Strategic Water Resource Development Plan

Summary of Wastewater Treatment Systems

Cumberland Valley Area Development District

Water Resource Development Commission

March, 2000

CONTENTS

MAP LISTING

CUMBERLAND VALLEY AREA DEVELOPMENT DISTRICT

342 Old Whitley Road
P.O. Box 1740
London, KY 40743-1740
(606) 864-7391

ADD SEWER SUMMARY

ADD Sewer Service (map)

- Estimated 1999 population of 233,000--30% on public sewer
- Estimated 2020 population of 251,000--56% on public sewer
- Proposed projects would connect about 16,100 new households to public sewer during 2000-2020
- Estimated funding needs for public sewer 2000-2005--$23,500,000
- Estimated funding needs for public sewer 2006-2020--$290,000,000
- Funding needs for on-site systems 2000-2020--$595,000,000

The Cumberland Valley Area Development District had an estimated population of 233,006 (91,256 households) in 1999 with a projected population of 251,310 (106,662 households) in 2020. Public sewer systems serve 70,000 area residents, or 30 percent of the population. Proposed sewer line extensions for the period 2000-2020 would provide service to an additional 16,100 households. About 163,000 people in the region currently rely on on-site treatment systems.

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

County	1999 Pop	On Public	2020 Pop	On Public
Bell	29,000	13,500 (45%)	26,600	17,300 (65%)
Clay	22,400	3,600 (16%)	23,100	12,700 (55%)
Harlan	34,900	12,200 (35%)	33,200	24,900 (75%)
Jackson	13,000	1,300 (10%)	14,500	8,000 (55%)
Knox	31,400	9,400 (30%)	34,800	13,900 (40%)
Laurel	51,500	10,300 (20%)	64,600	29,100 (45%)
Rockcastle	15,900	5,600 (35%)	17,100	11,100 (65%)
Whitley	34,900	14,000 (40%)	37,500	24,400 (65%)
Region	*233,000*	*70,000 (30%)*	*251,000*	*141,000 (56%)*

20 public sewer systems serve the region:

EXISTING & PROPOSED SEWER SERVICE CVADD Kentucky

Prepared By:
Water Resource Development Commission

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Bob Arnold, Chairman
Lawrence Wetherby, Executive Director

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

Data Collection & GIS Input By:
Kentucky Area Development Districts

JACKSON
ROCKCASTLE
CLAY
LAUREL
KNOX
WHITLEY
BELL
HARLAN

McKee
Brodhead
Mount Vernon
Livingston
Annville
London
Manchester
Corbin
Barbourville
Williamsburg
Pineville
Loyall
Harlan
Evarts
Cumberland
Lynch
Benham

Lake Linville
Beattyville Lake
Wood Creek Lake
Buckhorn Lake
Laurel River Lake
Lake Cumberland
Cannon Creek Lake
Chenoa Lake
Fern Lake
Martins Fork Lake
Cranks Creek Lake

150
25

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)
BELL							
Middlesboro	149	5960					5,960
							-
CLAY							-
Manchester	703	8874		4108			12,982
							-
HARLAN							-
no immediate projects							-
							-
JACKSON							-
Annville	206	1,940			1,400		3,340
McKee	___	1,241	-				1,241
County Total	206	3,181	-		1,400		4,581
KNOX							-
No immediate projects							-
LAUREL							-
No immediate projects							-
							-
ROCKCASTLE							-
No immediate projects							-
WHITLEY							
No immediate projects							
Cumberland Valley ADD Total	**1,058**	**18,015**		**4,108**	**1,400**		**23,523**

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)
BELL							-
Middlesboro	946	23,739	-	4,000	-	-	27,739
Pineville Utilities	724	10,364	-	-	-	-	10,364
County Total	**1,670**	**34,103**	**-**	**4,000**			**38,103**
CLAY							-
Manchester	**865**	**28,597**					**28,597**
							-
HARLAN							-
Black Mountain Utility	410	3,088	-	-			3,088
Cumberland	1,012	12,000	-	3,500			15,500
Evarts	1,614	7,689	-	1,000			8,689
Lynch	76	2,069	-	-			2,069
Harlan	2,200	19,644	-	-			19,644
CountyTotal	**5,312**	**44,490**		**4,500**			**48,990**
							-
JACKSON							-
McKee	**25**	**2,257**					**2,257**
KNOX							-
Corbin	1,253	13,000	-	3,500			16,500
Barbourville	427	4,305	-	5,000	-	-	9,305
County Total	**1,680**	**17,305**	**-**	**8,500**			**25,805**
							-
LAUREL							-
London	1,484	37,000	-	3,500			40,500
Corbin	433	6,792	-	-			6,792
County Total	**1,917**	**43,792**	**-**	**3,500**			**47,292**
ROCKCASTLE							-
Livingston	102	5,389	-	3,500			8,889
Mt. Vernon	704	29,000	-	3,500			32,500
County Total	**806**	**34,389**	**-**	**7,000**			**41,389**
Whitley							-
Williamsburg	1,206	20,000	-	5,000			25,000
Corbin (Multi-county)	1,524	27,000	-	5,000			32,000
County Total	**2,730**	**47,000**	**-**	**10,000**			**57,000**
Cumberland Valley ADD Total	**15,005**	**251,933**		**37,500**			**289,433**

BELL COUNTY

Bell County Sewer Service (map)

- Estimated 1999 population of 29,000--45% on public sewer
- Estimated 2020 population of 26,600--65% on public sewer
- Proposed projects would connect about 2,800 new households to public sewer during 2000-2020
- Estimated funding needs for public sewer 2000-2005--$5,960,000
- Estimated funding needs for public sewer 2006-2020--$38,100,000
- Funding needs for on-site systems 2000-2020--$49,000,000
-

Bell County had an estimated population of 29,017 (11,576 households) in 1999 with a projected population of 26,582 (11,573 households) in 2020. Public sewer is provided to about 45 percent of the county's residents. About 6,400 households in the county use on-site wastewater treatment. About 2,800 customers could be added to public sewer service through new line extensions in 2000-2020.

BELL 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)
BELL							
Middlesboro							-
SX01302001	41	1,300					1,300
SX01302002	21	1,108					1,108
SX01302003	9	1,054					1,054
SX01302006	49	1,269					1,269
SX01302007	29	1,229					1,229
Total	**149**	**5,960**					**5,960**

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)
BELL							-
Middlesboro							-
SX01302004	57	1,359					1,359
SX01302005	16	1,180					
SX01302008	873	21,200		4,000			
Total	946	23,739		4,000			27,739
Pineville Utilities							
SX01301001	381	3,469					
SX01301002	101	2,078					2,078

SEWER SERVICE AREAS
BELL COUNTY
Kentucky

Prepared By:
Water Resource Development Commission

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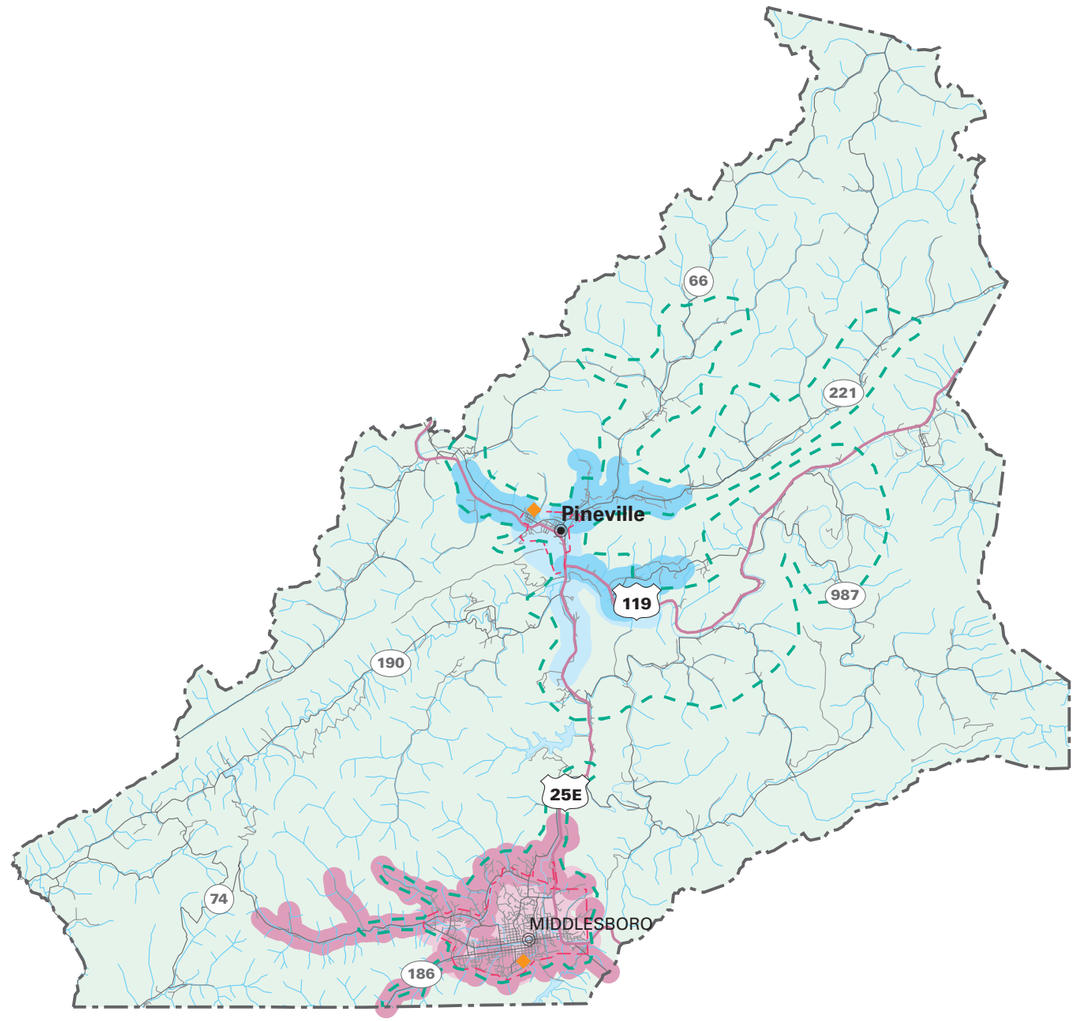

201k Facility Planning Area

Incorporated City Boundary

Sewage Treatment Plant

SEWER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		PINEVILLE SEWER
		MIDDLESBORO SEWER

SX01301003	61	1,528					1,528
SX01301004	181	3,289					3,289
Total	724	10,364					10,364
							-
County Total	**1,670**	**34,103**	**-**	**4,000**			**38,103**

PINEVILLE SEWER DEPARTMENT

The KPDES number for the Pineville Sewer Department is 0024058. This wastewater system serves the City of Pineville. This system was established in 1972. The last major expansion of this system was in May 1995.

Pineville's wastewater plant has a 24-hour permitted design capacity of .721 MGD. Fifty percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months is .300 MGD. The peak daily flow for the past twelve months is .459 MGD. The Pineville Wastewater Treatment Plant is a biolac (active sludge) type facility. The plant discharges into the Cumberland River.

The total population served by the Pineville Wastewater Treatment Plant is 2,500. The system serves a total of 864 customers, of which 760 are residential, 78 commercial and 26 governmental.

MIDDLESBORO SEWER DEPARTMENT

The KPDES number for the Middlesboro Sewer Department is 0072885. This wastewater system serves the City of Middlesboro. This system was established in 1935 and constructed in 1939. The last major expansion of this system was in 1986.

Middlesboro's wastewater plant has a 24-hour permitted design capacity of 2.8 MGD. Ninety percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months is 2.4 MGD. The peak daily flow for the past twelve months is 7.1 MGD. The Middlesboro Wastewater Treatment Plant is an oxidation ditch facility. The plant discharges into Yellow Creek.

The total population served by the Middlesboro Wastewater Treatment Plant is 11,328. The system serves a total of 3,959 customers, of which 3,253 are residential, 701 commercial, 5 industrial and 26 residential outside the city limits.

Proposed Projects

The following represent areas identified by Bell County local officials as those having urgent disposal needs: Ampleside Subdivision, Har-Bell Subdivision, Woodland Hills, Straight Creek --Right Fork up to Kettle Island and Left Fork up Arjay, Meldrum, Ferndale, Laurel Hills, KY 119 to Page.

Number	Customers	Entity	Ranking	Cost	Length
SX01302007	29	Middlesboro	Immediate	$1,229,068.00	1.276 miles
SX01301001	381	Pineville	Long term	$3,468,745.00	11.263 miles
SX01302005	16	Middlesboro	Long term	$1,179,520.00	1 miles
SX01302008*	873	Middlesboro	Long term	$25,211,800.00	120 miles
SX01301004	181	Pineville	Long term	$3,289,486.00	10.738 miles

Number	Customers	Entity	Ranking	Cost	Length
SX01302001	41	Middlesboro	Immediate	$1,299,500.00	1.668 miles
SX01301002	101	Pineville	Long term	$2,077,972.00	5.748 miles
SX01302006	49	Middlesboro	Immediate	$1,269,280.00	1.5 miles
SX01302002	21	Middlesboro	Immediate	$1,108,205.00	.603 miles
SX01301003	61	Pineville	Long term	$1,528,167.00	2.942 miles
SX01302004	57	Middlesboro	Long term	$1,359,040.00	2 miles
SX01302003	9	Middlesboro	Immediate	$1,053,995.00	.301 miles

This project cost includes a $3.5 million plant upgrade for the city of Middlesboro.
Pineville's wastewater treatment plant is only operating at 30% capacity. They do not need an upgrade.

ON-SITE TREATMENT SYSTEMS

Proposed Projects

Number	Customers	Entity	Ranking	Cost	Length
	198	Capacity & Quality	Individual Septic	$693,000	N/A
SI01301009	385	Capacity & Quality	S.T.E.P.	$3,637,774	24.874 miles
SI01301007	344	Capacity & Quality	Package Plant	$6,245,177	24.48 miles
SI01301002	109	Capacity & Quality	Individual Septic	$381,500	N/A
SI01301006	568	Capacity & Quality	S.T.E.P.	$4,609,119	37.406 miles
SI01301005	234	Capacity & Quality	Package Plant	$2,141,370	5.433 miles
SI01301003	337	Capacity & Quality	Package Plant	$3,941,635	15.467 miles
SI01301010*	944	Capacity & Quality	Treatment Plant	$22,142,450	78.791 miles
SI01301008	1,493	Capacity & Quality	Individual Septic	$5,255,500	N/A

* *This project cost includes a $6 million wastewater treatment plant.*

CLAY COUNTY

Clay County Sewer Service (map)

- Estimated 1999 population of 22,400--16% on public sewer
- Estimated 2020 population of 23,100--55% on public sewer
- Proposed projects would connect about 3,500 new households to public sewer during 2000-2020
- Estimated funding needs for public sewer 2000-2005--$13,000,000
- Estimated funding needs for public sewer 2006-2020--$28,600,000
- Funding needs for on-site systems 2000-2020--$75,000,000

Clay County had an estimated population of 22,399 (8,302 households) in 1999 with a projected population of 23,052 (9,188 households) in 2020. Public sewer is provided to about 16 percent of the county's residents. About 7,000 households in the county use on-site wastewater treamtment. About 3,500 customers could be added to public sewer service through new line extensions in 2000-2020.

CLAY 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)
CLAY							-
Manchester							-
SX05103001	30	707		4,108			4,815
SX05103002	10	165					165
SX05103003	18	422					422
SX05103004	200	1,916					1,916
SX05103005	67	739					739
SX05103006	54	1121					1121
SX05103011	324	3,804					3,804
Total	**703**	**8,874**		**4,108**			**12,982**

SEWER SERVICE AREAS
CLAY COUNTY
Kentucky

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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	
		MANCHESTER SEWER
		HIMA SIBERT

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)
CLAY							-
Manchester							-
SX05103007	142	2,954					2,954
SX05103008	186	2,406					2,406
SX05103009	82	1,072					1,072
SX05103010	455	22,165					22,165
Total	**865**	**28,597**					**28,597**

MANCHESTER WASTEWATER TREATMENT PLANT

The KPDES number for the Manchester Wastewater Plant is 0029122. This wastewater system serves the City of Manchester. This system was established in 1990. The last major expansion of this system was in September 1990.

Manchester's wastewater plant has a 24-hour permitted design capacity of .800 MGD. Ninety percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months is .746 MGD. The peak daily flow for the past twelve months is 1.722 MGD. The Manchester Wastewater Treatment Plant is an oxidation ditch facility. The plant discharges into Goose Creek.

The total population served by the Manchester Wastewater Treatment Plant is 1,638. The system serves a total of 1,321 customers, of which 1,095 are residential, 225 commercial and one (1) institutional.

HIMA-SIBERT WATER DISTRICT

The Hima-Sibert Water District is located off KY 80 between Manchester and the Laurel County line. It was established in 1986. They are operating a mound system.

The total population served by the Hima-Sibert Water District is 2,200. This district provides wastewater disposal to 65 residential customers. A flat rate of $4.65 is charged to customers.

Proposed Projects

The following represent areas identified by Clay County local officials as those having urgent disposal needs: Brightshades and Foggertown.

Number	Customers	Entity	Ranking	Cost	Upgrade	Length
SX05103009	82	Manchester	Long term	$1,072,000.00	$4,108,000.00	2.027 miles
SX05103011	324	Manchester	Immediate	$3,804,300.00	$4,108,000.00	9.67 miles
SX05103008	186	Manchester	Long term	$2,406,000.00	$4,108,000.00	1.326 miles
SX05103006	54	Manchester	Immediate	$1,120,700.00	$4,108,000.00	3.258 miles
SX05103005	67	Manchester	Immediate	$739,300.00	$4,108,000.00	1.553 miles
SX05103004	200	Manchester	Immediate	$1,916,200.00	$4,108,000.00	5.682 miles
SX05103003	18	Manchester	Immediate	$422,100.00	$4,108,000.00	.739 miles
SX05103002	10	Manchester	Immediate	$165,100.00	$4,108,000.00	.218 miles
SX05103001	30	Manchester	Immediate	$707,200.00	$4,108,000.00	1.780 miles
SX05103007	142	Manchester	Long term	$2,954,300.00	$4,108,000.00	7.879 miles
SX05103010	455	Manchester	Long term	$22,165,000.00	$4,108,000.00	100 miles

The $4,108,000.00 in a single plant upgrade for all 11 projects.

ON-SITE TREATMENT SYSTEMS

Proposed Projects

Number	Customers	Entity	Ranking	Cost	Upgrade	Length
SI05103005	233	Capacity & Quality	Individual Septic	$932,000.00	N/A	
SI05103010	536	Capacity & Quality	Individual Septic	$1,876,000.00	N/A	
SI05103002	162	Capacity & Quality	Wetland	$3,282,187.00	8.149 miles	
SI05103001*	1,913	Capacity & Quality	Treatment Plant	$45,840,245.00	218 miles	
SI05103004	234	Capacity & Quality	Individual Septic	$936,000.00	N/A	
SI05103003	444	Capacity & Quality	Individual Septic	$199,800.00	N/A	
SI05103009	196	Capacity & Quality	S.T.E.P.	$1,990,398.00	7.818 miles	
SI05103011	88	Capacity & Quality	Individual Septic	$308,000.00	N/A	
SI05103006	414	Capacity & Quality	Septic System	$11,998,000.00	45 miles	
SI05103012	201	Capacity & Quality	Package Plant	$4,876,600.00	18.00 miles	
SI05103008	81	Capacity & Quality	Package Plant	$1,857,208.00	4.636 miles	
SI05103007	22	Capacity & Quality	Package Plant	$1,121,780.00	.623 miles	

** This project cost includes $6 million for a treatment plant.*

HARLAN COUNTY

Harlan County Sewer Service (map)

- Estimated 1999 population of 34,900--35% on public sewer
- Estimated 2020 population of 33,200--75% on public sewer
- Proposed projects would connect about 5,900 new households to public sewer during 2000-2020
- Estimated funding needs for public sewer 2000-2005--$0
- Estimated funding needs for public sewer 2006-2020--$49,000,000
- Funding needs for on-site systems 2000-2020--$60,000,000

Harlan County had an estimated population of 34,861 (13,532 households) in 1999 with a projected population of 33,163 (14,203 households) in 2020. Public sewer is provided to about 35 percent of the households. About 8,800 households use on-site systems. About 5,900 customers could be added to public sewer service through new line extensions in 2000-2020.

HARLAN 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)
HARLAN							-
no immediate projects							-

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)
HARLAN							-
Black Mountain Utility SX09504009	410	3,088					3,088
Cumberland SX09507001	1,012	12,000		3,500			15,500
Evarts SX09505001	1,614	7,689		1,000			8,689
Lynch SX09506001	76	2,069					2,069
Harlan SX09505007	2,200	19,644					19,644
Harlan County Total	**5,312**	**44,490**		**4,500**			**48,990**

BENHAM WASTEWATER TREATMENT PLANT

The KPDES number for the Benham Wastewater Treatment Plant is 0025755. This wastewater system serves the City of Benham. This system was constructed in 1964. The last major expansion of this system was in 1996.

SEWER SERVICE AREAS
HARLAN COUNTY
Kentucky

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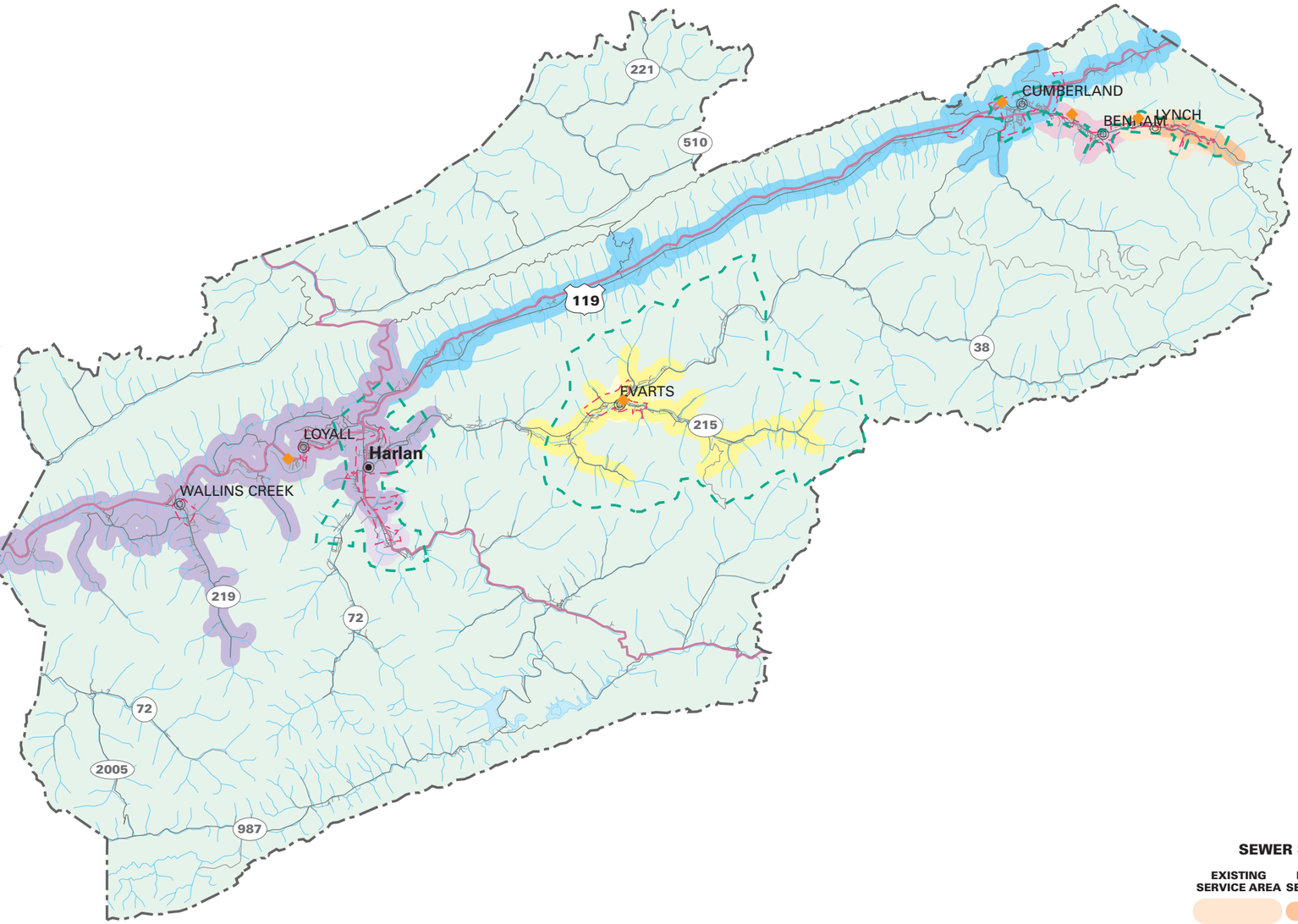

201k Facility Planning Area

Incorporated City Boundary

Sewage Treatment Plant

SEWER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		CITY OF LYNCH
		CITY OF LOYALL
		CITY OF HARLAN
		CITY OF EVARTS
		CITY OF CUMBERLAND
		CITY OF BENHAM

Benham's wastewater plant has a 24-hour permitted design capacity of .25 MGD. Seventy percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months is .151 MGD. The peak daily flow for the past twelve months is .196 MGD. The Benham Wastewater Treatment Plant is an extended aeration facility. The plant discharges into Looney Creek.

The total population served by the Benham Wastewater Treatment Plant is 956. The system serves a total of 408 customers, of which 398 are residential, nine (9) commercial and one (1) institutional.

Do to its geographic location Benham can not expand its wastewater lines.

BLACK MOUNTAIN UTILITY DISTRICT (COXTON)

The KPDES number for the Black Mountain Utililty District (Coxton) is 079618. This wastewater system serves the Coxton-Eastbrook Community of Harlan County. This system was established in 1986. The last major expansion of this system was in 1986.

Black Mountain's wastewater plant has a 24-hour permitted design capacity of .150 MGD. Ten percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months is .004 MGD. The peak daily flow for the past twelve months is .012 MGD. The Black Mountain Wastewater Treatment Plant is an extended aeration facility. The plant discharges into Clover Fork.

Total number of customers is 173 using 11 service connections. All of the customers are residential.

CITY OF CUMBERLAND

The KPDES number for the Cumberland Wastewater Plant is 0021571. This wastewater system serves the City of Cumberland. This system was established in 1964. The last major expansion of this system was in 1995.

Cumberland's wastewater plant has a 24-hour permitted design capacity of .5 MGD. Eighty-five percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months is .325 MGD. The peak daily flow for the past twelve months is .970

MGD. The Cumberland Wastewater Treatment Plant has a trickling filter. The plant discharges into Poor Fork.

The total population served by the Cumberland Wastewater Treatment Plant is 3,010. The system serves a total of 860 customers.

CITY OF EVARTS

The KPDES number for the Evarts Wastewater Plant is 0073091. This wastewater system serves the City of Evarts. This system was established in 1982. The last major expansion of this system was in 1986.

Evarts' wastewater plant has a 24-hour permitted design capacity of .120 MGD. Ninety percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months is .110 MGD. The peak daily flow for the past twelve months is .152 MGD. The Evarts Wastewater Treatment Plant is an extended aeration facility. The plant discharges into Cumberland River.

The total population served by the Evarts Wastewater Treatment Plant is 1,757. The system serves a total of 502 customers, of which 450 are residential, 48 commercial and four (4) institutional.

CITY OF HARLAN

The KPDES number for the Harlan Wastewater Plant is 0026093. This wastewater system is a new regional wastewater treatment plant. Construction was just completed and operation began July 1999.

Harlan's wastewater plant has a 24-hour permitted design capacity of 1.2 MGD. The Harlan Wastewater Treatment Plant is an aerated facilitative lagoon. The plant discharges into Cumberland River.

The plant has been in operation since July 1999, serving the City of Harlan and the Rio Vista Community. Plans call for the communities of Baxter, Fresh Meadows and the City of Loyall to be added to this system.

There is also talk about Evarts being added to Harlan's regional treatment plant. If a force main is ran from Evarts to Harlan, there in no reason why Black Mountains package plant at Coxton can not be picked up as well.

CITY OF LOYALL

Lines are in the system for the City of Loyall. We were not able to obtain any information from the City of Loyall relative to the capacity of the sewer treatment plant. Efforts are being made to obtain this information from the Division of Water.

CITY OF LYNCH

The KPDES number for the Lynch Wastewater Plant is 0024279. This wastewater system serves the City of Lynch. This system was established in 1957. The last major expansion of this system was in 1995.

The Lynch Wastewater Plant has a 24-hour permitted design capacity of .750 MGD. Eighty percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months is .300 MGD. The peak daily flow for the past twelve months is 1.410 MGD. The Lynch Wastewater Treatment Plant is an extended aeration facility. The plant discharges into Looney Creek.

The total population served by the Lynch Wastewater Treatment Plant is 1,040. The system serves a total of 517 customers, of which 516 are residential and one (1) commercial.

Proposed Projects

The following represent areas identified by Harlan County local officials as those having urgent disposal needs: Cawood, Wallins Creek, Green Hills, Pathfork, and Coldiron.

Number	Customers	Entity	Cost	Ranking	Length
SX09505007	2299	Harlan	$19,644,400.00	Long term	87 miles
SX09507001*	1012	Cumberland	$15,493,840.00	Long term	76 miles
SX09506001	76	Lynch	$2,069,320.00	Long term	5 miles
SX09505001	1614	Evarts	$8,689,504.00	Long term	18 miles
SX09504009	410	Black Mountain Utility	$3,087,557.00	Long term	10.672 miles

** This project cost includes $6 million for a treatment plant.*

ON-SITE TREATMENT SYSTEMS

The projects listed below include every house not currently connected to a sewer line in Harlan County.

Number	Customers	Problem	Solution	Cost	Length
SI09504005	287	Capacity & Quality	Package Plant	$4,080,470.00	15.813 miles
SI09504002	644	Capacity & Quality	Constructed Wetland	$7,665,142.00	19.704 miles
SI09504001	474	Capacity & Quality	Constructed Wetland	$5,554.957.00	12.443 miles
SI09504008	861	Capacity & Quality	Package Plant	$5,652,035.00	21.01 miles
SI09504007*	595	Capacity & Quality	Treatment Plant	$15,755,285.00	42 miles
SI09504006	500	Capacity & Quality	Package Plant	$13,459,600.00	58 miles
SI09504004	610	Capacity & Quality	Constructed Wetland	$5,413,034.00	1.967 miles
SI09504003	245	Capacity & Quality	Constructed Wetland	$2,088,360.00	6 miles
SI09504009	123	Capacity & Quality	Individual Septic	$430,500.00	N/A

** This project cost includes $3.5 million for a plant.*

JACKSON COUNTY

Jackson County Sewer Service (map)

- Estimated 1999 population of 13,000--10% on public sewer
- Estimated 2020 population of 14,500--55% on public sewer
- Proposed projects would connect about 2,500 new households to public sewer during 2000-2020
- Estimated funding needs for public sewer 2000-2005--$4,580,000
- Estimated funding needs for public sewer 2006-2020--$2,260,000
- Funding needs for on-site systems 2000-2020--$29,000,000

Jackson County had an estimated population of 13,000 (5,024 households) in 1999 with a projected population of 14,540 (6,205 households) in 2020. Public sewer is provided to about 10 percent of the county's residents. About 4,500 households in the county use on-site treatment systems. About 2,500 customers could be added to public sewer service through new line extensions in 2000-2020.

JACKSON 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)
JACKSON							-
Annville SX10910001	206	1,940			1,400		3,340
McKee SX10909001	ind	1,241					1,241
Total	**206**	**3,181**			**1,400**		**4,581**

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)
JACKSON							-
McKee							-
SX10909002	ind	1,031					1,031
SX10909003	25	1,226					1,226
Total	**25**	**2,257**					**2,257**

MCKEE WATER AND SEWER

The KPDES number for the McKee Water and Sewer is 0034444. This wastewater system serves the City of McKee. This system was established in 1965. The last major expansion of this system was in 1991.

SEWER SERVICE AREAS
JACKSON COUNTY
Kentucky

Prepared By:
Water Resource Development Commission

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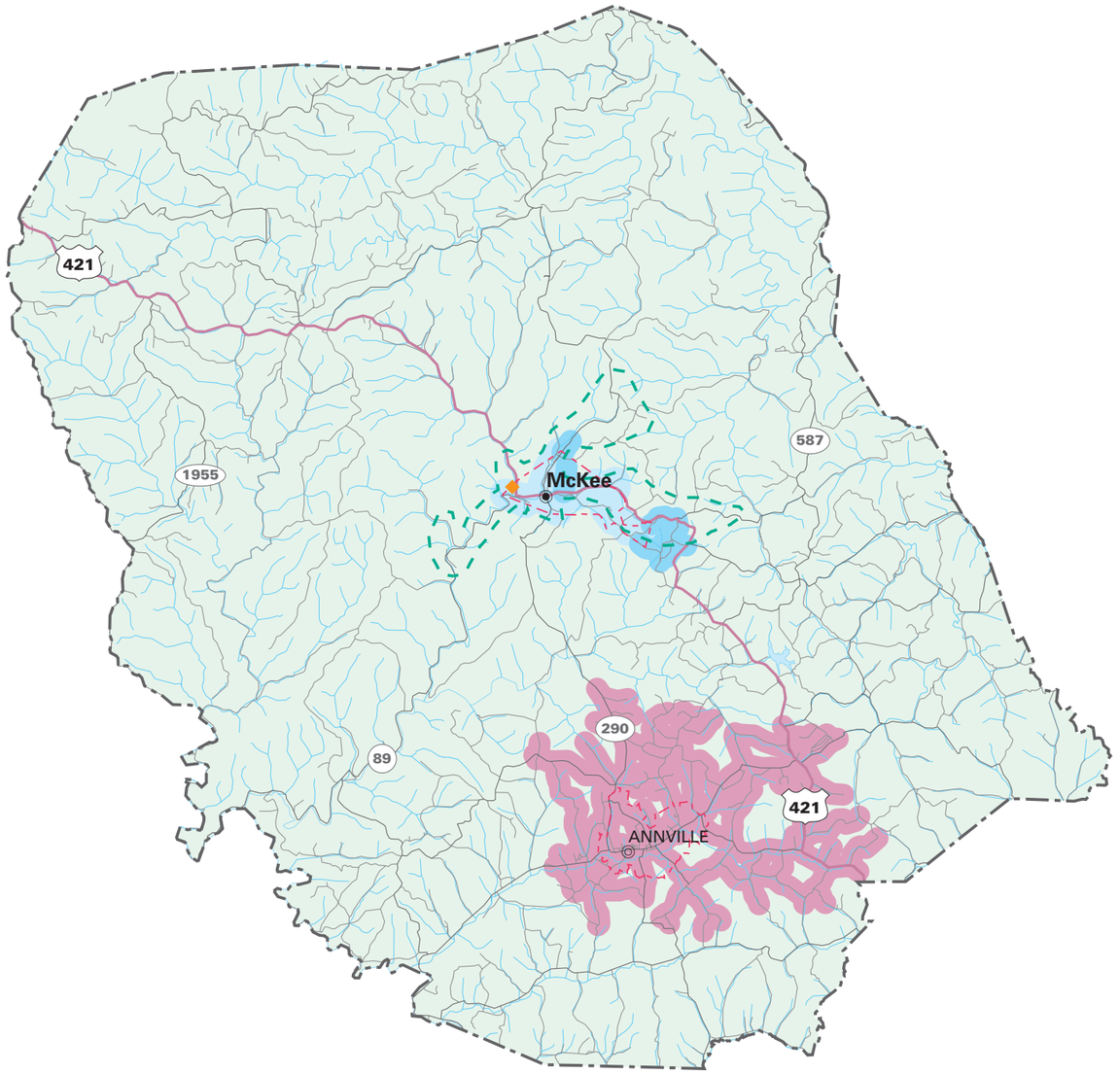
Final GIS & Cartographic Operations By:
Kent Anness & Kim Anness

Data Collection & GIS Input By:
Kentucky Area Development Districts

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



SEWER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		CITY OF MCKEE
		ANNVILLE

McKee's wastewater plant has a 24-hour permitted design capacity of .170 MGD. Eighty-eight percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months is .150 MGD. The peak daily flow for the past twelve months is .780 MGD. The McKee Wastewater Treatment Plant is an extended aeration facility. The plant discharges into Indian Creek.

The total population served by the McKee Wastewater Treatment Plant is 1,000. The system serves a total of 488 customers, of which 485 are residential and 3 industrial.

CITY OF ANNVILLE

The City of Annville does not currently have a wastewater treatment plant. Engineering has been completed reflecting a cost of $3,340,000. This will complete the plant and a portion of the lines for the City of Annville. The additional lines have not been engineered.

Annville would like to serve 80 miles of surrounding area in the next 20 years.

Proposed Projects

The following represent areas identified by Jackson County local officials as those having urgent disposal needs: Gray Hawk, Sand Gap, Tyner.

Number	Customers	Entity	Cost	Priority	Upgrade	Length
SX10910001*	206	Annville	$3,340,000.00	Both	Included	6.8 miles
SX10909001*	2	McKee	$1,240,976.00	Immediate	$3,500,000.00	.92 miles
SX10909003	25	McKee	$1,225,781.00	Long term	$3,500,000.00	2.7 miles
SX10909002	3	McKee	$1,031,097.00	Long term	$3,500,000.00	.17 miles

$14,231,300.00 Line work for Annville
$3,500,000.00 Plant development for McKee
* *There are 80 miles of line that are not accounted for in this project costing $14,361,600.00. The cost includes a treatment plant and about $1.9 million for line work. The 80 miles is an area that Annville would like to serve in the next 20 years.*
* *This project is for an industrial site. It was difficult to estimate the number of customers.*

ON-SITE TREATMENT SYSTEMS

The projects listed below include every house not currently connected to a sewer line in Jackson County.

Number	Customers	Problem	Solution	Cost	Length
SI10908012	2154	Capacity & Quality	Individual Septic	$7,539,000.00	N/A
SI10908004	269	Capacity & Quality	Package Plant	$1,699,700.00	2.9 miles
SI10908003	189	Capacity & Quality	Package Plant	$3,391,049.00	10.803 miles
SI10908002	29	Capacity & Quality	Community Septic	$1,377,939.00	1.9 miles
SI10908001	75	Capacity & Quality	Constructed Wetland	$1,767,938.00	2.003 miles
SI10908005	39	Capacity & Quality	Constructed Wetland	$1,756,258.00	3.06 miles
SI10908011	75	Capacity & Quality	Package Plant	$2,170,589.00	5.397 miles
SI10908010	85	Capacity & Quality	Constructed Wetland	$2,498,900.00	5.499 miles

SI10908009	82	Capacity & Quality	Community Septic	$2,371,481.00	5.998 miles
SI10908006	83	Capacity & Quality	Constructed Wetland	$1,882,430.00	2.779 miles
SI10908008	12	Capacity & Quality	Community Septic	$1,199,460.00	.68 miles
SI10908007	31	Capacity & Quality	Community Septic	$1,454,537.00	2.000 miles

KNOX COUNTY

Knox County Sewer Service (map)

- Estimated 1999 population of 31,400--30% on public sewer
- Estimated 2020 population of 34,800--40% on public sewer
- Proposed projects would connect about 1,700 new households to public sewer during 2000-2020
- Estimated funding needs for public sewer 2000-2005--$0
- Estimated funding needs for public sewer 2006-2020--$25,800,000
- Funding needs for on-site systems 2000-2020--$80,000,000

Knox County had an estimated population of 31,443 (12,497 households) in 1999 with a projected population of 34,776 (15,081 households) in 2020. Public sewer is provided to about 30 percent of the county's residents. About 8,700 households treat wastewater on site. About 1,700 customers could be added to public sewer service through new line extensions in 2000-2020.

KNOX 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)
KNOX							-
no immediate projects							-

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)
KNOX							-
Corbin SX12111001	1,253	13,000		3,500			16,500
Barbourville							-
SX12113001	400	3,154					3,154
SX12113002	27	1,151		5,000			6,151
Total	1,680	17,305		8,500			25,805

BARBOURVILLE UTILITY COMMISSION

The KPDES number for Barbourville Water and Electric is 0024082. This wastewater system serves the City of Barbourville. This system was established in 1950. The last major expansion of this system was in 1976.

SEWER SERVICE AREAS
KNOX COUNTY
Kentucky

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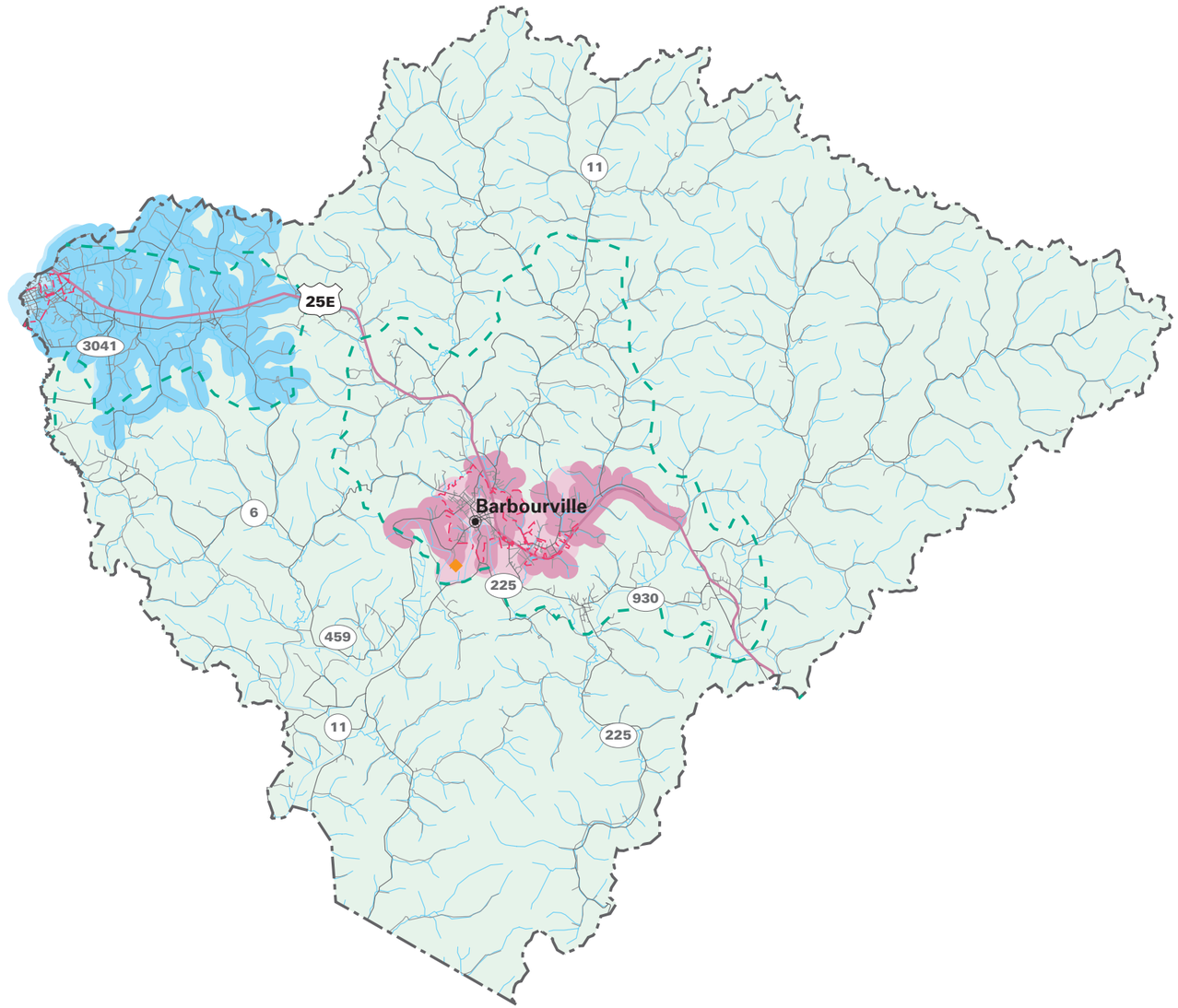

201k Facility Planning Area

Incorporated City Boundary

Sewage Treatment Plant

SEWER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		CITY OF CORBIN
		BARBOURVILLE UTILITIES

Barbourville's wastewater plant has a 24-hour permitted design capacity of 1.0 MGD. Sixty percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months is .600 MGD. The peak daily flow for the past twelve months is .980 MGD. The Barbourville Wastewater Treatment Plant is an extended aeration facility. The plant discharges into Cumberland River.

The total population served by the Barbourville Wastewater Treatment Plant is 10,000. The system serves a total of 1,989 customers, of which 1,623 are residential and 366 commercial.

Proposed Projects

The following represent areas identified by Knox County local officials as those having urgent disposal needs: Heidrick area, Old 25E now KY 11, Sonny Brook Road and side roads in this area, Boone Heights area, Broughton Hollow, Whiteburg Hollow, Henson Hollow, Higgins Hollow (outside Barbourville City Limits).

Number	Customers	Entity	Priority	Estimated Cost	Length
SX12111001*	1,253	Corbin	Long-term	$16,345,888.00	72.025 miles
SX12113001*	400	Barbourville	Long-term	$8,154,240.00	12.000 miles
SX12113002*	27	Barbourville	Long-term	$6,151,379.00	.84 miles

* *This Corbin project is just for Knox County. Corbin has sewer lines in three counties.*

* *The two Barbourville projects include a $5 million upgrade cost to there lagoon system.*

ON-SITE TREATMENT SYSTEMS

The projects listed below include every house not currently connected to a sewer line in Knox County.

Number	Customers	Problems	Solution	Estimated Cost	Length
SI12112012	930	Capacity & Quality	Individual Septic	$3,255,000.00	N/A
SI12112007	45	Capacity & Quality	S.T.E.P.	$1,188,837.00	1.19 miles
SI12112008	49	Capacity & Quality	Collection System	$2,960,703.00	5.00 miles
SI12112009	207	Capacity & Quality	Collection System	$5,343,720.00	3.4 miles
SI12112004	603	Capacity & Quality	Package Plant	$17,704,370.00	89.103 miles
SI12112002	476	Capacity & Quality	Constructed Wetland	$14,272,080.00	60.00 miles
SI12112006	244	Capacity & Quality	Constructed Wetland	$8,613,122.00	35.662 miles
SI12112011	37	Capacity & Quality	Constructed Wetland	$1,267,359.00	.66 miles
SI12112013	58	Capacity & Quality	Constructed Wetland	$1,755,976.00	.0004 miles
SI12112003	412	Capacity & Quality	Package Plant	$6,999,125.00	33 miles
SI12112001	246	Capacity & Quality	Constructed Wetland	$7,314,480.00	25.207 miles
SI12112005	476	Capacity & Quality	Package Plant	$6,101,062.00	24.254 miles
SI12112010	263	Capacity & Quality	Collection System	$3,724,040.00	9.00 miles

LAUREL COUNTY

Laurel County Sewer Service (map)

- Estimated 1999 population of 51,500--20% on public sewer
- Estimated 2020 population of 64,600--45% on public sewer
- Proposed projects would connect about 5,800 new households to public sewer during 2000-2020
- Estimated funding needs for public sewer 2000-2005--$0
- Estimated funding needs for public sewer 2006-2020--$47,300,000
- Funding needs for on-site systems 2000-2020--$143,000,000

Laurel County had an estimated population of 51,501 (19,823 households) in 1999 with a projected population of 64,598 (26,437 households) in 2020. Public sewer is provided to about 20 percent of the county's residents. About 15,800 households treat wastewater on site. About 5,800 customers could be added to public sewer service through new line extensions in 2000-2020.

LAUREL 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)
LAUREL							-
no immediate projects							-

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)
LAUREL							-
London Utility Commission SX12515001	1,484	37,000		3,500			40,500
Corbin Utilities SX12511001	433	6,792					6,792
Laurel County Total	**1,917**	**43,792**		**3,500**			**47,292**

LONDON UTILITY COMMISSION

The KPDES number for the London Utility Commission is 0021270. This wastewater system serves the City of London. This system was established in 1948. The last major expansion of this system was in 1982.

SEWER SERVICE AREAS
LAUREL COUNTY
Kentucky

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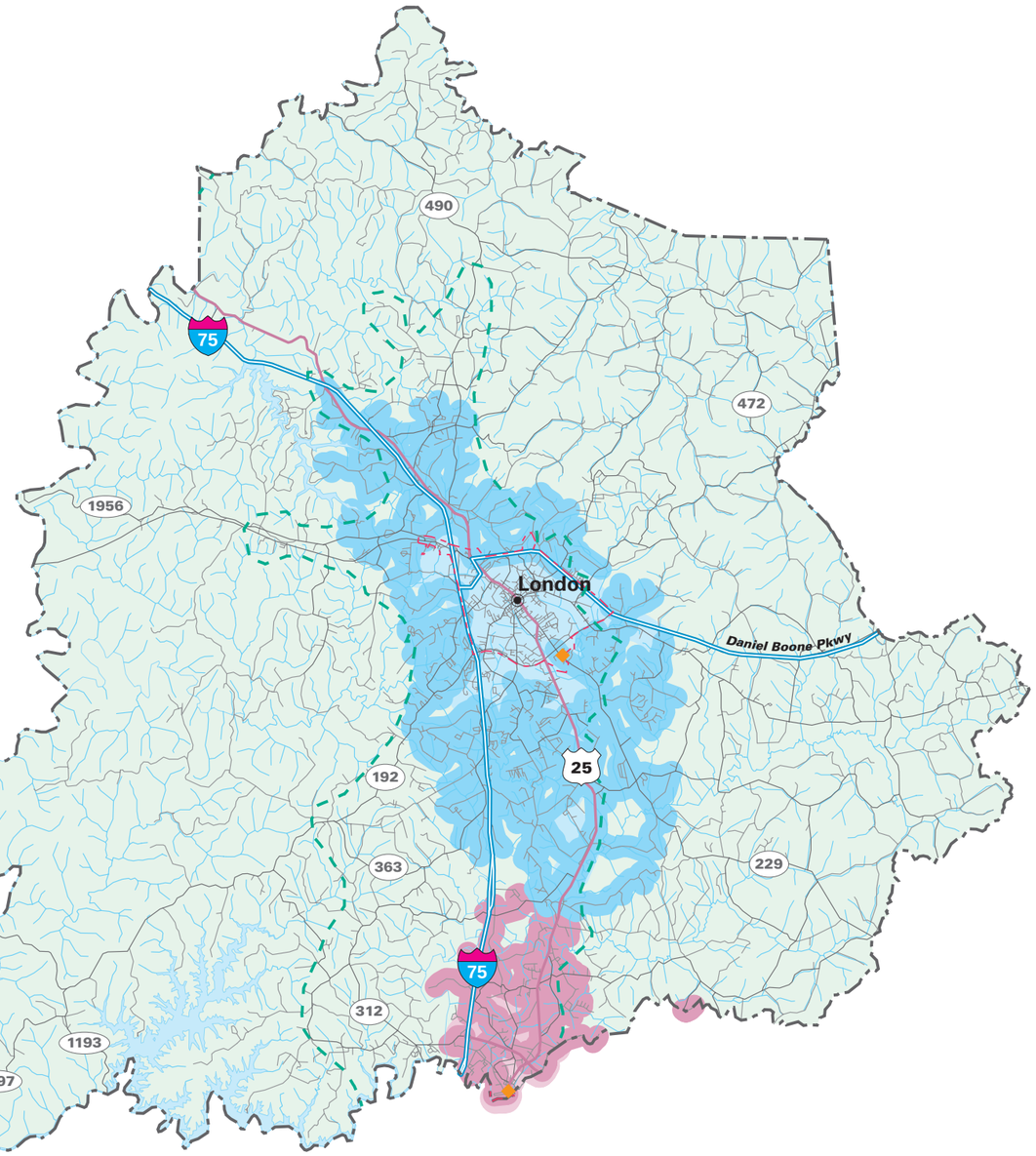

201k Facility Planning Area

Incorporated City Boundary

Sewage Treatment Plant

SEWER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		LONDON UTILITIES COMMISSION
		CITY OF CORBIN

London's wastewater plant has a 24-hour permitted design capacity of 4.0 MGD. Fifty percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months was 2.0 MGD. The peak daily flow for the past twelve months was not provided. The London Wastewater Treatment Plant is a secondary treatment facility. The plant discharges into Whitley Branch.

The total population served by the London Wastewater Treatment Plant is 13,275. The system serves a total of 3,540 customers, of which 2,870 are residential, 659 commercial and 11 are industrial.

Proposed Projects

The following represent areas identified by Laurel County local officials as those having urgent disposal needs: Pittsburg, East Bernstadt, Water Shed of Wood Creek Lake, Lily, Fariston, Sublimity, Watershed of Big Laurel River and Robinson Creek, and Watershed of Laurel Lake.

Number	Customers	Entity	Cost	Ranking	Upgrade	Length
SX12515001	1484	London	$40,297,000.00	Long-term	$3,500,000.00	200 m
SX12511001*	433	Corbin	$6,792,400.00	Long-term	$3,500,000.00	30 m

The $3.5 million upgrade cost is included in the overall cost for the two long-term projects.
* *The numbers for this section of Corbin are all in Laurel County.*

ON-SITE TREATMENT SYSTEMS

The projects listed below include every house not currently connected to a sewer line in Laurel County.

Number	Customers	Problem	Solution	Cost	Length
SI12514004	74	Capacity & Quality	Constructed Wetland	$2,653,120.00	6 m
SI12514003*	1181	Capacity & Quality	Treatment Plant	$49,336,565.00	209 m
SI12514001	141	Capacity & Quality	Individual Septic	$493,500.00	N/A
SI12514006*	1538	Capacity & Quality	Treatment Plant	$47,540,885.00	200 m
SI12514002*	1142	Capacity & Quality	Treatment Plant	$43,322,405.00	176 m

* *All three of these projects include the cost of new treatment plants.*

ROCKCASTLE COUNTY

Rockcastle County Sewer Service (map)

- Estimated 1999 population of 15,900--35% on public sewer
- Estimated 2020 population of 17,100--65% on public sewer
- Proposed projects would connect about 2,300 new households to public sewer during 2000-2020
- Estimated funding needs for public sewer 2000-2005--$0
- Estimated funding needs for public sewer 2006-2020--$41,400,000
- Funding needs for on-site systems 2000-2020--$59,000,000

Rockcastle County had an estimated population of 15,887 (6,347 households) in 1999 with a projected population of 17,091 (7,541 households) in 2020. Public sewer is provided to about 35 percent of the county's residents. About 4,100 households treat wastewater on site. About 2,300 customers could be added to public sewer service through new line extensions in 2000-2020.

ROCKCASTLE 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)
ROCKCASTLE							-
no immediate projects							-

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)
ROCKCASTLE							-
Livingston SX20318001	102	5,389		3,500			8,889
Mt. Vernon SX20319001	704	29,000		3,500			32,500
Rockcastle County Total	**806**	**34,389**		**7,000**			**41,389**

BRODHEAD WASTEWATER TREATMENT PLANT

The KPDES number for the Brodhead Wastewater Treatment Plan is 0047431. This wastewater system serves the City of Brodhead. This system was established in 1969. The last major expansion of this system was in 1996.

SEWER SERVICE AREAS
ROCKCASTLE COUNTY
Kentucky

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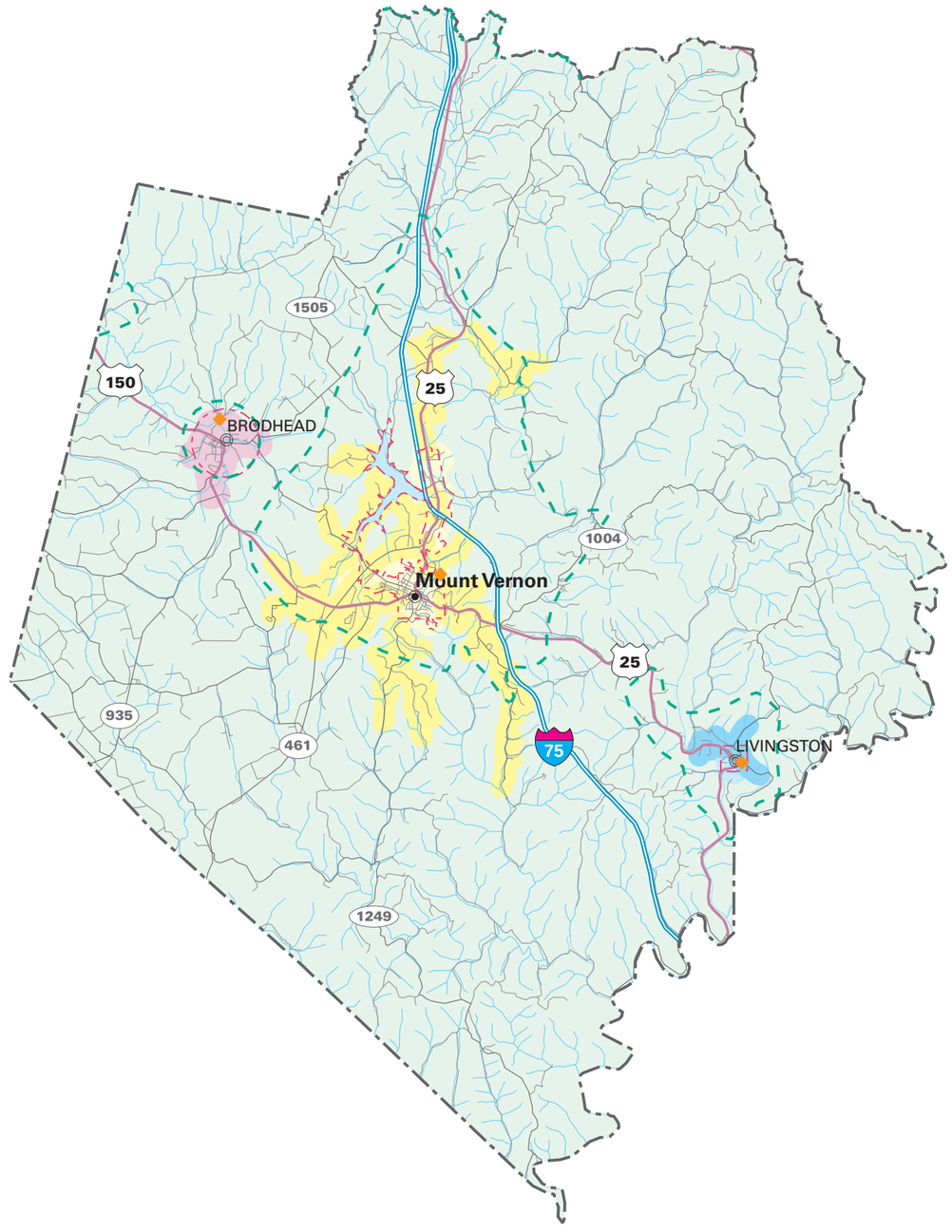

- 201k Facility Planning Area
- Incorporated City Boundary
- Sewage Treatment Plant

SEWER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		CITY OF MOUNT VERNON
		CITY OF LIVINGSTON
		CITY OF BRODHEAD

Brodhead's wastewater plant has a 24-hour permitted design capacity of .15 MGD. Fifty-three percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months was .10 MGD. The peak daily flow for the past twelve months is .35 MGD. The Brodhead Wastewater Treatment Plant is an extended aeration facility. The plant discharges into the Dix River.

The total population served by the Brodhead Wastewater Treatment Plant is 960. The system serves a total of 360 customers, of which 342 are residential, 15 commercial, 2 institutional and 1 are industrial.

They have no plans to expand.

MT. VERNON WASTEWATER TREATMENT PLANT

The KPDES number for the Mt. Vernon Wastewater Treatment Plant is 0024694. This wastewater system serves the City of Mt. Vernon. This system was established in 1964. The last major expansion of this system was in 1995 or 1996.

Mt. Vernon's wastewater plant has a 24-hour permitted design capacity of .372 MGD. Seventy-five percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months was .275 MGD. The peak daily flow for the past twelve months was not provided. The Mt. Vernon Wastewater Treatment Plant is an extended aeration facility. The plant discharges into Town Branch.

The system serves a total of 1,017 customers, of which 754 are residential, 256 commercial and 7 are industrial.

LIVINGSTON WASTEWATER TREATMENT PLANT

The KPDES number for the Livingston Wastewater Treatment Plant is 0040703. This wastewater system serves the City of Livingston. This system was established in 1977. The last major expansion of this system was in 1977.

Livingston's wastewater plant has a 24-hour permitted design capacity of .04 MGD. Twenty-five percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months is .05 MGD. The peak daily flow for the past twelve months is .07

MGD. The Livingston Wastewater Treatment Plant is an extended aeration facility. The plant discharges into the Rockcastle River.

The total population served by the Livingston Wastewater Treatment Plant is 314. The system serves a total of 95 customers, of which all are residential.

Proposed Projects

The following represent areas identified by Rockcastle County local officials as those having urgent disposal needs.

Mt Vernon

- Upgrade of sewer treatment plant—would need to purchase some land & upgrade line sizes.
- Infiltration of all lines.
- Countryside Estates (12 to 15 Houses)
- Benton Bullock Subdivision (90 Lots)
- Maple Grove Area (Maple Grove Rd, KY 1004, Carpenter Rd, Halcomb East Rd – Approximately 200 Within 1.5 Mile radius.
- Carter Ridge Rd Area- 40 Houses within .5 miles of City Limits
- Burn Hill Rd area- approximately 60 Houses within .5 miles of Exit 59
- McGuire Subdivision and area- 25 Houses Lake Linville Rd
- Clarence Carter Subdivision by the new water tank. 80 Lots and Motel off Old Rocky Rd

Brodhead

- KY 1505- within approximately 2 miles of city, 20 Houses
- Gum Sulphur Rd
- Copper Creek Rd- 170 Houses in 7 Miles

Livingston

- Todd Street, 8 houses
- KY 490, 35 houses
- KY 1955, 15 houses
- Mt. Holly Road, 7 houses

Conway Area

- Lambert Road, 30 houses
- Flat Gap, 100 houses
- Hwy 70, 45 houses with ½ mile radius.

"We would prefer to have force mains and sewer pump stations instead of wetlands, lagoons, etc." Mayor Karen K. King, Mt. Vernon.

Number	Customers	Entity	Cost	Ranking	Upgrade	Length
SX20319001	704	Mt Vernon	$32,756,537.00	Long-term	$3,500,000.00	149.173 miles
SX20318001	102	Livingston	$5,389,053.00	Long-term	$3,500,000.00	23.39 miles

Both proposed projects include $3.5 million for treatment plant upgrades.

ON-SITE TREATMENT SYSTEMS

The projects listed below include every house not currently connected to a sewer line in Rockcastle County.

Number	Customers	Problem	Solution	Cost	Length
SI20317009	70	Capacity & Quality	Constructed Wetland	$3,343,333.00	10.89 miles
SI20317007	66	Capacity & Quality	Constructed Wetland	$4,174,815.00	2.9 miles
SI20317006	18	Capacity & Quality	Package Plant	$2,366,965.00	7.531 miles
SI20317005*	1524	Capacity & Quality	Treatment Plant	$35,535,904.00	132.626 miles
SI20317004	50	Capacity & Quality	STEP	$1,538,449.00	5.367 miles
SI20317003	53	Capacity & Quality	STEP	$2,665,352.00	20.022 miles
SI20316001	1	Capacity & Quality	Individual Septic	0	0
SI20317001	290	Capacity & Quality	Package Plant	$5,847,099.00	24.126 miles
SI20317002	21	Capacity & Quality	Wetland	$3,469,740.00	12.333 miles

* *This project included the cost of a new treatment plant.*

WHITLEY COUNTY

Whitley County Sewer Service (map)

- Estimated 1999 population of 34,900--40% on public sewer
- Estimated 2020 population of 37,500--65% on public sewer
- Proposed projects would connect about 4,200 new households to public sewer during 2000-2020
- Estimated funding needs for public sewer 2000-2005--$0
- Estimated funding needs for public sewer 2006-2020--$57,000,000
- Funding needs for on-site systems 2000-2020--$100,000,000

Whitley County had an estimated population of 34,898 (14,154 households) in 1999 with a projected population of 37,508 (16,392 households) in 2020. Public sewer is provided to about 40 percent of the county's residents. About 8,500 of the county's households treat wastewater on-site. About 4,200 customers could be added to public sewer service through new line extensions in 2000-2020.

WHITLEY 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)
WHITLEY							-
no immediate projects							-

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)
Whitley							-
Williamsburg SX23521001	1,206	20,000		5,000			25,000
Corbin Utilities Commission (Multi-county)	1,524	27,000		5,000			32,000
Whitley County Total	**2,730**	**47,000**		**10,000**			**57,000**

CITY OF WILLIAMSBURG

The KPDES number for the Williamsburg Wastewater Treatment Plant is 0028347. This wastewater system serves the City of Williamsburg. The last major expansion of this system was in 1989-91.

SEWER SERVICE AREAS
WHITLEY COUNTY
Kentucky

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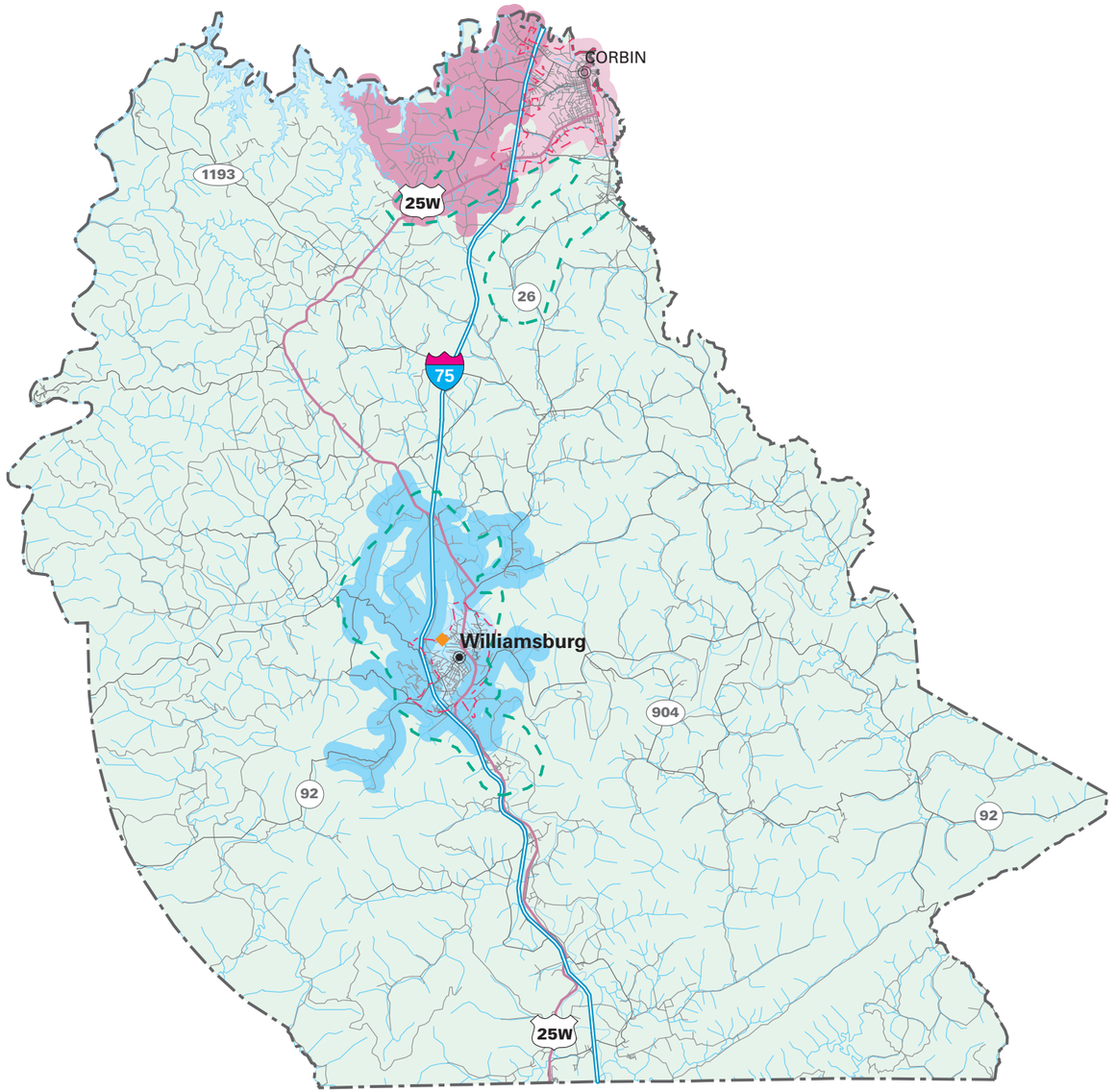

- 201k Facility Planning Area
- Incorporated City Boundary
- Sewage Treatment Plant

SEWER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		CITY OF WILLIAMSBURG
		CITY OF CORBIN

Williamsburg's wastewater plant has a 24-hour permitted design capacity of .8 MGD. Ninety-nine percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months was 1.17 MGD. The peak daily flow for the past twelve months is 2.18 MGD. The Williamsburg Wastewater Treatment Plant is a trickling filter facility. The plant discharges into Cumberland River.

The Williamsburg Wastewater Treatment Plant serves a population of 6,000. The system serves a total of 1,700 customers, of which 1,208 are residential and 273 commercial.

CITY UTILITIES OF CORBIN, KENTUCKY

The KPDES number for the Corbin Wastewater Treatment Plant is 0020133. This wastewater system serves the City of Corbin. This system was established in 1948. The last major expansion of this system was in 1981.

Corbin's wastewater plant has a 24-hour permitted design capacity of 4.5 MGD. Forty-five percent is the nominal capacity in use on an average day. The average daily flow during the last twelve months was 2.1 MGD. The peak daily flow for the past twelve months is 6.7 MGD. The Corbin Wastewater Treatment Plant is an oxidation ditch facility. The plant discharges into Lynn Camp Creek.

The system serves a total of 3,827 customers, of which 3,019 are residential, 801 commercial and 7 are industrial.

Proposed Projects

The following represent areas identified by Whitley County local officials as those having urgent disposal needs: Tattersall Estates, Areas just South of Corbin, Area along 25W near and north of exit 15 on I-75, Emlyn, Pleasant View, Saxton, Siler, 92 E, Rockholds, and Woodbine.

Number	Customers	Entity	Cost	Ranking	Upgrade	Length
SX23511001*	1524	Corbin	$31,886,163.00	Long-term	$3,500,000.00	144.826 miles
SX23521001	1206	Williamsburg	$24,967,798.00	Long-term	$3,500,000.00	115.362 miles

* *The numbers for this Corbin project are in Whitley County only.*

Both of these projects include $3.5 million of a plant upgrade.

ON-SITE TREATMENT SYSTEMS

The projects listed below include every house not currently connected to a sewer line in Whitley County.

Number	Customers	Problem	Solution	Cost	Length
SI23520002	227	Capacity & Quality	S.T.E.P.	$2,565,512.00	13.275 miles
SI23520001	585	Capacity & Quality	Constructed Wetland	$15,296,525.00	62.572 miles
SI23520003	313	Capacity & Quality	S.T.E.P.	$2,560,540.00	8 miles
SI23520005	222	Capacity & Quality	Collection System	$6,518,050.00	22.439 miles
SI23520004	390	Capacity & Quality	Package Plant	$5,943,942.00	27.079 miles
SI23520006	34	Capacity & Quality	Constructed Wetland	$1,658,227.00	2.12 miles
SI23520010	2680	Capacity & Quality	Individual Septic	$9,380,000.00	N/A
SI23520008*	1522	Capacity & Quality	Treatment Plant	$47,189,132.00	192.234 miles
SI23520009	197	Capacity & Quality	Constructed Wetland	$6,419,358.00	30.379 miles
SI23520007	69	Capacity & Quality	Constructed Wetland	$1,987,495.00	3.18 miles

* *This project includes the cost of a new treatment plant.*

COST ESTIMATING

The cost estimates for the projects contained in this report were based on engineering costs listed in the Facilities Plan Update, City of Manchester and Clay County Fiscal Court, dated January 1998. Clay County had several sewer projects listed in the plan. The plan provided detailed cost estimates involving the construction of new sewer lines. Other cost estimates were obtained from a draft report provided by Kentucky's 5th District Congressman Harold Rogers, entitled Water Resource Related Environmental Initiatives, dated May 28, 1998.

The Cumberland Valley Area Development District utilized the chart below, labeled as Table 1 and Table 2, to assist with the determination of costs for items such as STEP, treatment systems, and costs for collection systems. Table 1 and Table 2 were taken directly from the Water Resource Related Environmental Initiatives report. The cost used for septic tanks is $3,500 and represents the average costs incurred with the installation of septic systems for the P.R.I.D.E. Program.

TABLE 1: UNIT COSTS FOR SEPTIC SYSTEM COMPONENTS

Treatment Systems	**UNIT COSTS**
Primary Systems	$1,000.00-1,500.00
Septic tank per residence	$3,000.00-7000.00
Aerobic (Aeration) (per residence)	$35.00-45.00
Collection Systems	$2,000.00-5,000.00
Gravity per linear foot	$4.00.-8.00
Force Main	$2,500.00-5,000.00
Grinder pump per resident	$2.00-5.00
Main per linear foot	$2,000.00-$5,000.00
STEP	$8,000.00-$15,000.00
Tank and pump per residence	$10,000.00-$30,000.00
Main per linear foot	$3,000.00-5,000.00
Secondary Treatment Systems	$5,000.000-10,000.000
Drain field per residence	$15,000.000-30,000.00
Mound per residence	
Package plan per unit	
Constructed wetlands per residence	
Intermittent sand filters per residence	
Recirculating sand filter per unit	

Table 2: System Costs

System	Gravity Fed ($1000)	Force Main ($1000)	STEP ($1000)
Individual Residence			
Septic tanks and drain field	48.2	N/A	65.7
Aerobic tank and drain field	81.9	N/A	99.5
Septic tank and intermittent SF	84.2	N/A	101.7
Cluster System	47.9	54.8	43.0
Septic Tanks and Wetlands	107.5	87.4	75.6
Septic Tanks and Drain Field	76.9	56.8	45.0
Septic Tanks and Package Plant	79.4	59.3	47.5
Septic Tank and Recirculating SF	80.5	60.4	48.6
Septic Tank and Sand Mound			

Cluster systems represented for that plan, outlined in Table 2, are based upon the use of force main collection systems and assume the use of a single septic tank to handle nine residences.