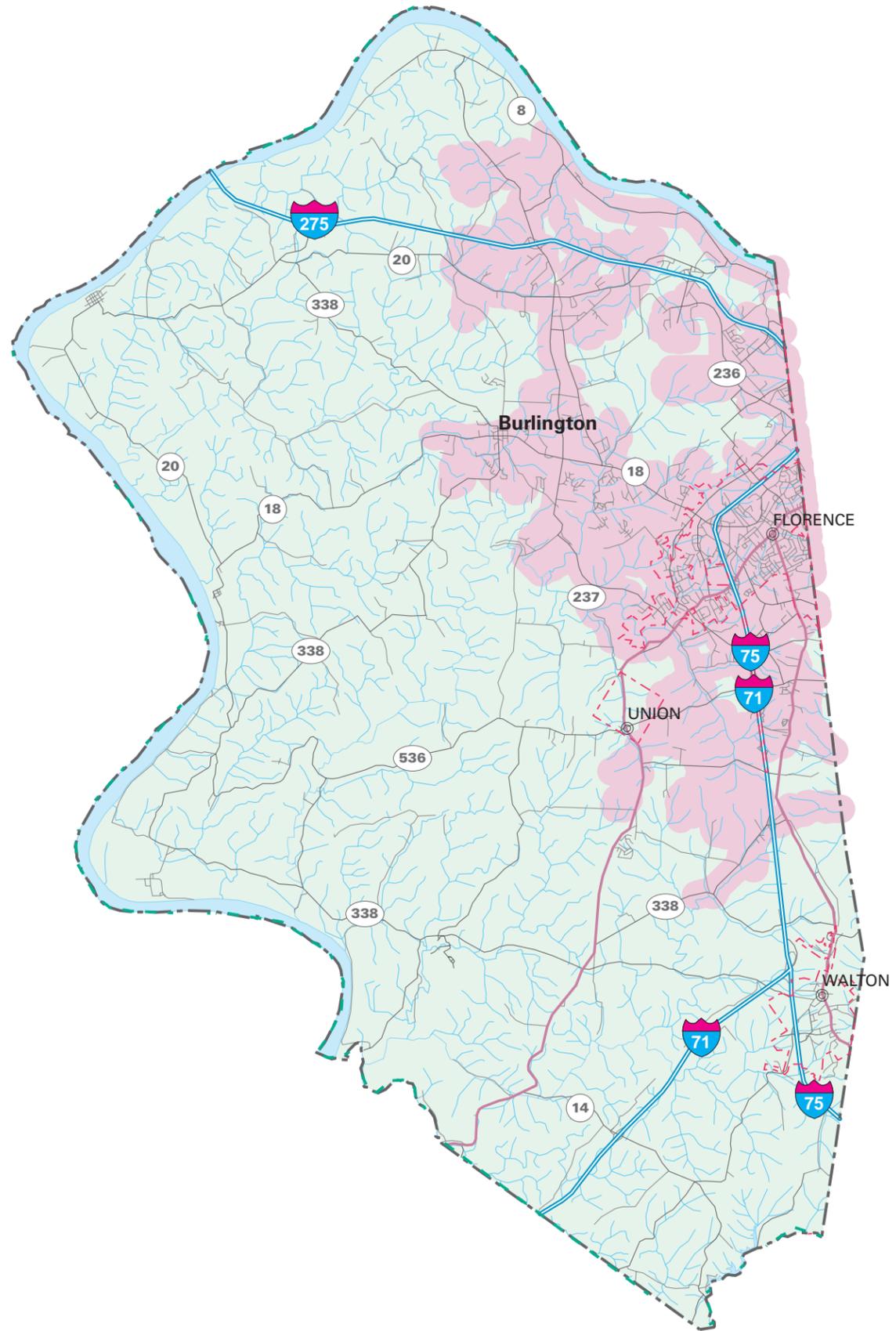
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-  201k Facility Planning Area
-  Incorporated City Boundary
-  Sewage Treatment Plant



**SEWER SERVICE STATUS BY OWNER**

		SANITATION DISTRICT #1
EXISTING SERVICE AREA	PROPOSED SERVICE AREA	

last 12 months is 35.3 mgd with a peak daily flow of 44.2 mgd. There are no pre-treatment facilities in the system. There are 94 lift stations that serve both residential and industrial customers. System failures are reported to periodically occur and are usually attributed to pump station failures. There are 138 employees for the district. Seventy-five percent of the sewer lines are over 20 years old.

The District has initiated rehabilitation programs that will reduce infiltration and inflow rates, which are currently estimated to be 60 million gallons, by 33% by 2017. Future peak daily flow is estimated to be 90 mgd by 2017. This will require an additional 35 mgd of treatment capacity. This figure includes several existing package plants that would be incorporated into the system. Of the 35 mgd total flow, approximately 30 mgd will be required for the western regional planning area and 5 mgd will be required for the eastern regional planning area.

Future growth and development is expected to occur in areas of central and southern Boone County and southwestern Kenton County, with minor growth expected along the AA highway and along Twelve Mile Creek in Campbell County. The areas of Boone County are not presently served and would require a major expansion of the regional transport facilities whereas the areas of Kenton and Campbell County are already served.

Plans for updates and expansions of Sanitation District No. 1 service area are divided into Eastern Regional Service Area and Western Regional Service Area. The Eastern Regional Service Area includes a proposed secondary treatment facility with an outfall sewer to the Ohio River. It is to be constructed generally at the intersection of Four and Twelve Mile Road with Twelve Mile-Oneonta Road. Also proposed is a new pump station built to serve the Visalia and Licking River area. A new gravity sewer, which flows to a new pump station at the intersection of Pond Creek Road and Licking Pike, will be constructed. A pump station to a new gravity line that flows along Brushy Creek to the existing Alexandria treatment facility is also proposed. This would also include the abandonment of the Alexandria treatment plant with the construction of a new gravity sewer that follows Twelve Mile Creek to the new treatment facility.

Plans for the Western Regional Service Area include adding a secondary treatment facility located on the Ohio River near Bellvue. Plans call for the construction of a new pump station near the existing Richwood Pump Station to provide service for southern Boone County. Also, a new pump station for flow diversion needs to be built near the intersection of Banklick and Bristow roads to collect flow from existing sewer and a new interceptor installed along Banklick Creek. The station will pump west to a new gravity interceptor located along South Fork Creek. A new pump station will be built for flow diversion along Bullock Pen Creek upstream of Doe Run Lake. This station collects flow from the existing interceptor and pumps it west to the new gravity interceptor located along South Fork Creek. A new pump station needs to be located near the confluence of South Fork and Fowlers Fork Creeks. This station will collect flow from Florence and the new interceptor along South Fork Creek. This station pumps to the new pump station located near the intersection of Camp Ernst Road and Burlington Pike. The new pump station at Camp Ernst Road and Burlington Pike will also collect flow from the Gunpowder and Allen Fork Pump Stations in addition to the one proposed at the confluence of South Fork and Fowlers Fork Creeks. This station discharges to a gravity line that flows to the new secondary treatment facility.

### ***Proposed Projects***

#### **SX015001**

##### **Sanitation District # 1**

With the construction of a new wastewater treatment plant in Belleview for the western regional service area, a new force main will be constructed, heading across country. The exact location has not yet been determined however. It is also expected that there will be a number of line and pump station upgrades around Boone County to facilitate the new hydraulic design. Once again, what these will be remains to be decided.

### **WALTON**

The City of Walton, in southeastern Boone County, owns a municipal sanitary sewer system that serves the all of the residences, businesses, and industry within the corporate limits. In fact, the system was recently released from a tap-on ban, and is installing a line to extend service to the last handful of homes. The system has a total of 787 residential customers, 82

commercial customers, 10 industrial customers, and 21 institutional customers. The entire system is operated by Sanitation District # 1.

The City of Walton owns two wastewater treatment plants, one a 0.450 mgd plant that discharges into McCoys Fork and the other a 0.050 mgd plant that discharges into Cruises Creek. The 0.450 mgd plant was updated in 1998. The 0.050 mgd plant was built in 1998 to serve a proposed industrial site. Average flow for the plants for the last 12 months was 0.320 mgd and 1,500 gallons/day respectively. There are no pre-treatment facilities in the system. There are 9 lift stations that serve both residential and industrial customers. Ninety-five percent of the sewer lines are over 20 years old.

## CAMPBELL COUNTY

### Campbell County Sewer Service (map)

- Estimated 1999 population of 86,900--85% on public sewer
- Estimated 2020 population of 91,000--85% on public sewer
- Estimated funding needs for public sewer 2000-2005--self-funded
- Estimated funding needs for public sewer 2006-2020--self-funded

Campbell County had an estimated population of 86,854 (34,654 households) in 1999 with a projected population of 91,000 (39,400 households) in 2020. Public sewer is provided to about 85 percent of the county's residents. About households in the county use on-site wastewater treatment.

### CAMPBELL COUNTY SEWER PLAN

#### *Proposed Projects 2000-2005*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
CAMPBELL	Served by Sanitation District #1.	Capital funding is internal.	Major funding needed to	Correct I/I problems.	Amount to be	Determined.	

#### *Proposed Projects 2006-2020*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
CAMPBELL	Served by Sanitation District #1.	Capital funding is internal.	Major funding needed to	Correct I/I problems.	Amount to be	Determined.	

#### SANITATION DISTRICT #1

Sanitation District #1 is a special district that serves customers in Boone, Kenton, and Campbell Counties. The system has a total of 82,000 customers.

The Dry Creek plant is located in Villa Hills. The treated effluent is discharged into the Ohio River. The plant was recently expanded. The facility does not have adequate space to provide for any significant future plant capacity expansion. The plant has a 24-hour design capacity of 46.5 mgd. The maximum hydraulic capacity is 90.0 mgd. Average flow during the last 12 months is 35.3 mgd with a peak daily flow of 44.2 mgd. There are no pre-treatment

# SEWER SERVICE AREAS CAMPBELL COUNTY Kentucky

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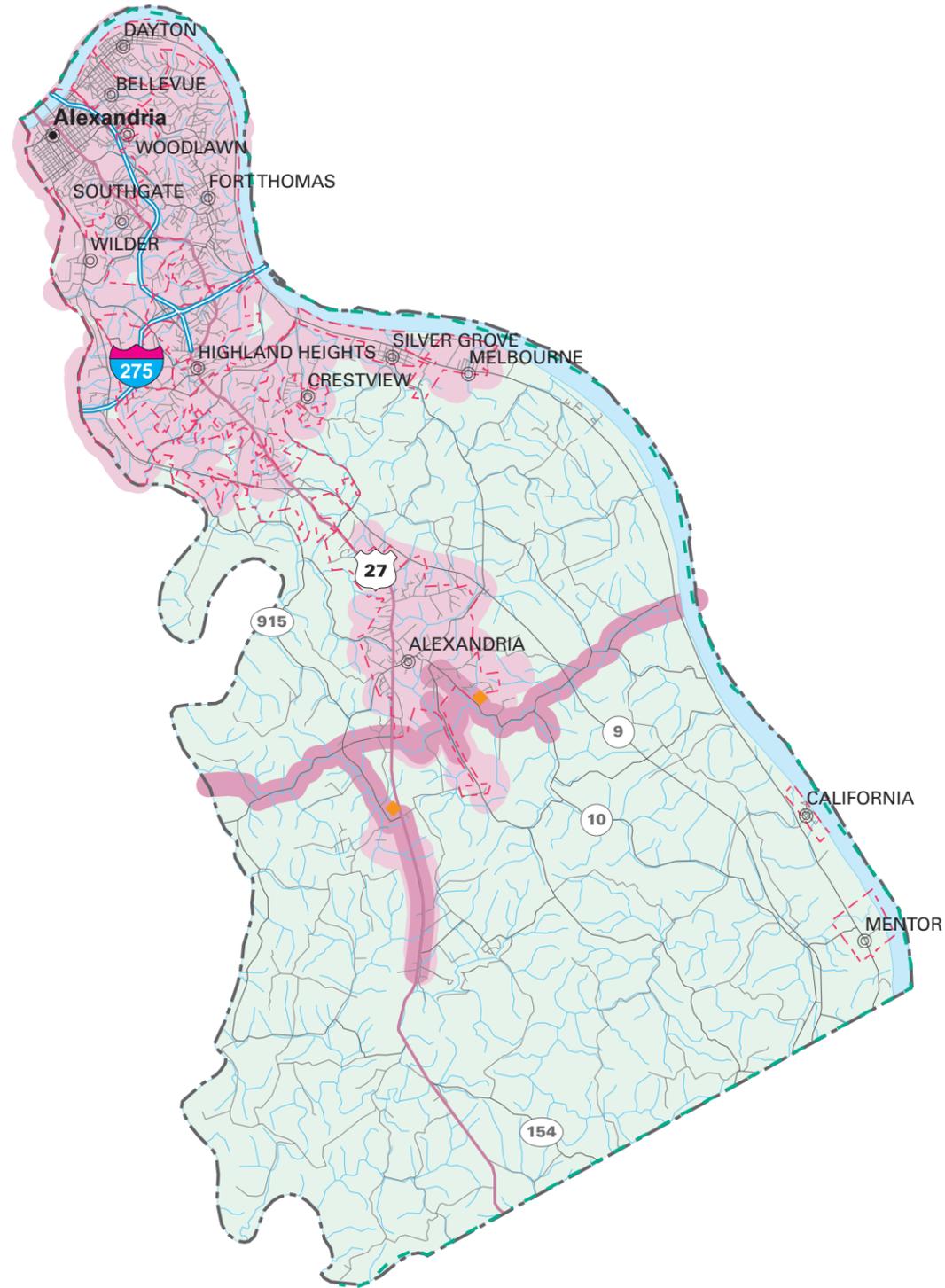
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-  201k Facility Planning Area
-  Incorporated City Boundary
-  Sewage Treatment Plant



**SEWER SERVICE STATUS BY OWNER**

		
EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		 SANITATION DISTRICT #1

facilities in the system. There are 94 lift stations that serve both residential and industrial customers. System failures are reported to periodically occur and are usually attributed to pump station failures. There are 138 employees for the district. Seventy-five percent of the sewer lines are over 20 years old.

The District has initiated rehabilitation programs that will reduce infiltration and inflow rates, which are currently estimated to be 60 million gallons, by 33% by 2017. Future peak daily flow is estimated to be 90 mgd by 2017. This will require an additional 35 mgd of treatment capacity. This figure includes several existing package plants that would be incorporated into the system. Of the 35 mgd total flow, approximately 30 mgd will be required for the western regional planning area and 5 mgd will be required for the eastern regional planning area.

Future growth and development is expected to occur in areas of central and southern Boone County and southwestern Kenton County, with minor growth expected along the AA highway and along Twelve Mile Creek in Campbell County. The areas of Boone County are not presently served and would require a major expansion of the regional transport facilities whereas the areas of Kenton and Campbell County are already served.

Plans for updates and expansions of Sanitation District No. 1 service area are divided into Eastern Regional Service Area and Western Regional Service Area. The Eastern Regional Service Area includes a proposed secondary treatment facility with an outfall sewer to the Ohio River. It is to be constructed generally at the intersection of Four and Twelve Mile Road with Twelve Mile-Oneonta Road. Also proposed is a new pump station built to serve the Visalia and Licking River area. A new gravity sewer, which flows to a new pump station at the intersection of Pond Creek Road and Licking Pike, will be constructed. A pump station to a new gravity line that flows along Brushy Creek to the existing Alexandria treatment facility is also proposed. This would also include the abandonment of the Alexandria treatment plant with the construction of a new gravity sewer that follows Twelve Mile Creek to the new treatment facility.

Plans for the Western Regional Service Area include adding a secondary treatment facility located on the Ohio River near Bellvue. Plans call for the construction of a new pump

station near the existing Richwood Pump Station to provide service for southern Boone County. Also, a new pump station for flow diversion needs to be built near the intersection of Banklick and Bristow roads to collect flow from existing sewer and a new interceptor installed along Banklick Creek. The station will pump west to a new gravity interceptor located along South Fork Creek. A new pump station will be built for flow diversion along Bullock Pen Creek upstream of Doe Run Lake. This station collects flow from the existing interceptor and pumps it west to the new gravity interceptor located along South Fork Creek. A new pump station needs to be located near the confluence of South Fork and Fowlers Fork Creeks. This station will collect flow from Florence and the new interceptor along South Fork Creek. This station pumps to the new pump station located near the intersection of Camp Ernst Road and Burlington Pike. The new pump station at Camp Ernst Road and Burlington Pike will also collect flow from the Gunpowder and Allen Fork Pump Stations in addition to the one proposed at the confluence of South Fork and Fowlers Fork Creeks. This station discharges to a gravity line that flows to the new secondary treatment facility.

***Proposed Projects***

**SX037001**

**Sanitation District # 1**

In conjunction with constructing a new wastewater treatment plant to service the eastern region of the district, a new system of trunk lines will be installed. These will ultimately serve as the hub for further expansion in the region.

## CARROLL COUNTY

### Carroll County Sewer Service (map)

- Estimated 1999 population of 9,500--55% on public sewer
- Estimated 2020 population of 9,720--60% on public sewer
- Proposed projects would connect about 160 new households to public sewer during 2000-2020
- Estimated funding needs for public sewer 2000-2005--\$10,000,000
- Estimated funding needs for public sewer 2006-2020--\$2,800,000

Carroll County had an estimated population of 9,535 (3,820 households) in 1999 with a projected population of 9,720 (4,170 households) in 2020. Public sewer is provided to about 55 percent of the households. About 1,700 households use on-site systems. About 160 customers could be added to public sewer service through new line extensions in 2000-2020.

### CARROLL COUNTY SEWER PLAN

#### *Proposed Projects 2000-2005*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
CARROLL							-
Carrollton							-
SX041002	Spd-way	10,000					10,000

#### *Proposed Projects 2006-2020*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
CARROLL							-
Carrollton							-
SX041001	160	1,300					1,300
SX041003	POT	1,500					1,500
<b>Total</b>	<b>160</b>	<b>2,800</b>					<b>2,800</b>

#### CARROLLTON

Carrollton Utilities, in Carroll County on the banks of the Ohio River, operates a sanitary sewer system that serves the all of the residences, businesses, and industry within the corporate limits of Carrollton, as well as the cities of Prestonville and Worthville. The system has a total of 1708 residential customers, 489 commercial customers, 2 industrial customers, and 31 institutional customers.

# SEWER SERVICE AREAS CARROLL COUNTY Kentucky



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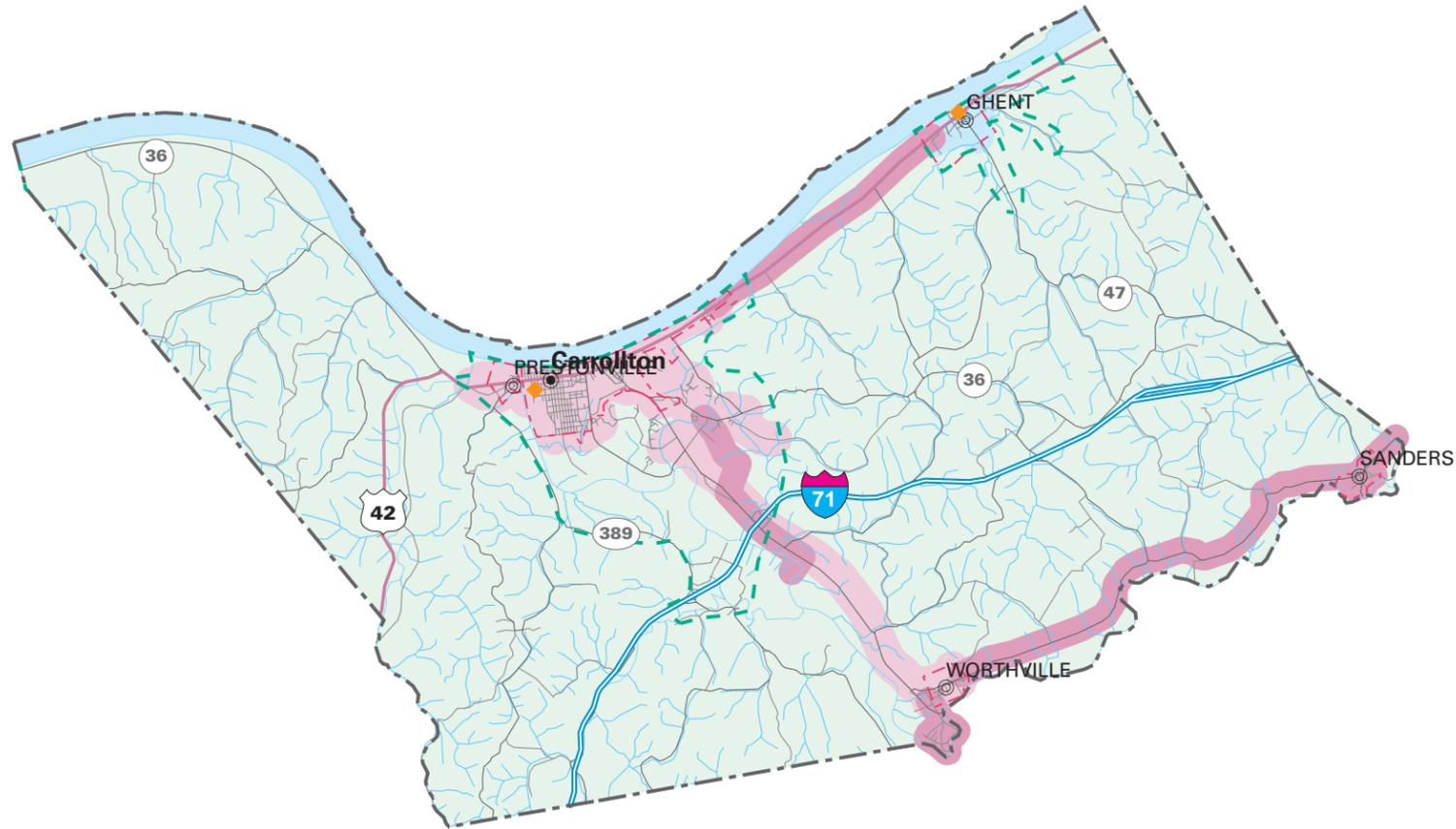
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- 201k Facility Planning Area
- Incorporated City Boundary
- Sewage Treatment Plant



**SEWER SERVICE STATUS BY OWNER**

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		CITY OF GHENT
		CARROLLTON UTILITIES

The plant is located west of the city on the Kentucky River. The treated effluent is discharged into the Kentucky River. The plant has a 24-hour design capacity of 0.70 mgd. The maximum hydraulic capacity is 0.70 mgd. Average flow during the last 12 months is 0.50 mgd with a peak daily flow of 1.90 mgd. There are two pre-treatment facilities in the system, one at CCL Container and the other at Carroll County Hospital. There are 16 lift stations that serve both residential and industrial customers. System failures are reported to occur periodically and are usually attributed to pumping station failures. Seventy-five percent of the sewer lines are over 20 years old.

Carrollton has long supported the concept of regionalization. The initial steps taken by Carrollton were to include Prestonville and Worthville into the system. Soon, Sparta, Glencoe, and Sanders, as well as the Kentucky Speedway will be added to the system. It is projected that this will require that the treatment facility operate at nearly 95% capacity. Additionally, Carrollton is in discussion with the City of Ghent to run a line along US 42. This line would serve several industrial customers and would take Ghent's treatment facility, as well as the package plant at the North American Stainless plant, off line. In order to serve the region adequately for the next 20 years, Carrollton plans to build a new, larger, lagoon-type treatment plant near the town of English, on the Kentucky River near I-71. This would have the added benefit of opening up this land to commercial development. It has easy access to I-71 and the area already has all other service utilities except sewer. This project would include eight cities (Carrollton, Prestonville, Worthville, Sparta, Sanders, Glencoe, Ghent, and English) and parts of three counties (Carroll, Gallatin, and Owen).

### ***Proposed Projects***

#### **SX041001**

##### **Carrollton Utilities**

Carrollton and Ghent are currently discussing the long-term possibility of running a wastewater line along US 42 to take over service for the town of Ghent, which is home to approximately 160 households. There are also a number of households enroute. The line could also potentially provide service to a number of heavy industry and manufacturing facilities along US 42, which currently must rely upon their own package treatment plants.

**SX041002**

**Carrollton Utilities**

Carrollton Utilities will be providing wastewater service to the Kentucky Speedway in Gallatin County, and consequently will run the main trunk line through southern Carroll County in the immediate-term. This line will bring service to Carroll County communities of Sanders and Worthville. Each of these communities has approximately 75 households. Residences along the route on KY 36 and KY 467 will also enjoy the new service.

**SX041003**

**Carrollton Utilities**

In connection with the main line to service the Kentucky Speedway in Gallatin County, Carrollton Utilities plans to eventually extend more lines to service residents near the new line in Carroll County.

**GHENT**

The City of Ghent, in northern Carroll County on the banks of the Ohio River, operates a municipal wastewater utility that serves the all of the residences, businesses, and industry within the corporate limits. The system has a total of 132 residential customers and 9 commercial customers.

The plant is located on the west side of town. The treated effluent is discharged into the Ohio River. The plant has a 24-hour design capacity of 0.080 mgd. Average flow during the last 12 months was 0.026 mgd with a peak daily flow of 0.056 mgd. There are no pre-treatment facilities in the system. There are 4 lift stations that serve both residential and industrial customers. System failures are reported to occur periodically and are usually attributed to pumping station failures. None of the sewer lines are over 20 years old. There is one employee for the plant.

There are several industries between Ghent and Carrollton along US 42 that need service. There has been some discussion between Ghent and Carrollton Utilities as to how best serve them. One option is for Ghent to run a line west and Carrollton to run a line east along US 42. Another option is for Carrollton to take over Ghent's system and consequently pick up the industrial sites along the way.

## GALLATIN COUNTY

### Gallatin County Sewer Service (map)

- Estimated 1999 population of 7,200--30% on public sewer
- Estimated 2020 population of 11,200--30% on public sewer
- Estimated funding needs for public sewer 2000-2005--\$0
- Estimated funding needs for public sewer 2006-2020--\$2,000,000

Gallatin County had an estimated population of 7,198 (2,839 households) in 1999 with a projected population of 11,200 (4,700 households) in 2020. Public sewer is provided to about 30 percent of the households. About 2,000 households use on-site systems.

### GALLATIN COUNTY SEWER PLAN

#### *Proposed Projects 2000-2005*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
GALLATIN							-
SX077001 See Carrollton SX041002							-
SX077002 Incl in SX041002							-
Carroll Water Dist. #1							-

#### *Proposed Projects 2006-2020*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
GALLATIN							-
SX077002 (By Carrollton)	Unk	1,500					1,500
Warsaw SX077101	Pot	500					500
County Total	Unknown	2,000					2,000

#### CARROLLTON

Carrollton Utilities, in Carroll County on the banks of the Ohio River, operates a sanitary sewer system that serves the all of the residences, businesses, and industry within the corporate limits of Carrollton, as well as the cities of Prestonville and Worthville. The system has a total of 1708 residential customers, 489 commercial customers, 2 industrial customers, and 31 institutional customers.

The plant is located west of the city on the Kentucky River. The treated effluent is discharged into the Kentucky River. The plant has a 24-hour design capacity of 0.70 mgd.

# SEWER SERVICE AREAS GALLATIN COUNTY Kentucky

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

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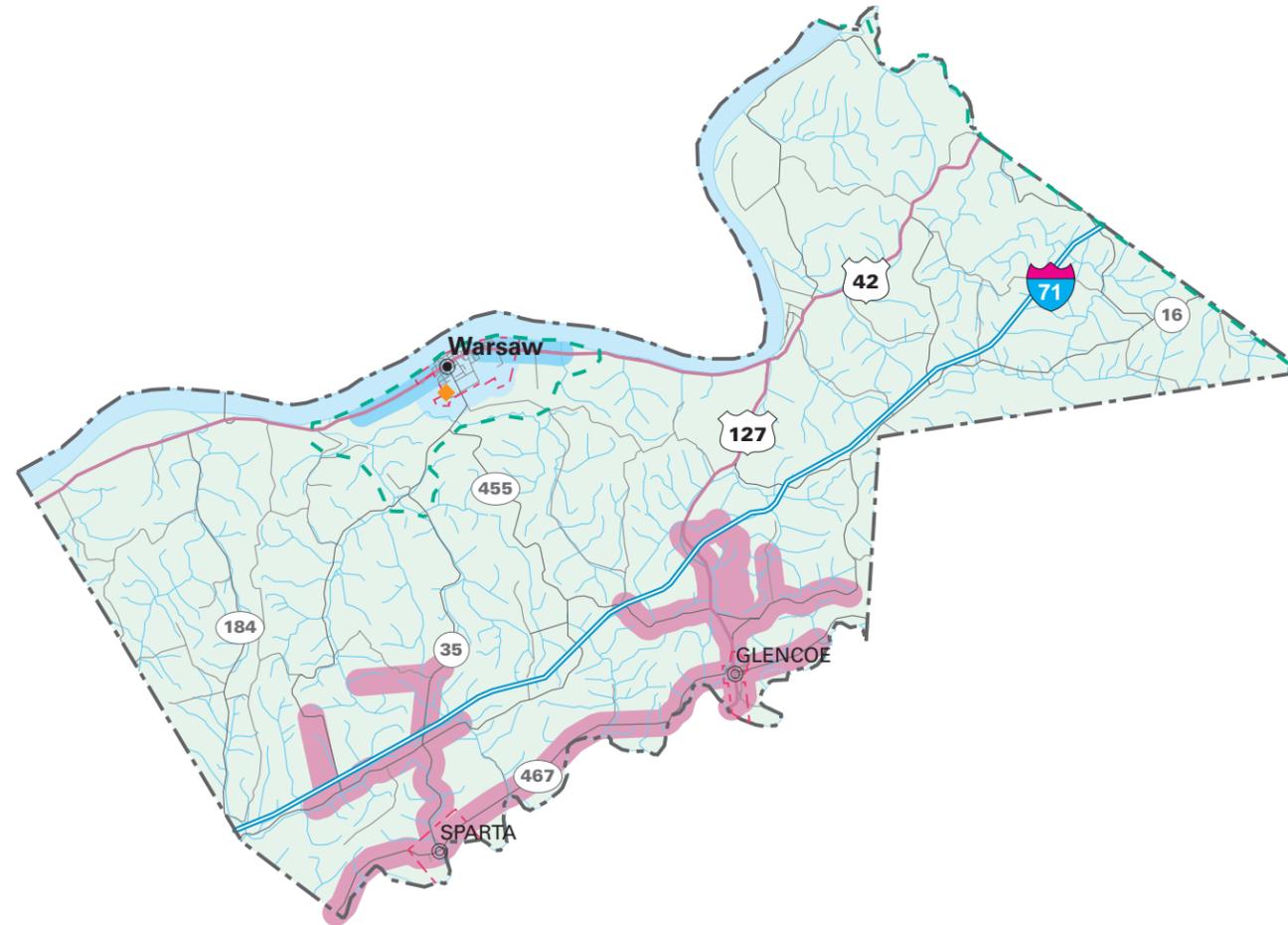
Final GIS & Cartographic Operations By:  
Kent Anness & Kim Anness

Data Collection & GIS Input By:  
Kentucky Area Development Districts



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- 201k Facility Planning Area
- Incorporated City Boundary
- Sewage Treatment Plant



### SEWER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		WARSAW WATER AND SEWER
		CARROLLTON UTILITIES

The maximum hydraulic capacity is 0.70 mgd. Average flow during the last 12 months is 0.50 mgd with a peak daily flow of 1.90 mgd. There are two pre-treatment facilities in the system, one at CCL Container and the other at Carroll County Hospital. There are 16 lift stations that serve both residential and industrial customers. System failures are reported to occur periodically and are usually attributed to pumping station failures. Seventy-five percent of the sewer lines are over 20 years old.

Carrollton has long supported the concept of regionalization. The initial steps taken by Carrollton were to include Prestonville and Worthville into the system. Soon, Sparta, Glencoe, and Sanders, as well as the Kentucky Speedway will be added to the system. It is projected that this will require that the treatment facility operate at nearly 95% capacity. Additionally, Carrollton is in discussion with the City of Ghent to run a line along US 42. This line would serve several industrial customers and would take Ghent's treatment facility, as well as the package plant at the North American Stainless plant, off line. In order to serve the region adequately for the next 20 years, Carrollton plans to build a new, larger, lagoon-type treatment plant near the town of English, on the Kentucky River near I-71. This would have the added benefit of opening up this land to commercial development. It has easy access to I-71 and the area already has all other service utilities except sewer. This project would include eight cities (Carrollton, Prestonville, Worthville, Sparta, Sanders, Glencoe, Ghent, and English) and parts of three counties (Carroll, Gallatin, and Owen).

### ***Proposed Projects***

#### **SX077001**

##### **Carrollton Utilities**

Carrollton Utilities will be providing wastewater service to the Kentucky Speedway, under construction near Sparta, in Gallatin County. The area around the racetrack is expected to undergo **explosive** growth in the coming years. In addition, the project would extend service to the communities of Sparta and Glencoe.

#### **SX077002**

##### **Carrollton Utilities**

In connection with the main line to service the Kentucky Speedway in Gallatin County, Carrollton Utilities plans to eventually extend more lines to service area residents along the new line in Gallatin County.

WARSAW WATER AND SEWER

The City of Warsaw operates a sanitary sewer system that serves the all of the residences, businesses, and industry within the corporate limits. The system has a total of 578 residential customers, 3 industrial customers, and 4 institutional customers.

The sewage treatment plant discharges into the Ohio River. It is located in the southwest corner of the city. A new plant was built in 1998 and is rated at a capacity of 0.2 mgd. Average flow during the last 12 months is 0.13 mgd with a peak daily flow of 0.18 mgd. There are no pre-treatment facilities in the system. There are 5 lift stations that serve both residential and industrial customers. System failures rarely occur. Service outages are due to failure at the Locust St. Lift Station. Ninety-nine percent of the sewer lines are over 20 years old.

The sanitary sewer system, together with the water system, is operated by a superintendent who reports to the City Council. The books of the water and sewer system are separate from the general revenue fund books of the city. Sewer rates for residential and commercial customers are set at 65% of the total water charge and are combined with the water charge in one billing.

There is a tap ban for industrial customers but none for residential customers. There are no expansion planned within the next five years. Growth and annexation are likely within the next 20 years, as land both east and west of the City is available.

***Proposed Projects***

**SX077101**

**Warsaw Water Works**

Warsaw officials expect that city limits will expand to the east and west along US 42 at some point within the next 20 years. The line extensions reflect service to the annexations.

## GRANT COUNTY

### Grant County Sewer Service (map)

- Estimated 1999 population of 21,000--30% on public sewer
- Estimated 2020 population of 31,400--35% on public sewer
- Proposed projects would connect about 600 new households to public sewer during 2000-2020
- Estimated funding needs for public sewer 2000-2005--1,750,000
- Estimated funding needs for public sewer 2006-2020--\$17,100,000

Grant County had an estimated population of 21,014 (8,087 households) in 1999 with a projected population of 31,400 (12,800 households) in 2020. Public sewer is provided to about 30 percent of the county's residents. About 5,700 households in the county use on-site treatment systems. About 600 customers could be added to public sewer service through new line extensions in 2000-2020.

### GRANT COUNTY SEWER PLAN

#### *Proposed Projects 2000-2005*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
GRANT							-
Williamston							-
SX081001	Schls+DOT	250					250
Dry Ridge SX081101	By Devprs						-
Crittenden SX081202	unk	1,500					1,500
Total		1,750					1,750

# SEWER SERVICE AREAS GRANT COUNTY Kentucky

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

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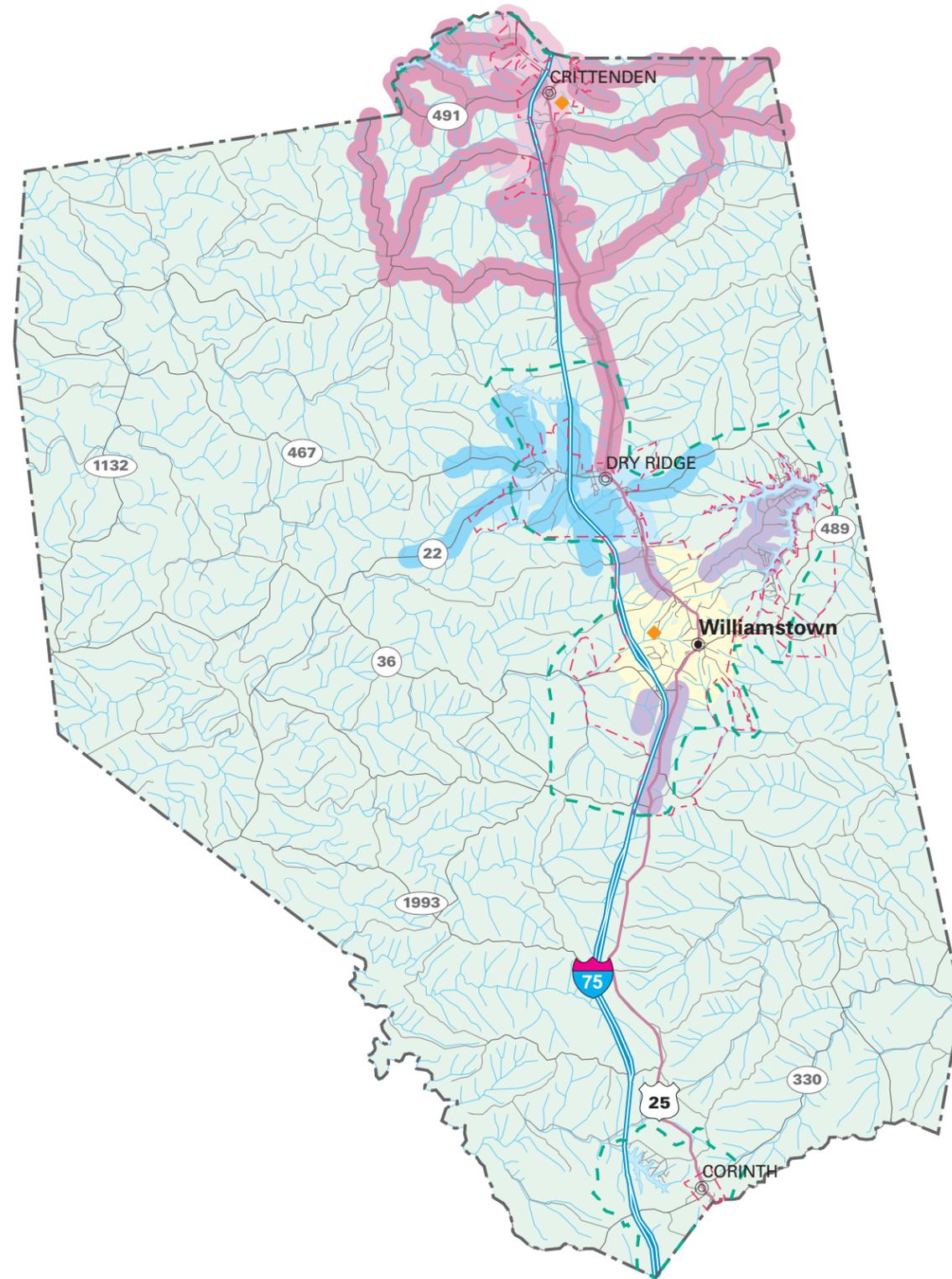
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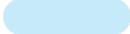


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-  201k Facility Planning Area
-  Incorporated City Boundary
-  Sewage Treatment Plant



**SEWER SERVICE STATUS BY OWNER**

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	OWNER
		WILLIAMSTOWN MUNICIPAL WASTEWATER DEPARTMENT
		WARSAW WATER WORKS
		DRY RIDGE SEWER DEPARTMENT
		CRITTENDEN WASTEWATER DEPARTMENT



**Proposed Projects 2006-2020**

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
GRANT							-
Williamston Sewer District							-
SX081002	177	1,800					1,800
SX081003	Ind	20					20
SX081004	7	40					40
Total	184	1,860					1,860
Dry Ridge							-
SX081102	150	500					500
SX081103	200	2,000					2,000
Total	350	2,500					2,500
Crittenden SX081201	10 MHPs	700					700
SX081203	Other	12,000					12,000
Total		12,700					12,700
County Total	534	17,060					17,060

**WILLIAMSTOWN WASTEWATER**

The City of Williamstown, in central Grant County, operates a sanitary sewer system that serves the all of the residences, businesses, and industry within its corporate limits. It also treats all of the wastewater for the City of Dry Ridge. The system has a total of 839 residential customers and 162 commercial customers.

The sewage treatment plant, an extended aeration treatment facility, discharges into Steam Mill Branch. It is located near I-75. The plant was expanded in 1988 and has a 24-hour permitted design capacity of 0.95 mgd and a maximum hydraulic capacity of 2.1 mgd. Average flow during the last 12 months was 0.39 mgd with a peak daily flow of 1.239 mgd. There are no pre-treatment facilities in the system. There are 12 lift stations that serve both residential and industrial customers. Eighty-five percent of the sewer lines are over 20 years old. System failures occur periodically and are principally caused by pumping station failure. Aeration in the plant will be upgraded in 2000, along with the last of the pump stations that need upgrading.

There has been discussion regarding the creation of a regional wastewater system in Grant County but it was clear that this wouldn't come about before the City of Crittenden needed to expand its own wastewater facilities. Most expansion in Williamstown in the near future will involve new subdivision construction in which the developer covers the cost of installing wastewater collection for the property. There is also a proposal to extend a line two miles south on US 25 to provide service to Mason-Corinth Elementary School and the

Department of Transportation Facility, both of which have expressed a willingness to bear part of the cost of the extension.

Long term plans call for linking Crittenden and Williamstown along US 25. This would pick up 10 or so package plants for trailer parks and campgrounds along the way. Another long-term proposal is to run a line around Williamstown Lake. This is important because Williamstown Lake is the source of drinking water for the area, although it would be a large and expensive project.

### **Proposed Projects**

#### **SX081001**

##### **Williamstown Municipal Sewer District**

This is an immediate-term project, running approximately 2 miles south along US 25, to extend service to the Mason-Corinth Elementary School, and the Department of Transportation Facility. The School and the DOT are both anxious to receive service, and are willing to put up some of the money to make this happen.

#### **SX081002**

##### **Williamstown Municipal Sewer District**

This is a long-term project that would be very expensive to construct, but would have great benefits. It would entail laying a line out to Williamstown Lake. It would require approximately 6 miles of line, and would serve about 177 households. The terrain is quite rough in this area however, possibly requiring a number of pump stations. Part of the importance of the project lies in the fact that Williamstown Lake is the surface water source of drinking water for most of Grant County. Williamstown Lake is an older development area, and will increasingly pose septic problems. Furthermore, residential development continues around the lake.

#### **SX081003**

##### **Williamstown Municipal Sewer District**

This is a small project, foreseen as long-term. It will be needed to serve the area off of Skyway Drive to be developed as an industrial park.

#### **SX081004**

##### **Williamstown Municipal Sewer District**

This long-term project would run a line north on US 25, then west on Baton Rouge Lane to I-75, for a total of about 1 mile. There are 7 residences currently along this route, but the

area is expected to see great residential growth, including one residential development that is already under construction.

### DRY RIDGE

The City of Dry Ridge, in northern Grant County, operates a municipal sanitary sewer collection system that serves the all of the residences, businesses, and industry within the corporate limits. The system has a total of 581 residential customers, 62 commercial customers, and 5 industrial customers.

Wastewater from Dry Ridge is sent to, and treated by Williamstown Municipal Wastewater. The treated effluent is discharged into Steam Mill Branch. The Williamstown plant was last expanded and upgraded in 1988. The plant has a 24-hour design capacity of 0.95 mgd. The maximum hydraulic capacity is 2.1 mgd. Average flow during the last 12 months is 0.39 mgd with a peak daily flow of 1.24 mgd. There are no pre-treatment facilities in the system. There are 13 lift stations that serve both residential and industrial customers. System failures are reported to occur rarely and are usually related to pump station failure. Wastewater service was first established in 1976, and now seventy-five percent of the sewer lines have now passed 20 years of age.

The City of Dry Ridge is growing rapidly. The city will incorporate into their system and maintain lines 6 inches or more that a developer installs while constructing a new subdivision. Thus, much of the cost is borne by private developers rather than the city.

#### ***Proposed Projects***

##### **SX081101**

###### **Dry Ridge Wastewater Department**

This short-term project is being constructed in phases by the developer of the subdivision. When completed it will be turned over to the City of Dry Ridge for maintenance. The project includes service to approximately 30 new residences.

##### **SX081102**

###### **Dry Ridge Wastewater Department**

This long-term project would provide wastewater service northwest of town along Dry Ridge – Mount Zion Road. Although the area is mostly outside of the city limits, it has seen extensive residential development, currently approaching 150 households within 2.3 total

miles. This area enjoys all public services except sewer, causing some residents to hesitate about being annexed and paying city taxes when the benefits would be relatively minor.

### **SX081103**

#### **Dry Ridge Wastewater Department**

This project is a compilation of line extensions that could likely be made as residential, commercial, and industrial growth continues over the coming 20 years.

The first extension would provide wastewater service to several existing homes on Kings Heights Drive, but is primarily planned to service to the properties to south, which are currently zoned Agricultural, but are surely expected to be developed within the coming 20 years.

The second would extend a line north along McCoy Road approximately 0.65 miles. There are currently only 2 residences on this road, but it is expected to develop in the next 20 years since it has easy access to the interstate.

The third extension would run north past the Dry Ridge Outlet Mall on KY 2944 for approximately 1 mile. This would extend service to the developing business and industrial strip along Curry Lane, and to the private campground on Bolts Lake.

The fourth extension would continue wastewater service west on KY 467. At present there are approximately 29 households along the first 1.6 miles.

The fifth wastewater line would extend west on KY 22. This would provide service to approximately 8 existing business and industrial facilities, and approximately 30 homes in the first 2 and a quarter miles. This corridor is expected to undergo significant industrial and commercial growth, as well as residential growth.

The sixth line extension would extend southwest down Meyer Road, which is currently all zoned agricultural. There are approximately 9 households on the road that is 0.85 miles long.

The seventh potential wastewater line extension project would extend the line south on Hopperton Lane to its end. Hopperton Lane however will be extended south to join Baton Rouge Road, and the sewer line may be extended with it, to provide service to the households in the undeveloped residential area that are already within the city limits, but still without wastewater service. The project might consist of approximately 1 mile of line,

servicing the 30 residences already in the area, plus an untold number of additional homes once the new road is constructed and the land is made more accessible.

The eighth possible project would extend a wastewater line east on KY 467 / Knoxville Road. This area is currently outside the city limits, but is expected to experience growth, partly due to the planned construction of a bypass loop highway. The first mile and a half would serve an existing 17 households.

#### CRITTENDEN

The City of Crittenden, at the northern boundary of Grant County, operates a municipal wastewater utility that serves the all of the residences, businesses, and industry within the corporate limits. The system has a total of 765 residential customers, 24 commercial customers, and 1 industrial customer. The city only established wastewater services in 1989.

The plant is located on the east side of town. The treated effluent is discharged into Grassy Creek. The plant has a 24-hour design capacity of 0.15 mgd. The maximum hydraulic capacity is 0.50 mgd. Average flow during the last 12 months is 0.105 mgd with a peak daily flow of 0.22 mgd. There are no pre-treatment facilities in the system. There are 18 lift stations that serve both residential and industrial customers. System failures are reported to occur rarely and are usually attributed to pumping station failures. None of the sewer lines are over 20 years old. The average bill is \$22.00 for a typical residential customer. There is one employee for the plant. Sanitation District # 1 maintains the sewer lines.

The City of Crittenden is planning to relocate its existing wastewater treatment plant to a more isolated location that will allow for currently needed expansion as well as providing space for future expansion as needed. Plans call for the construction of a new 0.75 mgd package plant and the relocation of the two existing 0.75 mgd package plants to a location south of the city on Tenmile Creek. Grant County has discussed a regionalization plan. However, the City of Crittenden felt that they had to immediately address their critical problems of a lack of capacity combined with a rapidly growing population and they could not wait for such a plan to be created. They plan to serve all households and businesses within their 20 year service plan. There has been some discussion in Grant County to run a line along US 25 between Crittenden and Dry Ridge that would also pick up 10 small

package plants located in trailer parks, but it is still unclear at this time who would oversee the project.

**Proposed Projects**

**SX081201**

**Crittenden Wastewater District**

This is a potential long-term project running a wastewater line along US 25 south from Crittenden to Dry Ridge, for transport of wastewater to the Williamstown Treatment Plant. This project was envisioned as a possible solution to Crittenden’s lack of treatment capacity. It would also extend service to 10 mobile home parks and a campground that each currently operate their own package treatment plants. However, this project was postponed as a solution for Crittenden, whose needs were more immediate than could be solved while waiting for the evolution of a regional wastewater system in Grant County. Although Crittenden is planning to complete construction of a new treatment plant in the next 2 years, the project would still be a viable long-term option.

**SX081202**

**Crittenden Wastewater District**

This immediate-term project includes the roadways within Crittenden’s 5 year service area. They plan to serve all these areas in the next 5 years.

**SX081203**

**Crittenden Wastewater District**

This long-term project includes roadways within Crittenden’s 20 year service area. They hope to have all of these areas served within the next 20 years.

## KENTON COUNTY

### Kenton County Sewer Service (map)

- Estimated 1999 population of 145,700--90% on public sewer
- Estimated 2020 population of 152,000--90% on public sewer
- Estimated funding needs for public sewer 2000-2005--self-funded
- Estimated funding needs for public sewer 2006-2020--self-funded

Kenton County had an estimated population of 145,698 (57,430 households) in 1999 with a projected population of 152,000 (64,600 households) in 2020. Public sewer is provided to about 90 percent of the county's residents. About 5,700 households treat wastewater on site.

### KENTON COUNTY SEWER PLAN

#### *Proposed Projects 2000-2005*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
KENTON	Served by Sanitation District #1.	Capital funding is internal.	Major funding needed to	Correct I/I problems.	Amount to be	Determined.	

#### *Proposed Projects 2006-2020*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
KENTON	Served by Sanitation District #1.	Capital funding is internal.	Major funding needed to	Correct I/I problems.	Amount to be	Determined.	

#### SANITATION DISTRICT #1

Sanitation District #1 is a special district that serves customers in Boone, Kenton, and Campbell Counties. The system has a total of 82,000 customers.

The Dry Creek plant is located in Villa Hills. The treated effluent is discharged into the Ohio River. The plant was recently expanded. The facility does not have adequate space to provide for any significant future plant capacity expansion. The plant has a 24-hour design capacity of 46.5 mgd. The maximum hydraulic capacity is 90.0 mgd. Average flow during the last 12 months is 35.3 mgd with a peak daily flow of 44.2 mgd. There are no pre-treatment facilities in the system. There are 94 lift stations that serve both residential and industrial

# SEWER SERVICE AREAS

## KENTON COUNTY

### Kentucky

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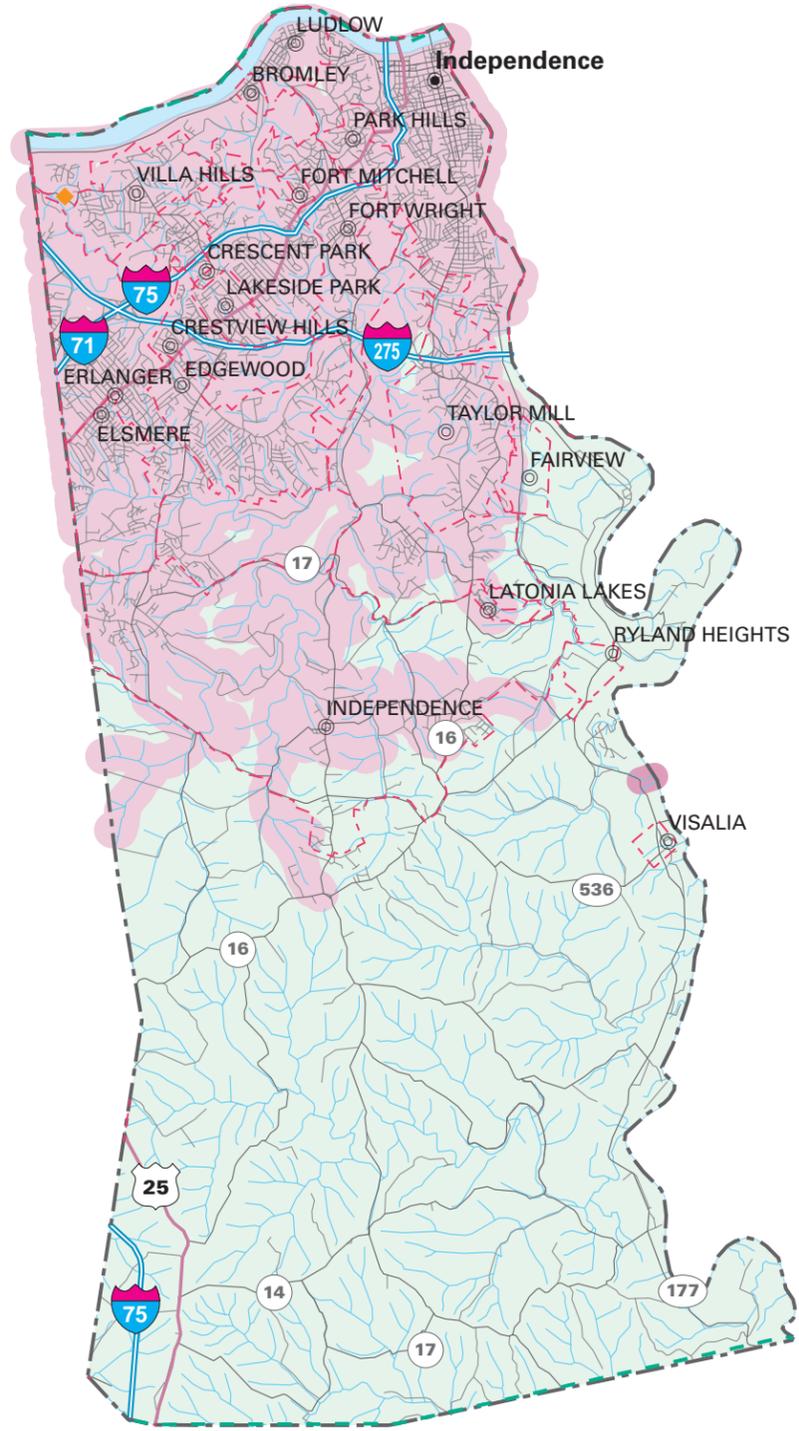
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-  201k Facility Planning Area
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-  Sewage Treatment Plant



**SEWER SERVICE STATUS BY OWNER**

		EXISTING SERVICE AREA	PROPOSED SERVICE AREA
		SANITATION DISTRICT #1	

customers. System failures are reported to periodically occur and are usually attributed to pump station failures. There are 138 employees for the district. Seventy-five percent of the sewer lines are over 20 years old.

The District has initiated rehabilitation programs that will reduce infiltration and inflow rates, which are currently estimated to be 60 million gallons, by 33% by 2017. Future peak daily flow is estimated to be 90 mgd by 2017. This will require an additional 35 mgd of treatment capacity. This figure includes several existing package plants that would be incorporated into the system. Of the 35 mgd total flow, approximately 30 mgd will be requires for the western regional planning area and 5 mgd will be required for the eastern regional planning area.

Future growth and development is expected to occur in areas of central and southern Boone County and southwestern Kenton County, with minor growth expected along the AA highway and along Twelve Mile Creek in Campbell County. The areas of Boone County are not presently served and would require a major expansion of the regional transport facilities whereas the areas of Kenton and Campbell County are already served.

Plans for updates and expansions of Sanitation District No. 1 service area are divided into Eastern Regional Service Area and Western Regional Service Area. The Eastern Regional Service Area includes a proposed secondary treatment facility with an outfall sewer to the Ohio River. It is to be constructed generally at the intersection of Four and Twelve Mile Road with Twelve Mile-Oneonta Road. Also proposed is a new pump station built to serve the Visalia and Licking River area. A new gravity sewer, which flows to a new pump station at the intersection of Pond Creek Road and Licking Pike, will be constructed. A pump station to a new gravity line that flows along Brushy Creek to the existing Alexandria treatment facility is also proposed. This would also include the abandonment of the Alexandria treatment plant with the construction of a new gravity sewer that follows Twelve Mile Creek to the new treatment facility.

Plans for the Western Regional Service Area include adding a secondary treatment facility located on the Ohio River near Bellvue. Plans call for the construction of a new pump station near the existing Richwood Pump Station to provide service for southern Boone

County. Also, a new pump station for flow diversion needs to be built near the intersection of Banklick and Bristow roads to collect flow from existing sewer and a new interceptor installed along Banklick Creek. The station will pump west to a new gravity interceptor located along South Fork Creek. A new pump station will be built for flow diversion along Bullock Pen Creek upstream of Doe Run Lake. This station collects flow from the existing interceptor and pumps it west to the new gravity interceptor located along South Fork Creek. A new pump station needs to be located near the confluence of South Fork and Fowlers Fork Creeks. This station will collect flow from Florence and the new interceptor along South Fork Creek. This station pumps to the new pump station located near the intersection of Camp Ernst Road and Burlington Pike. The new pump station at Camp Ernst Road and Burlington Pike will also collect flow from the Gunpowder and Allen Fork Pump Stations in addition to the one proposed at the confluence of South Fork and Fowlers Fork Creeks. This station discharges to a gravity line that flows to the new secondary treatment facility.

***Proposed Projects***

**SX117001**

**Sanitation District # 1**

With the construction of new regional wastewater treatment plants in Boone and Campbell Counties, new mains will be installed to upgrade or redirect flow in some areas to facilitate new hydraulic designs. What all these will include remains to be decided.

## OWEN COUNTY

### Owen County Sewer Service (map)

- Estimated 1999 population of 10,200--20% on public sewer
- Estimated 2020 population of 11,800--20% on public sewer
- Estimated funding needs for public sewer 2000-2005--\$300,000
- Estimated funding needs for public sewer 2006-2020--\$0

Owen County had an estimated population of 10,240 (4,230 households) in 1999 with a projected population of 11,800 (5,300 households) in 2020. Public sewer is provided to about 20 percent of the county's residents. About 3,400 households treat wastewater on site.

### OWEN COUNTY SEWER PLAN

#### *Proposed Projects 2000-2005*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
OWEN							-
Owenton SX187001	2-Schls	300					300

#### *Proposed Projects 2006-2020*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
OWEN							none

#### OWENTON

The City of Owenton, located in central Owen County, operates a sanitary sewer system that serves all of the residences, businesses, and industry within the corporate limits. The system serves 494 residential customers and 100 commercial customers.

The plant is located north of the city off of Carter Lane. The treated effluent is discharged into Stevens Creek. The plant has a 24-hour design capacity of 0.34 mgd. The maximum hydraulic capacity is 1.5 mgd. Average flow during the last 12 months was 0.174 mgd with a peak daily flow of 1.05 mgd. There are no pre-treatment facilities in the system. There are 8 lift stations that serve both residential and industrial customers. Ninety percent of the sewer lines are over 20 years old. System failures are reported to rarely occur and are usually attributed to line clogs. There are four employees for the plant.

# SEWER SERVICE AREAS

## OWEN COUNTY

### Kentucky



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- 201k Facility Planning Area
- Incorporated City Boundary
- Sewage Treatment Plant



**SEWER SERVICE STATUS BY OWNER**

		OWENTON WATER CITY WATER WORKS
<b>EXISTING SERVICE AREA</b>	<b>PROPOSED SERVICE AREA</b>	

***Proposed Projects***

**SX187001**

**Owenton City Waterworks**

Owenton is looking into the possibility of running a sewer line east on KY 22 for 1.25 miles, to provide service to the schools.

## PENDLETON COUNTY

### Pendleton County Sewer Service (map)

- Estimated 1999 population of 14,300--35% on public sewer
- Estimated 2020 population of 17,600--35% on public sewer
- Proposed projects would connect about 130 new households to public sewer during 2000-2020
- Estimated funding needs for public sewer 2000-2005--\$5,500,000
- Estimated funding needs for public sewer 2006-2020--\$5,730,000

Pendleton County had an estimated population of 14,273 (5,250 households) in 1999 with a projected population of 17,600 (7,500 households) in 2020. Public sewer is provided to about 35 percent of the county's residents. About 3,400 households treat wastewater on site. About 130 customers could be added to public sewer service through new line extensions in 2000-2020.

### PENDLETON COUNTY SEWER PLAN

#### *Proposed Projects 2000-2005*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
PENDLETON							-
Butler							-
SX191101	25	300					300
Falmouth							-
SX191001	30	200			5,000		5,200
Total	55	500	-	-	5,000		5,500

#### *Proposed Projects 2006-2020*

System	New Customers Served	Cost (\$1000)	Line Upgrade (\$1000)	Treatment Expansion (\$1000)	New Treatment (\$1000)	Lift Stations, and other (\$1000)	Total Costs (\$1000)
PENDLETON							-
Butler							-
SX191101	40	1,500			3,000		4,500
Falmouth							-
SX191002	13	125					125
SX191003	HS	100					100
SX191004	25	1,000					1,000
Total	38	1,225					1,225
County Total	78	2,725			3,000		5,725

# SEWER SERVICE AREAS PENDLETON COUNTY Kentucky

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

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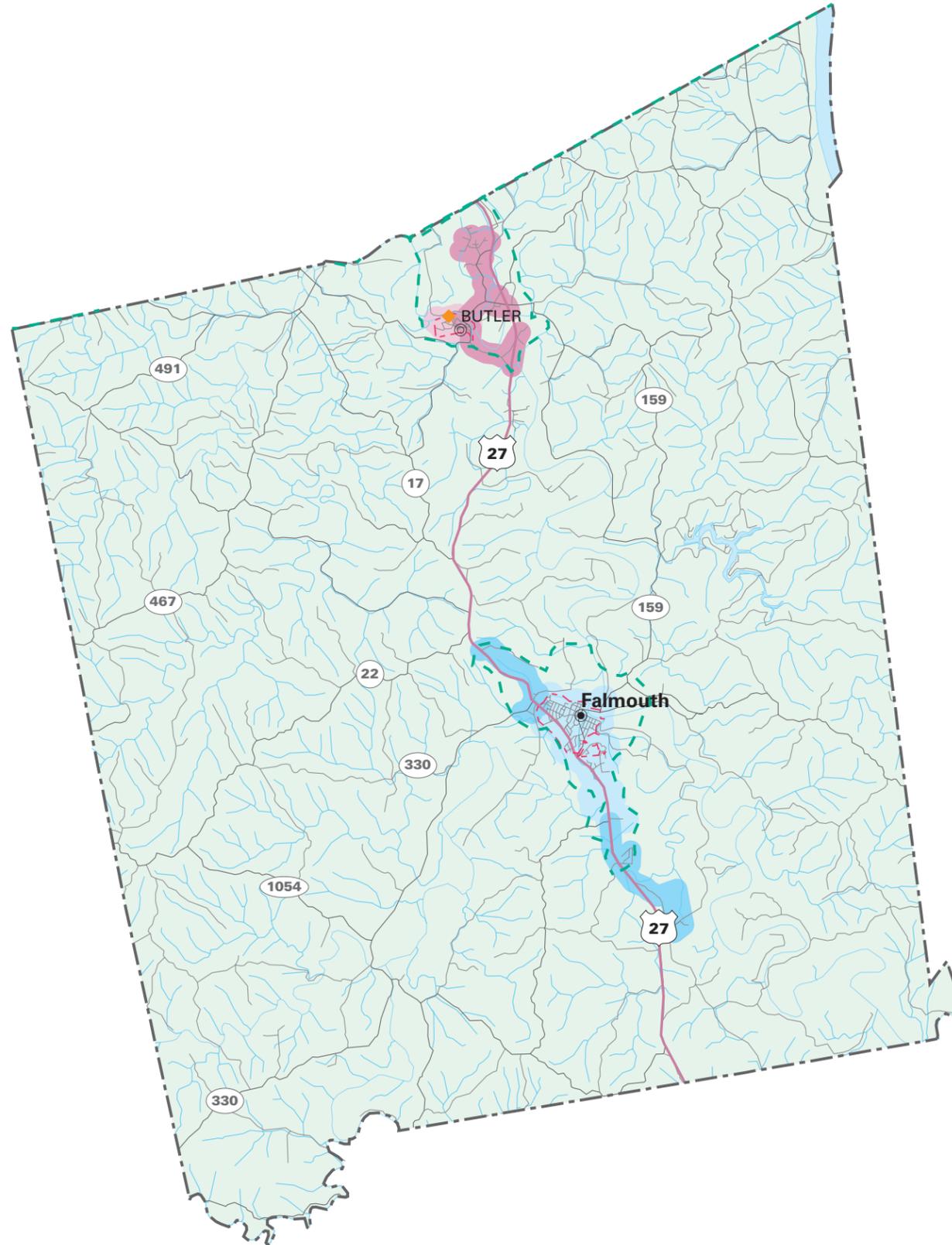
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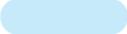


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-  201k Facility Planning Area
-  Incorporated City Boundary
-  Sewage Treatment Plant



**SEWER SERVICE STATUS BY OWNER**

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		FALMOUTH SEWER DISTRICT
		BUTLER MUNICIPAL SEWER

### FALMOUTH

The City of Falmouth, in southern Pendleton County, operates a sanitary sewer system that serves all of the residences, businesses, and industry within the corporate limits. The system has a total of approximately 1000 residential customers, 200 commercial customers, 10 industrial customers and 10 institutional customers.

The plant, an extended aeration treatment facility, is located west of KY 159 on the Licking River. The treated effluent is discharged into the Licking River. Originally constructed in 1965, the plant was expanded in 1974 and upgraded in 1999 due to flood damage. Options for further expansion are limited due to lack of space. The plant has a 24-hour design capacity of 0.39 mgd. The maximum hydraulic capacity is 0.40 mgd. Average flow during the last 12 months was 0.30 mgd with a peak daily flow of 1.50 mgd. There are no pre-treatment facilities in the system. There are 7 lift stations that serve both residential and industrial customers. System failures are reported to occur rarely and are not concentrated in any certain area. There are three employees for the plant. Ninety percent of the sewer lines are over 20 years old, and many were damaged during the flood of 1997.

The sewage treatment plant has operated beyond its designed life expectancy. The City is under an Agreed Order because of the following: the plant is operating at 90% or more, bypassing occurs at the treatment plant, the collection system is subject to excessive inflow and infiltration. There is presently a tap ban as well as a ban on any extensions without DOW approval while the Agreed Order is in effect. The most recent upgrade extends its useful life only for up to five years. Presently, the City is working to remedy the situation in several ways. A comprehensive SSES study, including recommendations and cost of rehabilitation, was completed. Based on the findings of the SSES study, the City is utilizing HUD funds to address the inflow and infiltration problems in the flood-damaged sections of the City. The City has also received funding to replace the North Trunk Sewer (Dickerson St. to Second St.). In the interim, discussions are ongoing to build a regional wastewater system in partnership with the City of Butler and Pendleton County.

The recommended regional system would entail dividing Pendleton County into two planning areas; a northern planning area that centers on the City of Butler and a southern area that centers on the City of Falmouth. Each planning area would have a plant

responsible for treating all wastewater generated in that area. The City has proposed a series of future service extensions and improvements, mostly along US 27. The South Trunk Sewer line is in need of improvement, as are many of the existing pump stations. New projects include extending service to the High School, Four Oaks Subdivision, the Bishop Ridge area, and down Monroe/KY 330. These extensions are secondary in importance until other maladies can be remedied, most importantly, treatment restrictions.

**Proposed Projects**

**SX191001**

**Falmouth Sewer District**

This is a long-term project that would extend service south on US 27 to the Four Oaks subdivision. Wastewater lines within the community would be gravity, but a pump station would be needed to transport the effluent back to the treatment plant. The estimated cost of the project is \$200,000. There are currently approximately 30 homes that would be served by this project.

**SX191002**

**Falmouth Sewer District**

This long-term project would cross the south of the Licking River via US 27, and head south on KY 330/Monroe, for a total of 0.5 miles, costing an estimated \$625,000 including a pump station. There are currently approximately 13 homes in the area that would be served by this project.

**SX191003**

**Falmouth Sewer District**

This long-term project would cost an estimated half million dollars, and would provide wastewater service to the High School.

**SX191004**

**Falmouth Sewer District**

The final potential long-term project involves the extension of a line south on US 27 past Four Oaks to an area known as Bishop Ridge. The estimated cost of this project is \$1 million. The area currently has approximately 25 homes.

## BUTLER

The City of Butler, in northern Pendleton County, operates a sanitary sewer system that serves the all of the residences, businesses, and industry within the corporate limits. The system has a total of 299 residential customers, 24 commercial customers, 2 industrial customers and 2 institutional customers.

The plant, an extended aeration treatment facility, is located west of the City on the Licking River. The treated effluent is discharged into the Licking River. The plant was expanded and upgraded in 1993. Options for further expansion, however, are limited due to lack of space. The plant has a 24-hour design capacity of 0.140 mgd. Average flow during the last 12 months is 0.046 mgd with a peak daily flow of 0.29 mgd. There are no pre-treatment facilities in the system. There are 4 lift stations that serve both residential and industrial customers. System failures are reported to occur rarely and are described as due to electrical outages. Seventy-five percent of the sewer lines are over 20 years old.

The sewage treatment plant is expected to adequately serve the City of Butler until 2010 but is not adequate to serve the area's needs through 2020. Northern Pendleton County is expected to see significant growth in the near future, especially along the US 27 corridor. The City plans expansions that would include serving the Northern Elementary School, Eastside Park area, and the industrial area east of US 27. Long term plans include adding the Sharp Middle School area to the system. It is projected that an expansion of 0.060 mgd will be necessary to treat flows through the year 2020. Discussions are ongoing to build a regional system in Pendleton County. The proposed system involves dividing Pendleton County into two planning areas; a northern planning area that would center on the City of Butler and a southern area that would centers on the City of Falmouth. Each planning area would have a plant capable of treating wastewater generated in the entire area.

### ***Proposed Projects***

#### **SX191101**

##### **Butler Municipal Sewer**

The city of Butler would like to aggressively extend sewer service to areas immediately outside the city in order to encourage economic development. Attraction of industrial interest is of particular import. This project also reflects wastewater service to several neighborhoods of existing homes and the local school.