

CITY OF FRANKFORT, KENTUCKY



*The City of
Frankfort Sewer
Department*

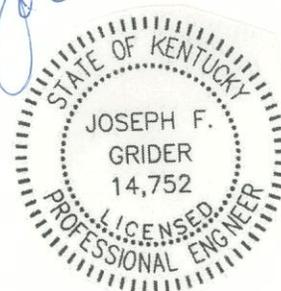
WASTEWATER FACILITIES PLAN

JANUARY 2014



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Frankfort, Kentucky
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A handwritten signature in blue ink, appearing to read "Joe Grider", is written over the top portion of the professional engineer's seal.



1/30/2014

City of Frankfort – 2013 Wastewater Facilities Plan

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SECTION 1 FACILITY PLAN SUMMARY

Purpose

The City of Frankfort can best be described as a mature community with an aging infrastructure in need of rehabilitation and improvement. This Wastewater Facilities Plan (WWFP) provides a plan for replacing, repairing, rehabilitating, improving and expanding the wastewater system for the next 20 years, ending in 2033.

This plan replaces the previous WWFP submitted in 1992. The original WWFP was adopted in 1976 and prepared to meet the planning requirements of Section 201 of the Water Pollution Control Act Amendments of 1972 (Public Law 92-500).

Planning Area Overview

The population projections for the planning period show nominal growth in the planning area's population. While commercial water usage has grown slightly, the industrial water usage has declined. Water usage in the planning area has leveled off in recent years, and the projected growth in demand is very small.

Planning Period

The planning period will commence in 2013 and end in 2033. Section 10 contains a list of projects proposed in the 20-year planning period. That list is broken down into three time periods; 0-5 years, 6-10 years and 11-20 years. The projects proposed in this Facilities Plan are widely scattered throughout the Planning Area (PA) in areas that have already been developed. The projects have been prioritized to address the worst issues in the collection system first, regardless of its geographic location. Therefore, there is no one area that will receive the bulk of the attention in any one of the designated time periods. For these reasons, the PA map does not delineate areas to be served during the three previously mentioned planning time periods.

Planning Area Issues

In September of 2007, Frankfort entered into a Consent Judgment (CJ) with the Kentucky Environmental and Public Protection Cabinet. In June of 2008, the US Environmental Protection Agency issued Frankfort an Administrative Order (AO) that requires Frankfort to establish an appropriate compliance schedule for eliminating combined sewer overflows (CSO). Copies of the Consent Judgment and the Administrative Order are in Appendix D.

Since the CJ and the AO were issued, there have been several construction improvements made to the wastewater collection system. The major improvements are:

- Construction of a storm water tunnel under East Main Street that provides an outlet for the Holmes Street corridor storm sewers.
- Construction of separate storm and sanitary sewers in the Holmes Street corridor.
- Upgrades and replacements of various sanitary collection lines that eliminated SSOs.
- Upgrades and replacements of various sanitary pump stations that eliminated SSOs.

Recommended Alternatives

Given the very small growth in population projected for the PA, the major issues and problems evaluated in this plan are aligned with the issues and problems identified in the CJ and the AO. Aside from extending sewer service to a few existing subdivisions, the recommended alternatives are those projects necessary to bring Frankfort into compliance with the CJ and the AO. Table 10-2 contains a prioritized list of the projects, with estimated costs, proposed by Frankfort for the next 20 years. In general, these projects reduce inflow and infiltration (I/I), eliminate CSOs and sanitary sewer overflows (SSO).

Plan Funding

The projects proposed for the next twenty years total approximately \$79 million. The bulk of that money, \$58 million, is proposed to be spent in the next five years. Another \$9 million is planned to be spent in fiscal years 2018 through 2022. The remainder, which is approximately \$12 million, is planned to be spent in fiscal years 2023 through 2032.

Frankfort is a Class 2 city, and has the several options available to fund the projects included in this plan. The funding sources available to Frankfort are:

- KIA grants and loans
- CDBG grants
- Bond issues
- EPA SPAP Grants
- Clean Water State Revolving Fund
- A portion of the monthly user fees
- Monthly lateral fees

Frankfort has established monthly sewer user rates and surcharges, as summarized in Table 10-1. The City also maintains approximately \$8 million in reserves, which provides the financial strength necessary to issue bonds.

SECTION 2 PURPOSE and NEED

Background

Public Law (PL) 92-500, the Federal Water Pollution Control Act Amendments, as passed by the 92nd Congress on October 18, 1972, was created to “restore and maintain the chemical, physical and biological integrity of the Nation’s waters”. In order to achieve that objective, it was declared in the Act that “it was the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985”, and that “an interim goal of water quality which provided for the protection and propagation of fish, shell fish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983”. The Clean Water Act, PL 95-217, and the Clean Water Amendment PL 97-117, as passed by Congress in 1977, 1981, and 1986, respectively, have in general reaffirmed these goals. Title IV of the Clean Water Act, as amended, authorizes the Administrator of the Environmental Protection Agency (EPA) to make capitalization grants to states for deposits in State Water Pollution Control Revolving Funds. From these funds, states can provide loans to communities for the construction of publicly owned wastewater treatment facilities.

Passage of PL 92-500 and the other legislation mentioned above resulted in the establishment of various agencies and regulations on the state level to further divide and address existing pollution problems. The Kentucky Energy and Environment Cabinet, and more particularly, the Department for Environmental Protection, Division of Water, assume this responsibility for the State of Kentucky.

Purpose and Need

This Waste Water Facilities Plan (WWFP) identifies Frankfort’s plans for improving, expanding, replacing and rehabilitating the wastewater system for the next 20 years, ending in 2033. This plan replaces the previous WWFP submitted in 1992. The original WWFP was adopted in 1976 and prepared to meet the planning requirements of Section 201 of the Water Pollution Control Act Amendments of 1972 (Public Law 92-500).

In September of 2007, Frankfort entered into a Consent Judgment (CJ) with the Kentucky Environmental and Public Protection Cabinet. In June of 2008, the US Environmental Protection Agency issued an Administrative Order (AO) that requires Frankfort to establish an appropriate compliance schedule for eliminating combined sewer overflows (CSO).

Given the nominal growth in population projected for the PA, the major issues and problems evaluated in this plan are aligned with the issues and problems identified in the CJ and the AO. There are approximately 50 projects proposed in this Facilities Plan. Six of these projects are collection line extensions to areas that are now developed. The remaining projects were identified and selected because they will reduce inflow and infiltration (I/I), eliminate CSOs and eliminate sanitary sewer overflows (SSO). These projects have been prioritized to address the worst issues in the collection system first, regardless of its geographic location.

SECTION 3 PHYSICAL CHARACTERISTICS of the PLANNING AREA

Planning Area Overview

The Planning Area (PA) can best be described as a mature community that has an aging infrastructure in need of repair, replacing and rehabilitating. The PA contains approximately four residential developments that lie close to the existing sewage collection system. The population projections for the planning period show very little growth. While commercial water usage has grown slightly, the industrial water usage has declined. With residential water usage remaining unchanged, overall water usage in the PA has leveled off, and the projected growth in demand is very small.

Planning Area Boundary

The original Facilities PA consisted of approximately 91 square miles and was delineated based upon considerations of existing and future population concentration, potential for regionalization, and natural drainage patterns. In 1992, the original Facilities Plan was updated and the PA was expanded slightly on the north side, along U.S. 127, adding approximately 7 square miles.

The new PA designated in this Facilities Plan has changed in two significant ways. First, the PA has been expanded to the Scott County line on the east and to the Shelby County line on the west. Secondly, the portion of the PA contained within the Farmdale Water District's service area has been removed. In December of 2005, the Frankfort City Commission agreed to amend the boundary of their regional facility plan to exclude that area within the Farmdale Water District. The PA will continue to include a portion of northwestern Woodford County that measures approximately 8 square miles. The revised PA now encompasses approximately 120 square miles. Exhibit 3-1 shows the PA boundary for each of the previous Facility Plans.

The PA expansion shown and designated by the City of Frankfort Sewer Department is consistent with the concept of regional wastewater management and acknowledgment by Frankfort of its responsibility to work toward that end.

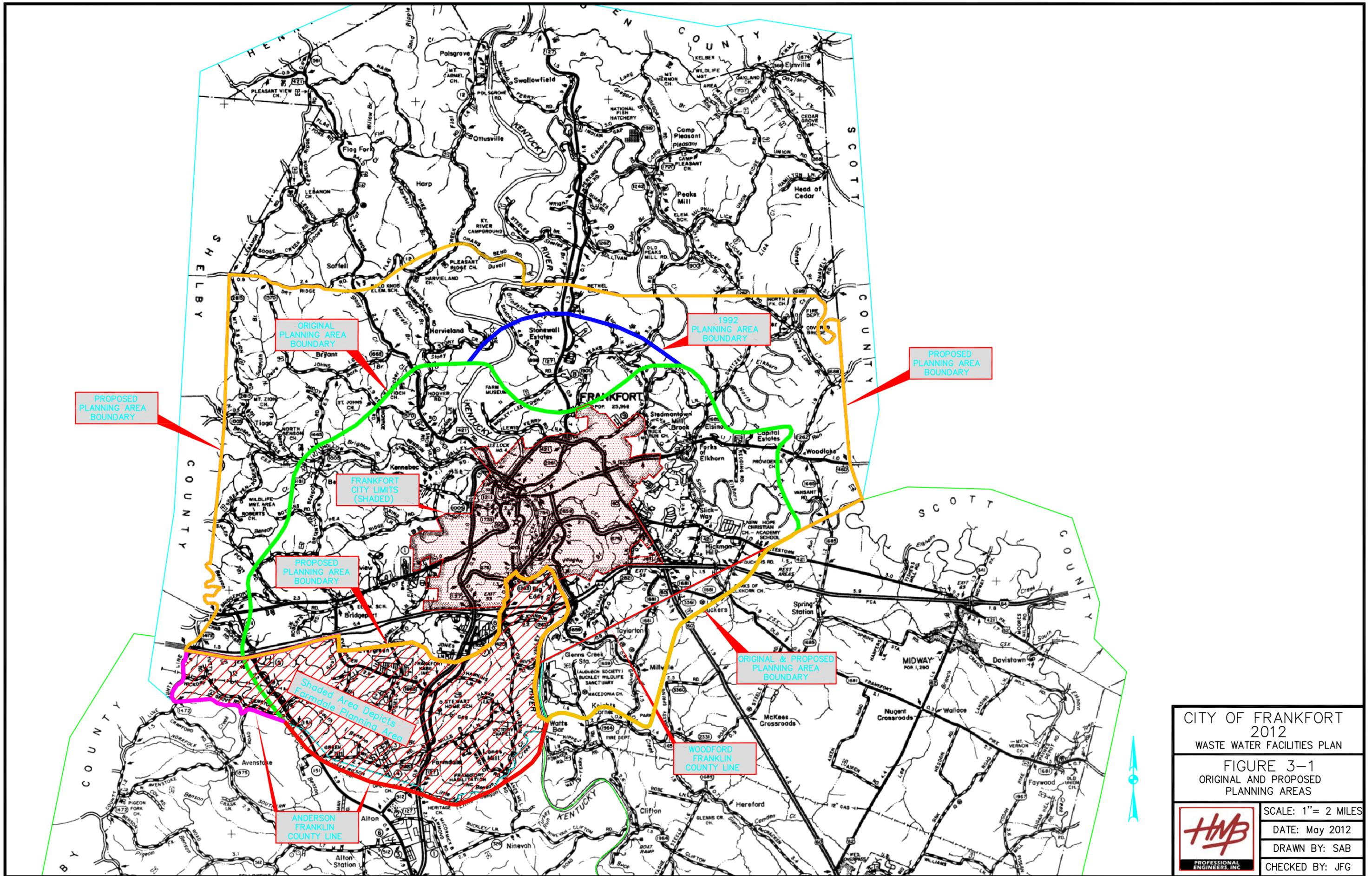
Planning Area Land Use

Exhibit 3-2 is the official zoning map for Frankfort, and this map uses multiple colors to show the various zone districts throughout the city. This zoning map clearly depicts the land use for Frankfort and Franklin County. The areas beyond the city limits are shown as an aerial photographic image that reveals nearly all of the residential subdivisions lying beyond the city limits.

Planning Area Topography

The PA topography consists of gently rolling terrain that is divided by the Kentucky River valley. The areas lying north and south of the planning area drain directly into the Kentucky River. The Elkhorn Creek watershed borders the eastern portion of the PA and the Benson Creek watershed borders the western portion of the PA.

This rolling terrain, along with the land development patterns, created a wastewater collection system split into ten major watersheds. Currently, the Frankfort Sewer Department relies on approximately 53 pump stations to transport the wastewater to the treatment plant.



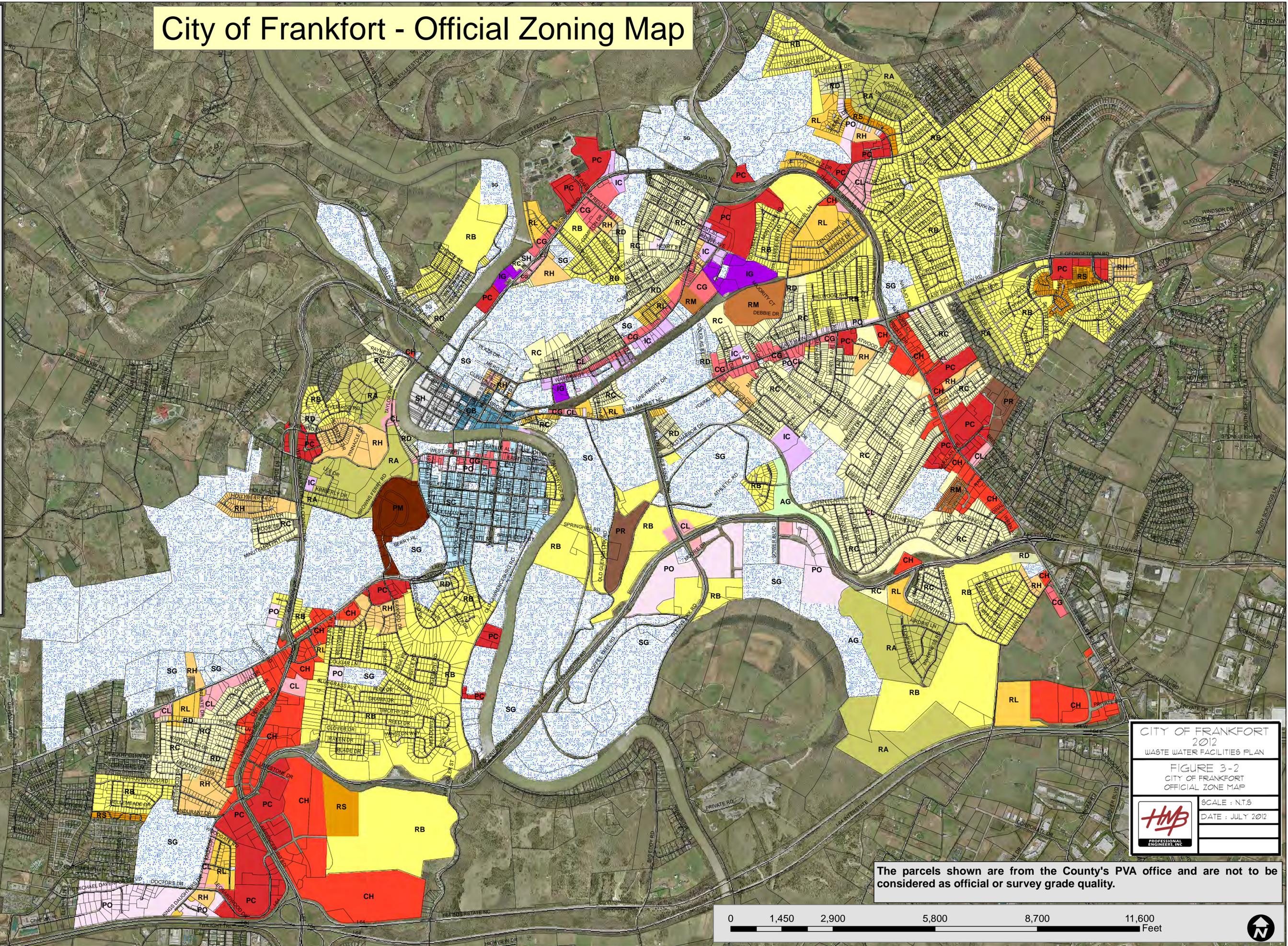
CITY OF FRANKFORT 2012 WASTE WATER FACILITIES PLAN	
FIGURE 3-1 ORIGINAL AND PROPOSED PLANNING AREAS	
	SCALE: 1" = 2 MILES
	DATE: May 2012
	DRAWN BY: SAB CHECKED BY: JFG

City of Frankfort - Official Zoning Map

Legend

Zoning

- IG
- IC
- CH
- CG
- PO
- CL
- PC
- PM
- PR
- AG
- RA
- RB
- RC
- RD
- RL
- RH
- RS
- RM
- SG
- SC
- SH
- CB



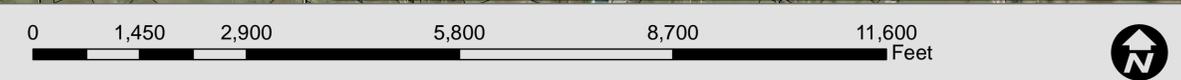
CITY OF FRANKFORT
2012
WASTE WATER FACILITIES PLAN

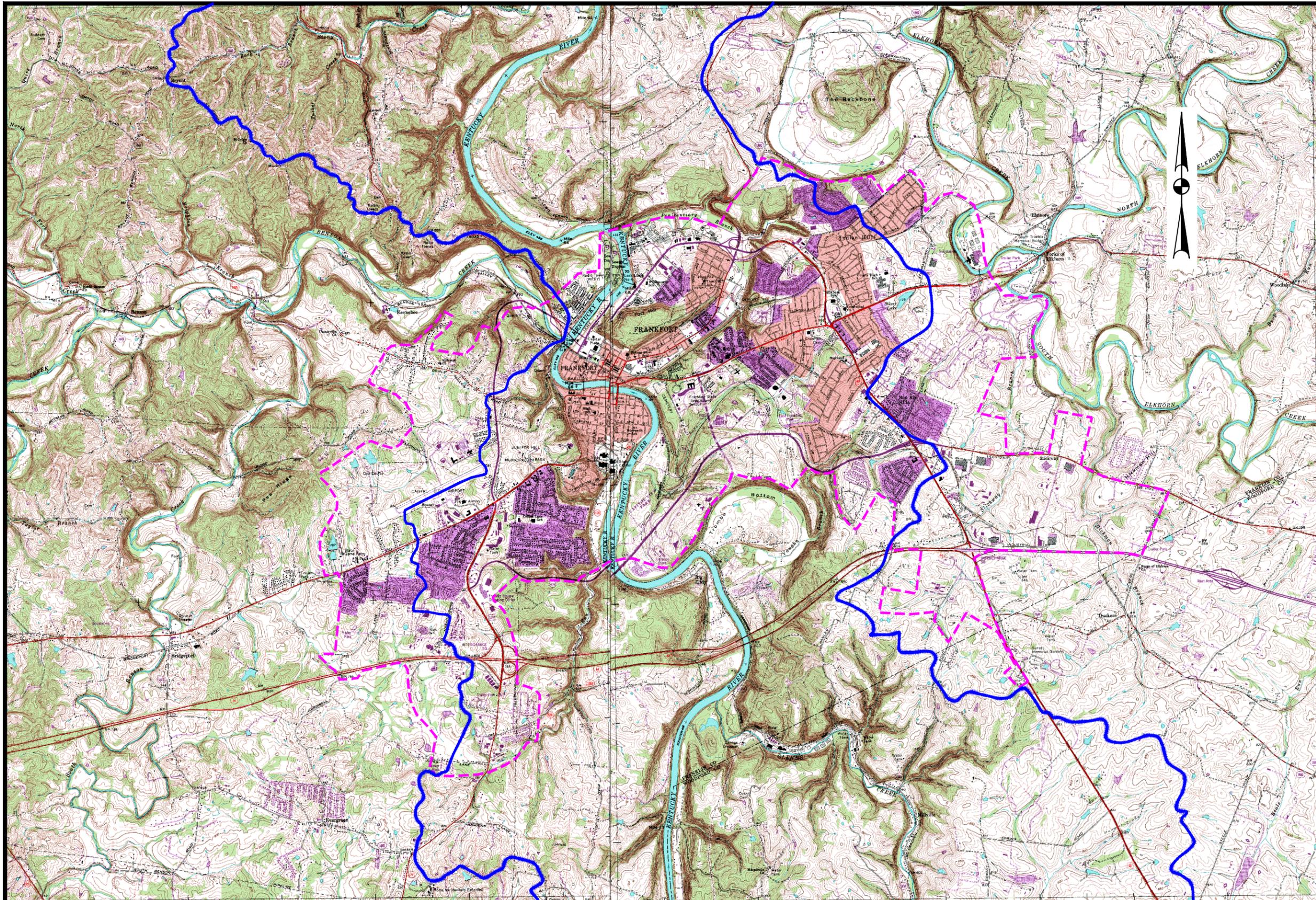
FIGURE 3-2
CITY OF FRANKFORT
OFFICIAL ZONE MAP

SCALE : N.T.S.
DATE : JULY 2012

HMP
PROFESSIONAL
ENGINEERS, INC.

The parcels shown are from the County's PVA office and are not to be considered as official or survey grade quality.





LEGEND

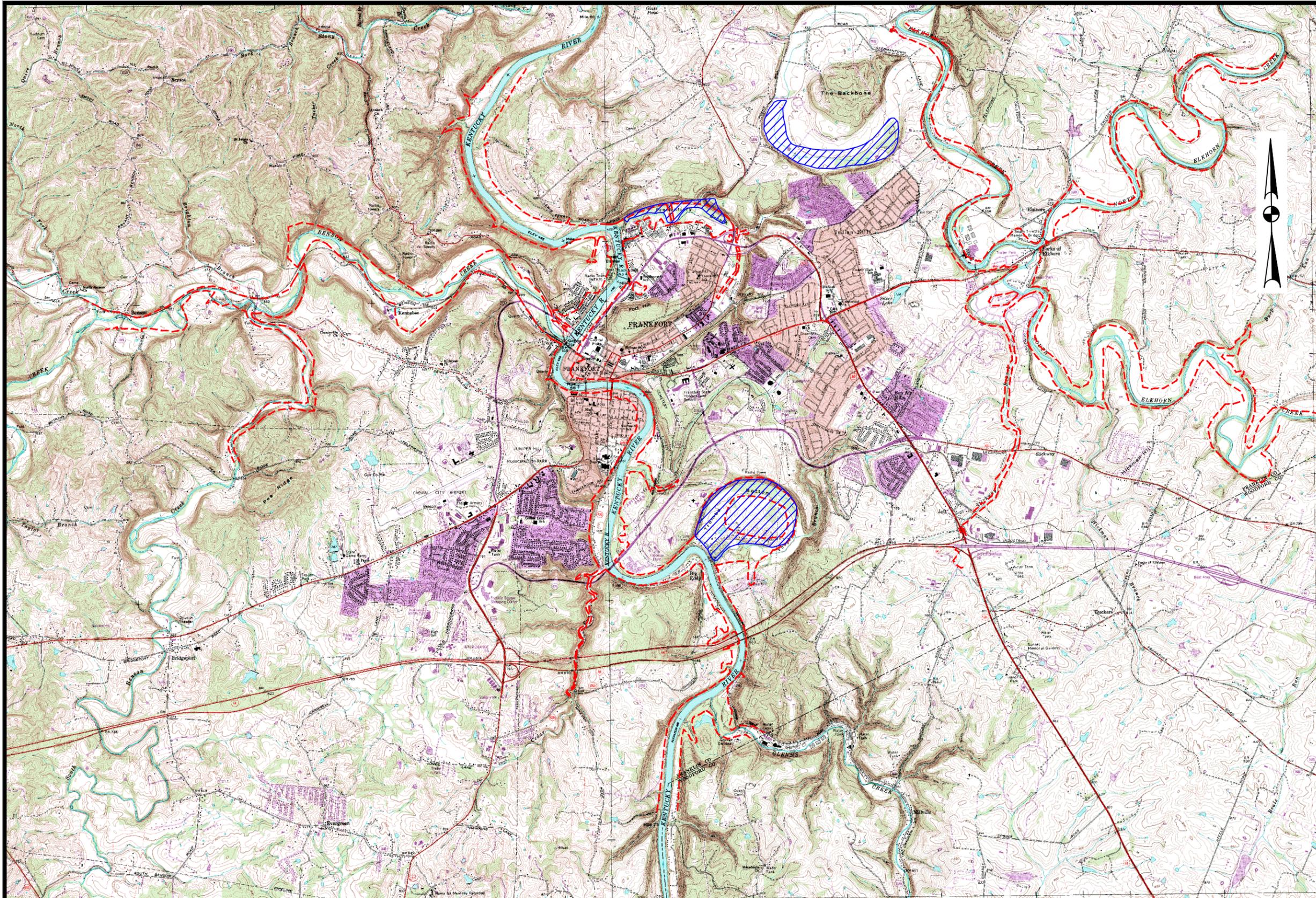
- - - - - SERVICE AREA BOUNDARY
- DRAINAGE BASIN BOUNDARY

CITY OF FRANKFORT
2012
WASTE WATER FACILITIES PLAN

FIGURE 3-3
SERVICE AREA BOUNDARY
& DRAINAGE BASIN BOUNDARY MAP



SCALE : N.T.S
DATE : JULY 2012
DRAWN BY : SAB
CHECKED BY : JFG



LEGEND

- - - - - 100 YEAR FLOOD PLAIN (APPROXIMATE)
- WETLANDS

CITY OF FRANKFORT
2012
WASTE WATER FACILITIES PLAN
FIGURE 3-4
100-YEAR FLOOD PLAIN
and WETLANDS MAP



SCALE : N.T.S
DATE : JULY 2012
DRAWN BY : SAB
CHECKED BY : JFG

SECTION 4
SOCIOECONOMIC CHARACTERISTICS of the PLANNING AREA

Current Population Statistics

The U. S. Census Bureau reported the 2010 populations of the City of Frankfort and Franklin County to be 25,527 and 49,285, respectively, with the average population per household being 2.13. This average household population is notably less than the national average of 2.59 persons, which is attributed to a high percentage of workforce commuter and student apartment households. This trend mirrors a national movement towards smaller households in urban areas. The 2010 Census indicates annual median household income (MHI) in the City of Frankfort and Franklin County to be \$41,576 and \$47,976, respectively. For comparison purposes, the state MHI is \$40,089.

Historical Population Statistics

The historical population numbers for Frankfort and Franklin County are listed below.

Year	Frankfort	% Growth	Franklin County	% Growth
1950	11,916	----	25,933	----
1960	18,365	54.1%	29,421	13.5%
1970	21,902	19.3%	34,481	17.2%
1980	25,973	18.6%	41,830	21.3%
1990	25,968	0.0%	43,781	4.7%
2000	27,741	6.8%	47,687	8.9%
2010	25,527	-8.0%	49,285	3.4%

These figures show that the growth rate in the service area has slowed considerably since the 1970s and 1980s.

Population Projections

The Kentucky State Data Center does not make population projections for cities; therefore the Franklin County population projections were used to project the population growth for Frankfort, assuming each grew at the same rate. The projected population statistics that are reported below reflect that assumption.

YEAR	FRANKLIN COUNTY	CITY of FRANKFORT	ANNUALIZED % GROWTH
2015	49,833	25,811	0.22%
2020	50,320	26,063	0.20%
2025	50,740	26,281	0.17%
2030	51,085	26,459	0.14%

Planning Area Growth Projections – Areas Currently Sewered

The Frankfort Sewer Department (FSD) currently has 13,465 customers. The growth in customers is expected to come from two sources. First, there will be an “organic” growth that will occur within the existing customer service area. This “organic” growth can be expected to match the population growth for Franklin County and Frankfort. Based on the population projections, this “organic” growth will be 492 customers $(51,085/49,285) \times 13,465$.

Planning Area Growth Projections – Un-Sewered Residential Areas

The second source of customer growth for FSD will be sewer extensions to existing developments that are un-sewered and lie adjacent to the current service area. The list of developments proposed to be served by sewer extensions in the next 20 years is:

- Spring Hill Subdivision, which is located on the north side of US 421 in the eastern end of the county. This subdivision will add 300 customers.
- Inverness Subdivision, which is located on the south side of Galbraith Road. This subdivision is partially served by sewers, and a sewer extension is planned that will serve the remaining 34 homes.
- Strathmore Drive, which is located in the Capital Heights subdivision. This is a large subdivision that contains 5 homes that are served by an on-site disposal system.
- Old Soldiers Lane contains 5 homes that are served by an on-site disposal system.
- Hawkheegan Drive, which is located on the north side of US 60 (Louisville Road) near the Capital City Airport. This sewer extension will add 26 new customers.
- Capital Mobile Home Park, which is located on US 460 approximately one mile east of the Forks of Elkhorn. This development contains 96 units.
- Elkhorn Mobile Home Park which is located at the Forks of Elkhorn. This development contains 60 units.

These sewer extension projects will add approximately 526 residential customers. Coupled with the “organic” growth, the expected FSD customer base should increase by 1,018 $(492 + 26)$ customers, which would bring the number of customers to approximately 14,500 by the year 2030.

Planning Area Growth Projections– Industrial and Commercial Customers

Based on the industrial wastewater flow rates provided by FSD for July 2008 through June of 2009, the average daily wastewater flow for all industries in the Planning Area (PA) was 271,280 gallons per day. Based on the wastewater flow figures from the 2011 Pretreatment Program Report, the average daily wastewater flow for all industries in the Planning Area (PA) has declined to 225,720 gallons per day. This represents a decline of 17.8% in water usage over a 2 ½ year period, for an annualized rate of -7.1%. There are many factors that affect the industrial growth in a community and it would be difficult (or impossible) to make a reliable projection of industrial water usage. For the sake of this planning report, the industrial water usage will be projected to remain at the current level of 225,720 gallons per day.

Neither the Frankfort Plant Board nor the FSD make a distinction between commercial and industrial water customers, which makes it difficult to make any reliable projections in commercial water usage. For the sake of this planning report, the commercial water usage will

be projected to grow at the same percentage rate as the PA population growth, which is approximately 0.20% annually.

Economic and Social Benefits

The rehabilitation projects and system improvements proposed in this plan will provide multiple benefits to the community:

1. Eliminating the combined sewer overflows and sanitary sewer overflows will improve the water quality throughout the planning area, as well as areas lying downstream on the Kentucky River. This improved water quality will improve to health and safety of all residents.
2. Eliminating the inflow & infiltration will decrease flows to the wastewater treatment plant, which will improve its efficiency and lower the operating costs. Lower operating costs will free up financial resources that can be used for other improvements to the community.
3. Eliminating the inflow & infiltration into the collection lines places less wear and tear on those pipes, which should translate into decreased operational and maintenance costs. Lower costs will free up financial resources that can be used for other improvements to the community.
4. Eliminating the inflow & infiltration will decrease flows in the collection lines, which will allow the service connections to operate properly. This decreased flow and improved service lateral operation will lessen the likelihood of damage to private property caused by sewage backups.

SECTION 5 EXISTING ENVIRONMENT in the PLANNING AREA

Water Quality

There are three streams in Franklin County that have a stream order equal to or greater than four. They are the Kentucky River, Elkhorn Creek and Benson Creek. The 2010 *305(b) report* prepared by the Commonwealth and submitted to Congress reported that the Kentucky River is rated “**fully supporting**” in all five of these categories:

- Aquatic Life Use
- Primary Contact Recreation Use
- Secondary Contact Recreation Use
- Fish Consumption Use
- Drinking Water Supply Use

The “Fully Supporting” designation indicates that the stream’s water quality is good or excellent. Benson Creek and Elkhorn Creek were not rated in every category in this report, but in the categories that these two creeks were rated, they both received “fully supporting” or “partially supporting” scores. These ratings indicate that the water quality in these streams is average to excellent, depending on the criteria.

Water Source

The source water for all of Franklin County is the Kentucky River. There is a single intake point in the river, and it is located at N 38° 10’ 14.80” W 84° 52’ 23.61”, which is approximately 315’ southeast of the KY Highway 676 Bridge. The intake is owned, operated and maintained by the Frankfort Plant Board. The Frankfort Plant Board provides drinking water to the entire Planning Area (PA), either directly as a customer, or indirectly as a wholesale supplier to the other water districts serving the area. There are no known ground water sources, Groundwater Supply Areas or Wellhead Protection Areas within the PA.

Wetlands

There are three large wetland areas within the planning area. One area is located on the east side of Peaks Mill Road, in an area called the “Backbone”. Another wetlands area is located on City Owned property in Cove Spring Park between US 127 north and Lewis Ferry Road. The third area is known as Trumbo Bottom. It is located on east side of Glenss Creek Road at the point where the Kentucky River and Glenss Creek Road run together. All three areas are undeveloped and are not currently served by sanitary sewers, nor are they proposed to be served by sanitary sewers, nor are any sanitary wastewater facilities proposed to run through these wetlands. These wetlands are shown in Figure XI-1 through XI-4.

100-year Floodplain

The Kentucky River 100-year floodplain is shown in Figures XI-1 through XI-4. Generally speaking, the floodplain does not encroach into the developed portions of the Planning Area (PA), thanks to earthen levees and a concrete floodwall that protect the City. Recent drainage improvement projects in the Holmes Street neighborhood have also alleviated flooding and resulted in FEMA lowering the 100-year floodplain along Penitentiary Branch.

Topography

The PA topography can best be described as rolling terrain that is typical for central Kentucky. Given this rolling topography that is split by the Kentucky River valley, it is easy to understand why Frankfort has so many sanitary sewer lift stations in its collection system.

Geology

The planning area contains both the Inner Bluegrass and Outer Bluegrass Physiographic Areas, which is characterized by thick limestone layers covered by a relatively thin layer of silty-clay soil. There are several Karst areas within the planning area, which creates the potential for pollutants entering the groundwater system from unsewered developments. The Kentucky Geologic Survey has tested several groundwater wells in the planning area, with the following findings:

- Mercury Not detected
- Selenium Not detected
- Arsenic Not detected
- Ph Varies from 6.5 to 8.5
- Nitrates Levels vary from 5.1 mg/l to 10 mg/l
- Fluoride < 0.5 mg/l
- E Coli The KGS did not test the groundwater wells for this

Soil Characteristics

Using the Soil Conservation Survey classification criteria, most of the soils in the planning area are Type “C”, which have slow infiltration rate. Due to this slow infiltration rate, most of Franklin County, in general, is less than an ideal area to locate a septic tank. Regardless of this, onsite waste disposal systems are designed and constructed throughout the county. The success of their operation varies.

Air Quality

The most recent Annual Air Quality Report released by the Kentucky Division of Air Quality indicates that Frankfort had acceptable air quality for the entire year of 2011. There is one air quality monitoring station in Frankfort that measures Particulate Matter. The National Ambient Air Quality Standard sets a 24-hour average maximum for particulate matter at 35 micrograms/cubic meter and an average annual maximum for particulate matter at 15.0 micrograms/cubic meter. Frankfort’s air quality did not exceed these maximums during the year 2011. No other air quality pollutants were measured in Frankfort or Franklin County.

Endangered Species

The most recent Report of Endangered, Threatened, and Special Concerns - Plants, Animals and Natural Communities for Franklin County, Kentucky, which is published by the Kentucky State Nature Preserves Commission, is included in Appendix H.

Without exception, the construction improvements proposed in this plan fall into one of these categories:

- Replacement or rehabilitation of existing wastewater collection facilities, or
- Extensions of the wastewater collection system into areas that are already developed. These extensions will be located adjacent to an existing road, or
- Replacement or rehabilitation improvements to the wastewater treatment plant, or
- Additions to the wastewater treatment plant.

The construction of the improvements proposed in this plan is expected to have an insignificant impact on the endangered, threatened, and special concerns plants, animals and natural communities for Franklin County. Prior to designing any improvements, an analysis will be performed to assess the environmental impact of each construction project.

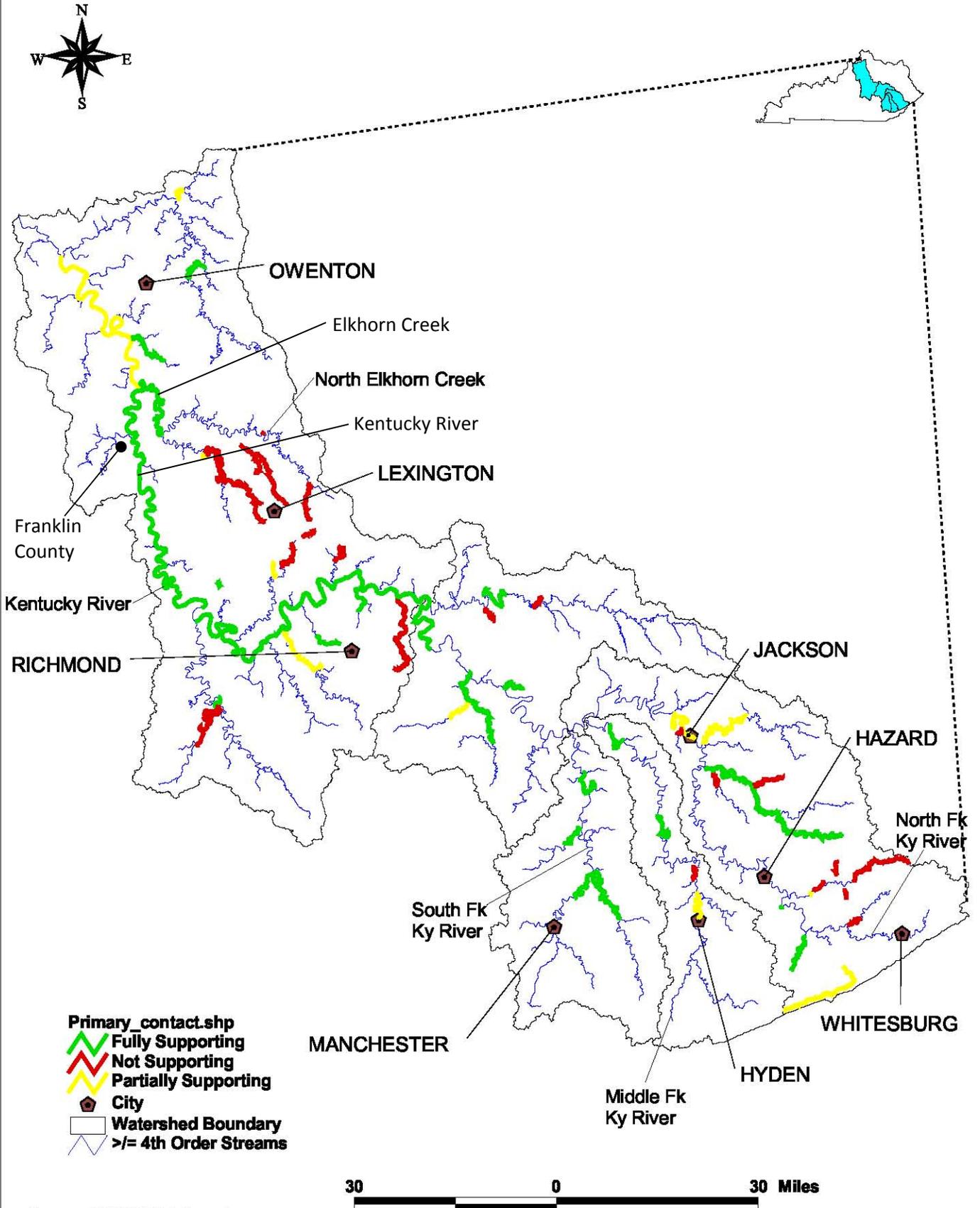
Cultural Resources

The National Register of Historic Places lists 71 sites in Franklin County. The construction of the improvements proposed in this plan is expected to have an insignificant impact on the historical and archaeological resources in Franklin County. However, prior to designing any improvements, an analysis will be performed to assess the impact each construction project poses to the cultural resources.

Other Resource Features

There are no other known environmentally sensitive areas that would be impacted by construction of the improvements proposed in this plan. However, prior to designing any of these improvements, an analysis will be performed to assess the impact each construction project poses to any known prime farmland, park or recreational area.

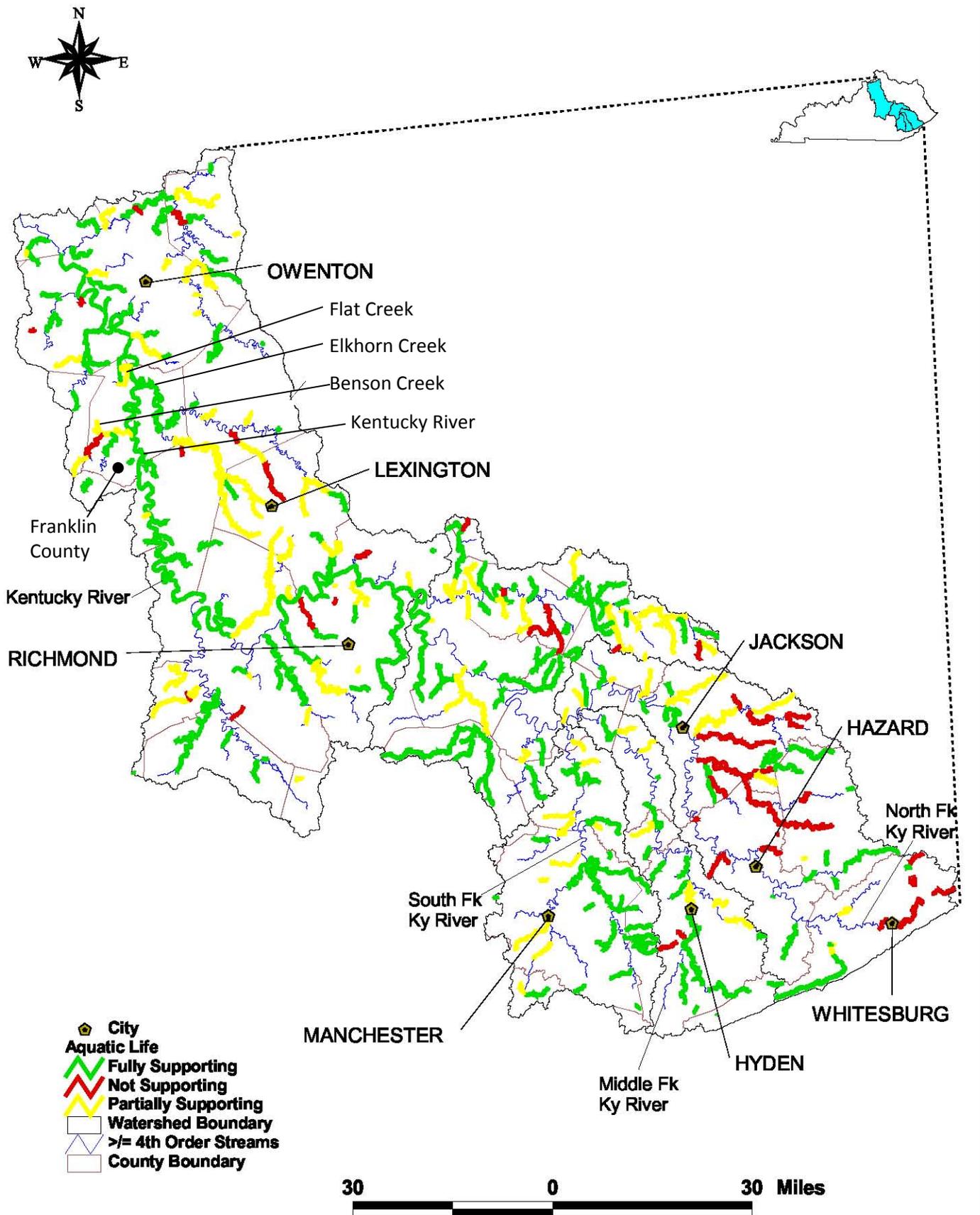
Figure B-2. Reach indexing results of streams in the Kentucky River Basin for Primary Contact Recreation Use.



Source 2006 305(b) Report

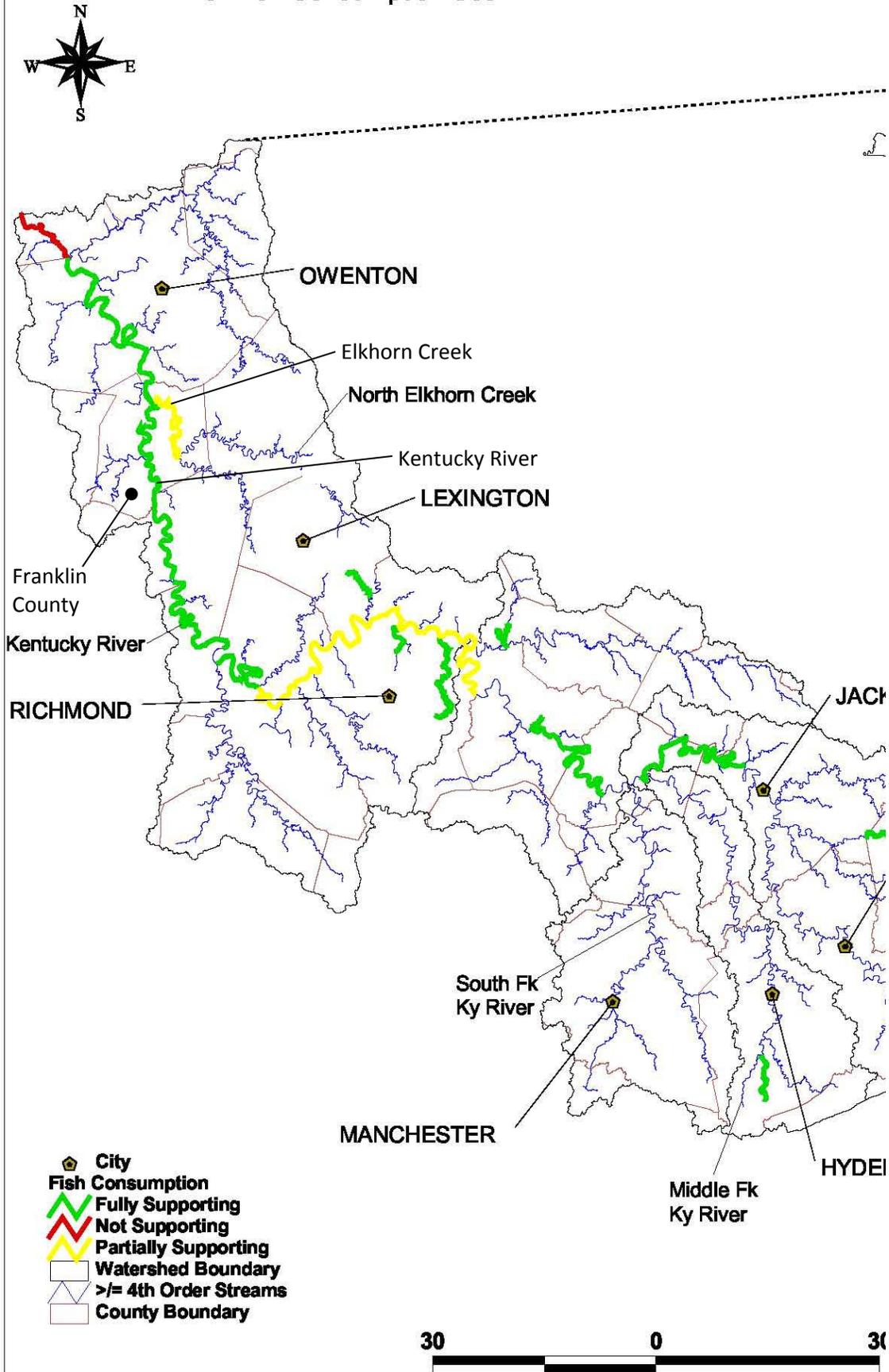
City of Frankfort 2012 Facilities Plan
Figure 5-1

Figure B-1. Reach indexing results of streams assessed in the Kentucky River Basin for Aquatic Life Use.



Source 2006 305(b) Report

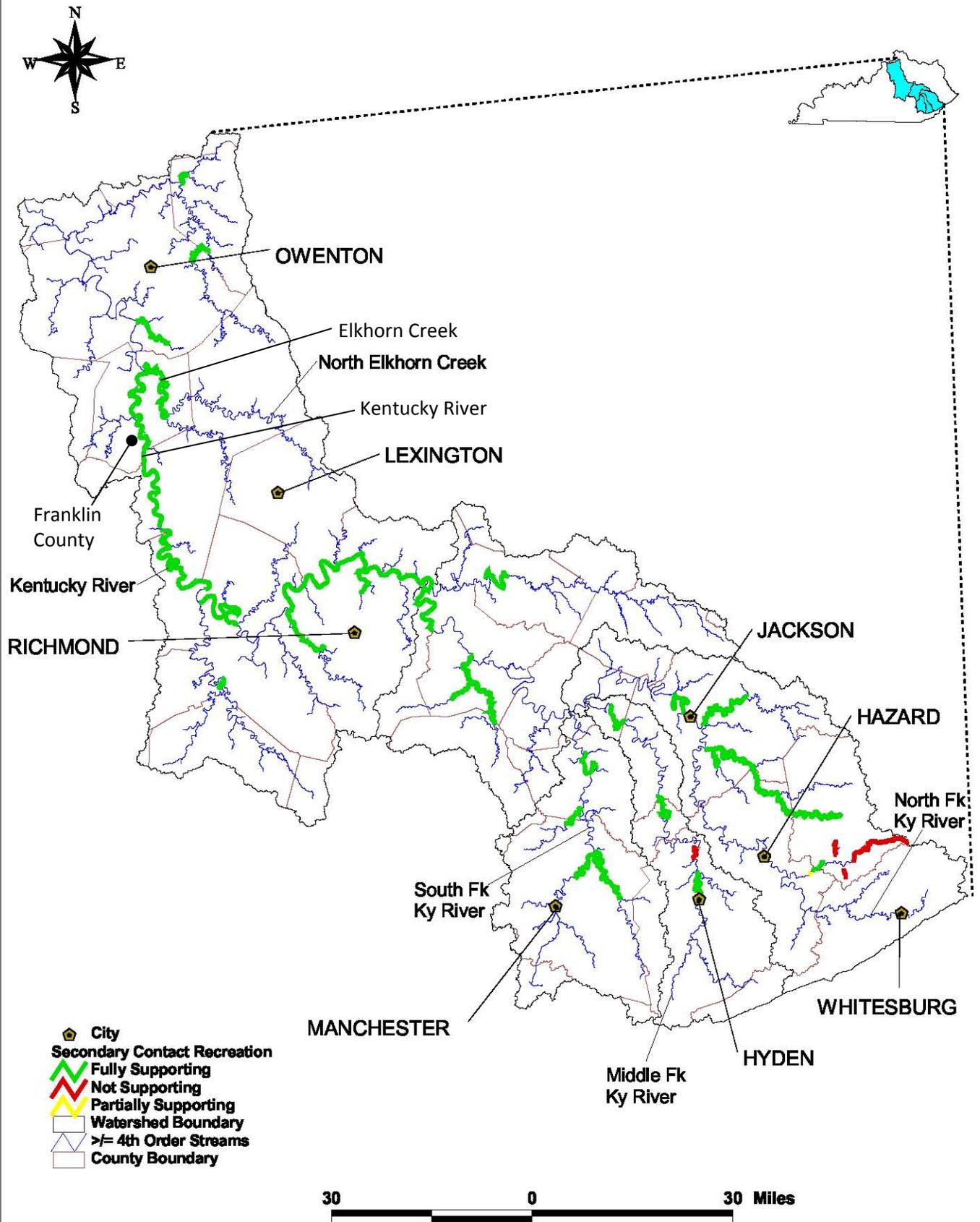
Figure B-4. Reach indexing results of streams assessed in the Kentucky for Fish Consumption Use.



Source 2006 305(b) Report

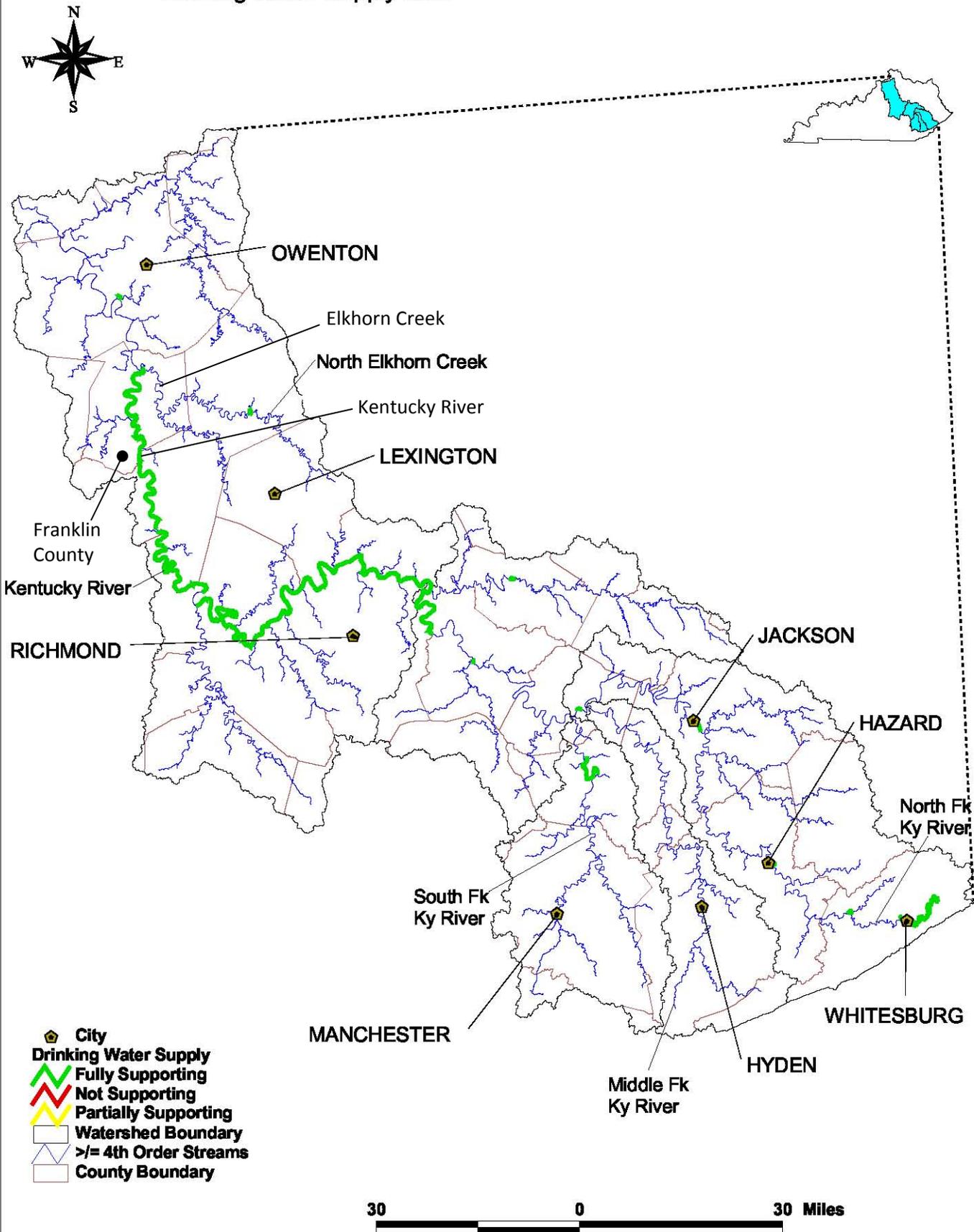
City of Frankfort 2012 Facilities Plan
Figure 5-3

Figure B-3. Reach indexing results of streams assessed in the Kentucky River Basin for Secondary Contact Recreation Use.



Source 2006 305(b) Report

Figure B-5. Reach indexing results of streams assessed in the Kentucky River Basin for Drinking Water Supply Use.



Source 2006 305(b) Report

City of Frankfort 2010 Facilities Plan
Figure 5-5

SECTION 6 EXISTING WASTEWATER SYSTEMS

On-Site Disposal Systems

The on-site disposal systems within the planning area fall into three categories. The *first category* are those systems that are *closely located to the existing wastewater collection system*. In general, these systems are located in larger, existing residential subdivisions, but were not connected to the wastewater collection system because they would not flow by gravity into the collection system. There are five such areas within the planning area:

1. Spring Hill Estates Subdivision – there are approximately 300 homes in this subdivision, and all are served by an on-site disposal system. An engineer has been selected to design a sewer extension to this area. The plans are in the preliminary stages. This project is scheduled to be completed in the next five years.
2. Inverness Subdivision - there are 34 homes in this subdivision that do not drain into the existing gravity sewer system, and these homes are served by an on-site disposal system. An engineer has been selected to design a sewer extension to this area. The plans are in the preliminary stages. This project is scheduled to be completed in the next five years.
3. Hawkheegan Drive - there are approximately 26 homes on this street that do not drain into the existing gravity sewer system, and these homes are served by an on-site disposal system. This project is scheduled to be completed in the next five years.
4. Strathmore Drive - there are approximately 5 homes on this street that do not drain into the existing gravity sewer system, and these homes are served by an on-site disposal system. This project is scheduled to be completed in the first half of the planning period.
5. Old Soldier Lane - there are approximately 5 homes on this street that do not drain into the existing gravity sewer system, and these homes are served by an on-site disposal system. This project is scheduled to be completed in the first half of the planning period.

In all, there are approximately 370 on-site disposal systems that lie adjacent to the existing sewer collection system. These are the only on-site disposal systems proposed to be eliminated in this 20 year planning period. See Section 10 of this report for a cost estimate for these 5 projects, as well as a map showing their location.

The *second category* of on-site disposal systems are those *remote residential developments* that are distantly located from the existing collection system. There are four such areas within the planning area:

1. Stonewall Subdivision – This subdivision is located on Owenton Road (old US 127 North) approximately 2.5 miles north of the Thornhill Bypass intersection. The main road into this subdivision is James Way. There are approximately 56 homes in this subdivision, all served by an on-site disposal system.
2. Hall Subdivision - This subdivision is located on Owenton Road (old US 127 North) at the intersection of Sullivan Lane, which is approximately 5.0 miles north of the Thornhill Bypass intersection. The main road into this subdivision is Royal Parkway. There are approximately 71 homes in this subdivision, all served by an on-site disposal system.

3. McKeene Estates Subdivision - This subdivision is located on Colston Lane, which is approximately 1.0 miles north of the US 460 and Switzer Road intersection. The main road into this subdivision is Mahan Road. There are approximately 31 homes in this subdivision, all served by an on-site disposal system.
4. Elkhorn Terrace Subdivision - This subdivision is located on US 460, approximately 1.5 miles east of the Switzer Road intersection. The main road into this subdivision is Thomas Street. There are approximately 125 homes in this subdivision, all served by an on-site disposal system.

Given their remote locations, there are no plans to extend sewers to these residential subdivisions during this 20 year planning period.

The *third category* of on-site disposal systems are those *widely scattered systems* that exist throughout the planning area. This wide spacing reduces the likelihood of these systems causing groundwater pollution, and it also decreases the feasibility of extending the sewers to connect them to the wastewater collection system. Given these conditions, there are no plans to eliminate these widely scattered systems during this 20 year planning period.

Privately Owned Treatment Plants

There are five privately owned wastewater treatment plants operating within the planning area. There are an additional twelve privately owned wastewater treatment plants operating within Franklin County that are outside the planning area. A list of these privately owned wastewater treatment plants is contained in Table 6-1, and the map in Figure 6-1 shows the location of these privately owned point source discharges. The following is brief narrative of the five privately owned treatment plants located in the planning area.

Capital Mobile Homes Estates - This WWTP serves a mobile home park on US 460, one mile east of the Forks of Elkhorn. The plant discharges to a ditch that runs to the North Fork of Elkhorn Creek, at a point that is only 10,500 linear feet upstream from the Elkhorn Creek dam at the Jim Beam plant. The plant serves approximately 96 residences and is operated by Terry Coker, license # 27424. A wastewater collection extension to this mobile home park is scheduled for the last half of the planning period. An analysis of the wastewater collection extension alternates is presented in chapter 8.

Elkhorn Mobile Homes Park - This package WWTP serves a mobile home park on US 460, at the Forks of Elkhorn. The plant discharges to Elkhorn Creek at a point that is only 2,000 linear feet upstream from the Elkhorn Creek dam at the Jim Beam plant. Also, this WWTP is only 1,700 linear feet from the wastewater collection system located on the Jim Beam property. The flow rate through the WWTP averages 3,600 gallons per day. The plant serves approximately 60 residences and 3 commercial properties. This WWTP is operated by Terry Coker, license # 27424. A wastewater collection extension to this mobile home park is scheduled for the last half of the planning period. An analysis of the wastewater collection extension alternates is presented in chapter 8.

Fox Run Subdivision - This package WWTP serves a residential subdivision located on the north side of US 60, approximately 2 miles west of the Frankfort city limits. The plant discharges to a ditch that drains into Benson Creek, which then runs to the Kentucky River. This WWTP serves 34 residences, with an average flow rate of 17,000 gallons per day. The plant is operated by Terry Coker, license # 27424. There are no plans to serve this subdivision during the 20 year planning period.

Ridgewood Estates - This package WWTP serves a residential subdivision located on Owenton Road (formerly US 127 North). The plant discharges to a tributary of Elkhorn Creek, which then runs to the Kentucky River. The flow rate through the WWTP averages 15,100 gallons per day. The plant is not operated by a licensed operator. There are no plans to serve this subdivision during the 20 year planning period.

Capital City Active – This WWTP serves the old Bridgeport Elementary school building that is now privately owned and operated as a used merchandise store. The plant discharges to a ditch that runs to Benson Creek, which then runs to the Kentucky River. There were no documents found online describing the WWTP operation. The USEPA website does not list the licensed operator. There are no plans to serve this development during the 20 year planning period.

Publicly Owned Treatment Plants

The Frankfort Wastewater Treatment Plant is the only public treatment plant in Franklin County. This treatment plant, which was constructed in 1978, is an oxidation ditch, complete-mix, extended aeration, secondary treatment plant. The permitted capacity of the plant is 9.9 MGD with a maximum hydraulic capacity of 40 MGD.

The processes employed in the plant are: screening, grit removal, biological treatment, clarification, disinfection, post aeration and sludge de-watering. Figure 6-2 illustrates the treatment plant layout, while Figure 6-3 presents the process flow diagram of the plant. Below is a more detailed description of each treatment process.

Influent Sewer: Wastewater is transported to the treatment plant through 27" and 48" trunk sewers which discharge into a concrete influent chamber. All flow is then transported to the screw pumps through a 48" influent line which has a capacity of 48 million gallons per day (MGD).

Septage Receiving Station- The Septage receiving station, which is also designated as the Bio-Remediation Unit in the plant flow diagram, consists of a septage tank, a septage rotomat fine screen and a septage pump station. This station is where the leachate from the landfill and sewage from the septic tank pumper trucks is received into the wastewater treatment system.

Influent Chamber: There are three 6' diameter screw pumps which lift all flow into the influent chamber, where it flows by gravity through two mechanical bar screens. Flow is then directed through an influent channel to a common grit separation chamber. From there, the flow is equally split in a three-way splitter box before being discharged into the oxidation ditches.

Oxidation Ditches: Three parallel 3.3 million gallon oxidation ditches operate to provide biological treatment to all wastewater entering the treatment plant. This provides approximately 24 hours of detention at the permitted flow rate. Based upon the permitted flow rate and a maximum loading of 12.5 lbs. biological oxygen demand (BOD₅) per day per 1,000 cubic feet of volume, this treatment system can treat up to 16,500 lbs BOD₅/day. Flow from each oxidation ditch is discharged through two 30' adjustable effluent weirs to a single splitter box which combines and equally apportions all flow to the four (4) clarifiers.

Clarifiers: There are four, 80-foot diameter secondary clarifiers working in parallel, each having a 12' side water depth. These clarifiers separate solids from the effluent which is being discharged via 251 lineal feet of overflow weir per clarifier. The settled solids are returned back to the oxidation ditches or wasted out of the treatment system. At permitted conditions, the surface overflow rate is 492 gallons/day/square foot. The estimated solids loading rates is 16.5 pounds/day/square foot at 2,000 mg/l of mixed liquor suspended solids (MLSS) and a 100% return sludge rate.

Disinfection: Currently, ozone is used to disinfect the effluent from the clarifiers. Ozone is supplied to a contact chamber at a dosage rate of approximately 5 mg/l from ozone generators utilizing liquid oxygen. After disinfection, all flow is discharged thru an effluent flow channel with Parshall flume for flow measurement. The Frankfort Sewer Department is currently evaluating a switch to Par Acetic Acid as their primary disinfection system. Once that system is in place, the ozone system will be used as a secondary disinfection system.

Post Aeration. This is accomplished after flow measurement via a cascade (step) aerator to the ultimate discharge point at the Kentucky River.

Sludge Digestion. Sludge from the clarifiers is pumped from the treatment process to one of three aerobic digesters. Two of the digesters are older units, each with a capacity of 0.3 MG, that were converted from abandoned anaerobic digesters. The third digester, which was constructed in the year 2000, has a capacity of 0.6 million gallons (MG). Sludge detention time at the permitted flow rate is 35 days.

Sludge De-watering. Excess sludge is pumped from the sludge digesters, conditioned with polymers, and de-watered by a 2.2 meter belt filter press. All filtrate is returned to the oxidation ditches for further treatment.

Sludge Disposal. A sludge storage shed was constructed in 2005, where it is stored and allowed to dry. In the past, the City has accepted bids for disposal of the sludge. In the past, there have been contractors base their proposal on hauling the sludge to the landfill and burying it, while others have used the sludge for land-farming applications. Currently, the sludge is land-farmed.

The treatment plant has undergone several upgrade and rehabilitation projects through the years. Below is a list of these projects:

- 1978 – The [trickling filters](#), which were [constructed in 1951](#), were replaced with [Oxidation Ditches](#)
- 1996 – Upgrades were made to the [Sludge Management Facilities](#)

- 1998 - A [Processed Bio-Solids Storage Building](#) was constructed
- 1998 – A [Belt Filter Press and Ancillary Equipment](#) was installed
- 2001 – A new motor control center was installed
- 2001 – The [WWTP](#) capacity was [upgraded](#) by adding a third oxidation ditch, bringing the plant capacity to 9.9 MGD
- 2003 – An [Effluent Flow Metering System](#) was installed
- 2005 - The [Ozone System](#) was replaced
- 2008 – [Modifications](#) were made to the [Septage Dump Pit](#)
- 2009 – A new maintenance building was constructed
- 2009 – The screw pump drives were replaced
- 2010 – Three of the [existing Clarifiers](#) were rebuilt. The drives were rebuilt and the sweeps were replaced.
- 2011 – A new lab building was constructed
- 2011 – Two of the three [Oxidation Ditches](#) were [rehabilitated](#). The rotors and motor drives were replaced in both ditches.
- 2012 – Security cameras were installed.
- 2013 – The Wet Weather Detention Facility (equalization basin) construction began in the summer, with completion scheduled for the fall of 2014
- 2014 – The sludge return pumps will be replaced.
- 2014 – A new dump pit for the Vac Truck will be constructed.
- 2014 - The Pista Grit will be rehabilitated and upgraded.
- 2014 - A non-potable water system will be constructed.
- 2014 – The clarifiers will be rehabbed
- 2014 – An emergency generator will be installed

See Appendix C for the most recent Monthly Operating Reports and Appendix B for the most recent Discharge Monitoring Reports for the Frankfort WWTP.

Biosolids Disposal

Typically, the biosolids disposal contract is advertised for bids in the local newspaper, and Frankfort awards the contract to the lowest responsible contractor. Frankfort is currently land farming the biosolids from the treatment plant. The current contract expires in June of 2014, and there is a two year contract extension that can be exercised. In the past, Frankfort has also contracted with the local landfill operator to waste the solids in the landfill.

Wastewater Collection System

Collection and Conveyance Lines - Frankfort is served by a sewage collection and conveyance system composed of lines that vary in age from 1 month old to over 100 years old. With few exceptions, the collection lines built in the past 35 years are all PVC. All collection lines built prior to that are most likely clay pipe or metal. The conveyance lines are predominately reinforced concrete pipe or clay pipe, but some brick sewers have been found in the older part of the downtown. Figure 6-4 shows a schematic diagram of the existing sewer areas.

Pumping Stations – Table 6-2 lists all of the pump stations within Frankfort’s collection system. The information in this table includes the pump flow rates, pump horsepower, pump type and the total dynamic head. Maps of the existing collection and conveyance system, pumping station and SSOs are shown in Figures 10-1, 10-2, 10-3 and 10-4.

Existing Operation, Maintenance and Compliance Issues

Combined Sewer Overflows (CSOs) - Frankfort’s collection and conveyance system contains combined sewers which are located in the older part of the downtown. In order to meet the requirements set forth in the Consent Judgment (CJ), Frankfort has compiled, adopted and implemented a Long Term Control Plan (LTCP) that contains measures aimed at bringing the combined sewer overflows into compliance with the Clean Water Act and the Combined Sewer Overflow Control Policy published by the EPA in April 1994. The LTCP is now under review and awaiting approval by the Kentucky Division of water.

Figure 6-5 shows the location of these overflows, and Table 6-3 lists the names and geographic locations of these combined sewer overflow (CSO) points. CSO points 1, 5, 8 and 17 have been eliminated since Frankfort entered into a CJ with the Kentucky Environmental and Public Protection Cabinet in September of 2007. Since 2011, the number of discharges from each of the remaining CSO points have conformed to the requirements contained in the EPA’s Combined Sewer Overflow Control Policy.

Located at the end of this section are five (5) tables taken from the LTCP. Table 10.02-2 identifies several Alternative Technologies that can help control CSOs, along with the criteria that is used to evaluate these various technologies. Table 10.02-3 documents how these various technologies were scored, and provides a ranking for the various technologies. The highest ranked project in this table is an **Equalization/Open Storage Basin (Wet Weather Detention Facility)**. Based on that ranking, Frankfort chose to construct a 10 million gallon wet weather detention facility (WWDF). Funding for this project has been secured through the Clean Water State Revolving Fund, and this WWDF is currently under construction. Once completed, this WWDF will mitigate the wet weather flows, which will improve the wastewater system’s capacity. Tables 10.03-2, 10.03-3 and 10.03-4 list specific projects in South Frankfort, North Frankfort and East Frankfort that were evaluated for their potential impact on CSOs in their area. These tables also list the reasons for including and excluding each project.

Table 6-4 contains a list of the recommended projects from the Long-Term Control Plan, along with the project’s status.

Sanitary Sewer Overflows (SSOs) – Just like most collection and conveyance systems across the Commonwealth, Frankfort’s system has inflow and infiltration (I&I) issues. These I&I issues resulted thirty three (33) identified SSOs, which are listed in Table 6-5. Since Frankfort entered into the CJ, fifteen (15) of these SSOs have been eliminated. Another two (2) SSOs have been mitigated. Below is a brief discussion of the remaining SSOs that includes when and how they are planned to be eliminated. The project number listed with each SSO description refers to the projects listed in Table 10-2

002 - Country Lane & Saratoga intersection – This SSO was mitigated when the East Frankfort Pump Station project was constructed in 2012. This SSO will be eliminated by a future upgrade to the Bon Air Pump Station (Project # 23)

003 - Country Lane near # 7 tee box – This SSO was mitigated when the East Frankfort Pump Station project was constructed in 2012. This SSO will be eliminated by a future upgrade to the Bon Air Pump Station (Project # 23)

004 – Two Creeks Pump Station # 2 – This SSO was mitigated when the East Frankfort Pump Station project was constructed in 2012. This SSO will be eliminated by a future upgrade to the Bon Air Pump Station (Project # 23)

005 – Brookfield & Elmendorf intersection - This SSO will be eliminated by future I&I projects, as well as an ongoing program aimed at eliminating illegal connections (Project # 17).

006 - Stonehedge near tennis courts - This SSO will be eliminated by future I&I projects, as well as an ongoing program aimed at eliminating illegal connections (Project # 17).

007 - Silverlake Subdivision Pump Station - This SSO will be eliminated by a future upgrade to this pump station (Project # 11). The engineer has been selected, and the design is in progress.

008 - Ridgeview Subdivision Pump Station - This SSO will be eliminated by a future upgrade to this pump station (Project # 7). This pump station is awaiting a startup.

013 - Myrtle Avenue - This SSO will be eliminated by constructing Phase I of an ongoing I&I project (Project # 15, Phase II was constructed first.)

014 - West Frankfort Pump Station - This SSO will be eliminated by a future upgrade to this pump station. The upgrade has been designed, but land acquisition issues have stalled the project (Project # 8).

021 - Wilkinson Street @ the river – This SSO will be eliminated by constructing project # 19, as listed in Table 10-2.

023 - Willowcrest Subdivision Pump Station - This SSO will be eliminated by an ongoing I&I project (Project # 16). **Note: The last SSO event at this location was 1-28-2009.**

026 - Fort Boone Plaza – This SSO will be eliminated by constructing project # 10, as listed in Table 10-2.

027 – Forest Villa Siphon – This SSO last overflowed on 6/09/2010. Cleaning of the line appears to have eliminated this SSO, but a hydraulic analysis of this area is currently underway (Project # 36).

028 - Stonehedge and Forley - This SSO will be eliminated by future I&I projects, as well as an ongoing program aimed at eliminating illegal connections (Project # 17).

029 - Myrtle Avenue & Rancho Dr. Intersection – This SSO will be eliminated by constructing Phase I of an ongoing I&I project (Project # 15; Note - Phase II was constructed first.)

030 - 266 Highland Parkway – Cleaning of Forest Villa siphon appears to have eliminated this SSO, but a hydraulic analysis of this area is currently underway (Project # 36).

031 – 20 Belmont - This SSO will be eliminated by future I&I projects, as well as an ongoing program aimed at eliminating illegal connections (Project # 17).

033 - 212 Myrtle Avenue - This SSO will be eliminated by constructing Phase I of an ongoing I&I project (Project # 15, Phase II was constructed first.)

All of the projects listed as corrective measures for these SSOs are scheduled to be constructed in the next five (5) years. Based on that schedule, all of these SSOs should be eliminated in the next five (5) years.

Table 6-1
Privately Owned Sewage Treatment Systems in Franklin County

Map #	Permit #	Facility Name	Address	Latitude	Longitude	Permit Issued Date	Permit Expired Date
Note 2	KY0073431	ADMAS I-64 BP	1305 HIGHWAY 151	38.142286	-84.989351	August-10-2007	September-30-2012
Note 2	KY0075019	BALD KNOB LLC	288 FLAT CREEK RD	38.273767	-84.941782	February 12, 2013	March 31, 2018
6	KY00775001	Capital City Active	555 Bridgeport Rd.	38.160428	-84.948186	June 14, 2013	July 31, 2018
7	KY0073041	CAPITAL MOBILE HOME ESTATES	5134 GEORGETOWN RD	38.214963	-84.779200	October-18-2007	November-30-2012
Note 2	KY0044351	COOLBROOK Subdivision	CLEARWATER CT	38.138300	-84.934600	September 26, 2013	October 31, 2018
Note 2	KY0074977	EDGEWOOD Subdivision	EDGEWOOD DR	38.136389	-84.925000	January 2, 2013	January 31, 2018
10	KY0083429	ELKHORN Mobile Home Park	4626 GEORGETOWN RD	38.216853	-84.788625	November 27, 2012	December 31, 2017
Note 2	KY0086312	EVERGREEN Mobile Home Park #1	3262 EVERGREEN RD	38.132617	-84.917994	February 12, 2013	March 31, 2018
Note 2	KY0078298	EVERGREEN SEWAGE DISPOSAL SYST	LAWRENCE ST OFF EVERGREEN RD	38.129444	-84.913056	January 24, 2013	February 28, 2018
Note 2	KY0054780	FARMDALE Subdivision	PEACHTREE LN	38.108333	-84.933611	November 8, 2012	December 31, 2017
Note 2	KY0074969	FARMGATE Subdivision	MICHAEL BLVD	38.130000	-84.932500	January 24, 2013	February 28, 2018
11	KY0086967	FOX RUN Subdivision	US HWY 60 W	38.170278	-84.937222	May 8, 2013	June 30, 2018
Note 2	KY0080632	H & M Mobile Home Park	200 ADAMS LN	38.119980	-84.933043	April 18, 2012	May 31, 2017
Note 2	KY0088650	HUNTINGTON WOODS ESTATES	HUNTINGTON WOODS RD	38.141111	-84.988611	September 24, 2007	October-31-2012
Note 2	KY0074951	MEADOWBROOK Subdivision	MEADOWBROOK DR	38.130278	-84.917222	January 24, 2013	February 28, 2018
16	KY0074802	RIDGEWOOD ESTATES	US HWY 127 N SHENANDOAH DR	38.246111	-84.849722	January 24, 2013	February 28, 2018
Note 2	KY0078191	STEWART HOME SCHOOL	4200 LAWRENCEBURG ROAD	38.127140	-84.911430	April-05-2012	October-31-2017
Note 3	KY0074454	SUBURBAN Mobile Home Park	455 JONES LN	38.144360	-84.904987	September-10-2007	October-31-2012
Notes:	1. See Figure 6-1 for these KPDES permit locations. The map # is keyed to that figure.						
	2. Facilities shown as BOLD lie outside the Frankfort Planning Area Boundary						
	3. Suburban Mobile Home Park is now served by the Frankfort sewage collection system.						
	4. All permit addresses are Frankfort, KY 40601.						

TABLE 6-2 EXISTING WASTEWATER PUMPING STATIONS

PUMP STATION NAME	PUMP STATION NUMBER	PUMP TYPE	TOTAL DYNAMIC HEAD	MAXIMUM DISCHARGE RATE (GPM)	HORSE POWER
Animal Shelter	160-PS	Submersible	17	47	2
Arnold Ridge	144-PS	Submersible	72	150	10
Atha	149-PS	Submersible	15	100	1.5
Benson	112-PS	Vertical Centrifugal	32	76	3
Bentwoods 1	140-PS	Vertical Centrifugal	36	80	10
Bentwoods 2	145-PS	Submersible	45	100	7.5
Bonair	137-PS	Vertical Centrifugal	97	1,300	100
Buena Vista	150-PS	Submersible	16	115	1.5
Buffalo Alley	113-PS	Submersible	36	230	5
Capital Avenue	114-PS	Vertical Centrifugal	82	6,700	50/200/200
Cardinal Hills	128-PS	Submersible	85	500	25
Carpenter Farm	161-PS	Submersible	54	80	3
Cedar Run	139-PS	Vertical Centrifugal	81	515	50
Chinook	121-PS	Vertical Centrifugal	39	650	20
Choatville	163-PS	Submersible	158	350	40
City Garage	162-PS	Submersible	61.4	23	2
Discher	142-PS	Vertical Centrifugal	65	75	7.5
Duckers Point	146-PS	Submersible	122	708	50
East Frankfort		Submersible	Construction nearly completed		
Ewing Street	117-PS	Vertical Centrifugal	65.3	1,175	15/40/40
Ford Garage	151-PS	Submersible	15	80	3
Fort Boone	125-PS	Submersible	37	150	5
Goshen	152-PS	Submersible	57	20	2
Heritage	154-PS	Submersible	54	100	7.5
Holly Hills	136-PS	Vertical Centrifugal	102	230	20
Home Depot	143-PS	Submersible	122	315	25
Hospital	132-PS	Submersible	51	250	10
Jim Beam	166-PS	Submersible	123	833	43
Mero Street	116-PS	Vertical Centrifugal	42.5	2,500	40/20/20
Miami	123-PS	Vertical Centrifugal	28	100	5
National Guard 1	119-PS	Vertical Centrifugal	60	150	25
National Guard 2	148-PS	Submersible	40	500	10
Oaks	156-PS	Submersible	92	30	3
Old Lawrenceburg Road	138-PS	Vertical Centrifugal	82	3,750	50/125/125
Parkview	115-PS	Submersible	Unknown	90	Unknown
Poplar Creek	124-PS	Submersible	97	250	20
Prevention Park	157-PS	Submersible	31	100	3
Ravencrest	131-PS	Submersible	80	420	20
Ridgeview	135-PS	Vertical Centrifugal	72	400	20
Sequoyah	126-PS	Submersible	45	100	3
Silver Lake	118-PS	Vertical Centrifugal	56	470	40
Suburban Office Park	165-PS	Grinder	Unknown	200	1
Sycamore Crossing	158-PS	Submersible	97.5	125	40
Twilight Trail	141-PS	Vertical Centrifugal	36	200	5
Twin Oaks	159-PS	Submersible	132	600	40
Two Creeks 2	129-PS	Vertical Centrifugal	122	113	20
Two Creeks 3	130-PS	Vertical Centrifugal	25	75	3
West Frankfort	133-PS	Vertical Centrifugal	164	2,177	150
Willow Street	120-PS	Vertical Centrifugal	49.9	2,000	40/25/20
Willowcrest	134-PS	Submersible	97	1,200	50
Wilson Street	111-PS	Submersible	24	112	3.5

**TABLE 6 - 3
COMBINED SEWER OVERFLOW POINT LOCATIONS**

<u>No.</u>	<u>DESCRIPTIONS</u>	<u>Latitude</u>	<u>Longitude</u>
002	Fourth Street	38° 11' 30.07"	84° 52' 06.26"
003	Saint John's Court	38° 11' 41.56"	84° 52' 10.47"
004	Murray Street	38° 11' 44.65"	84° 52' 15.52"
006	Capital Avenue	38° 11' 46.03"	84° 52' 30.30"
007	Ewing Street	38° 11' 44.71"	84° 52' 47.86"
009	Washington Street	38° 11' 49.35"	84° 52' 50.42"
010	Mero Street	38° 11' 12.73"	84° 52' 46.52"
011	Major Street	38° 11' 26.00"	84° 52' 41.90"
012	Benson Avenue	38° 11' 23.09"	84° 52' 58.93"
013	Glen Willis Property	38° 11' 38.11"	84° 52' 20.57"
014	Broadway	38° 11' 05.59"	84° 52' 53.59"
015	Wilson Street	38° 11' 33.50"	84° 52' 35.75"
016	Penitentiary Branch	38° 11' 28.05"	84° 51' 27.57"
018	Kentucky & Benson	38° 11' 17.40"	84° 52' 51.58"
019	Buffalo Alley @ Pump Sta.	38° 11' 49.65"	84° 52' 40.13"

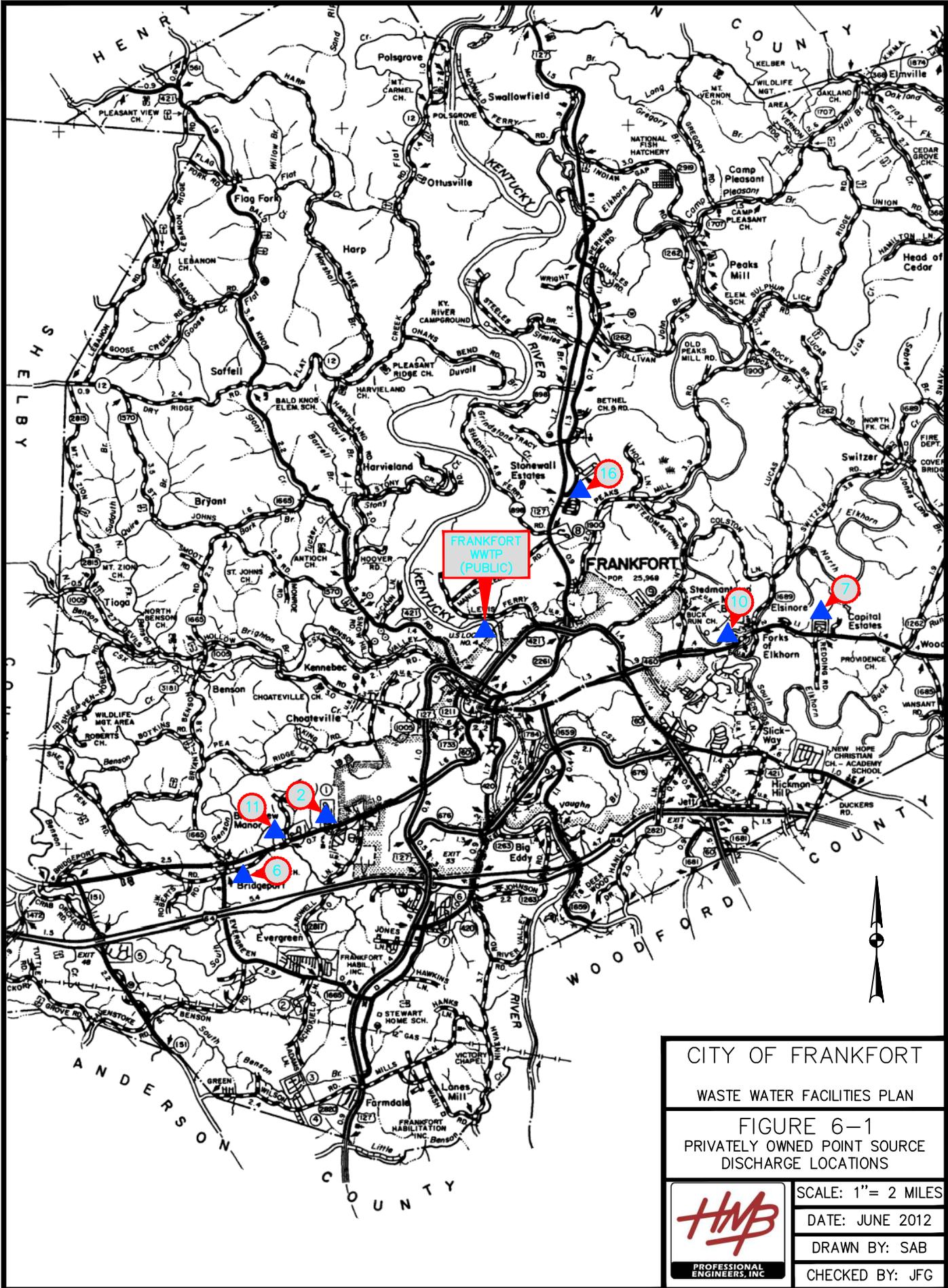
**TABLE 6 - 4
RECOMMENDED COMBINED SEWER PROJECTS from the LTCP**

<u>Description</u>	<u>Status</u>
• New Capital Avenue CSO Control Weir	Project # 27, 44 & 49, in Table 10-2
• Remove spring inputs from Louisville Hill CSS	Project # 27, 44 & 49, in Table 10-2
• Expand Capacity of the Ewing Street Pump Station	Project # 45, in Table 10-2
• Expand Capacity of the Capital Avenue Pump Station	Project # 27, 44 & 49, in Table 10-2
• Construct new interceptor from CSO 003 to the Capital Avenue Pump Station	Project # 27, 44 & 49, in Table 10-2
• Convey flow from the Capital Avenue Pump Station to the Ewing Street Pump Station	Project # 27, 44 & 49, in Table 10-2
• Convey flow from the Ewing Street Pump Station to the WWTP	Project # 27, 44 & 49, in Table 10-2
• West Broadway Flow Diversion	Project # 27, 44 & 49, in Table 10-2
• St. Clair Storm Sewer Diversion	Project # 27, 44 & 49, in Table 10-2
• Modify and raise CSO 014 regulator	Project # 27, 44 & 49, in Table 10-2
• Covered concrete Storage at Willow Pump Station	Project # 27, 44 & 49, in Table 10-2
• Replace VFDs at the Capital Avenue, Mero Street and Willow Street Pump Stations	Project # 27, 44 & 49, in Table 10-2
• Improve Wilkinson Street interceptor	Project # 19, in Table 10-2
• Replace Mero Street Pump Station	Project # 27, 44 & 49, in Table 10-2
• Convey pumped flow from Mero and Wilkinson to the WWTP	Project # 27, 44 & 49, in Table 10-2

**TABLE 6 - 5
SANITARY SEWER OVERFLOW POINT LOCATIONS**

SSO			
No.	LOCATION DESCRIPTION	Latitude	Longitude
001	East Frankfort Pump Station	38° 11' 06.89"	84° 48' 14.31"
002	Country Lane & Saratoga intersection	38° 11' 55.33	84° 49' 07.68"
003	Country Lane near # 7 tee box	38° 11' 50.56"	84° 49' 07.68"
004	Two Creeks Pump Station # 2	38° 12' 23.97"	84° 48' 34.16"
005	Brookfield & Elmendorf intersection	38° 12' 22.32	84° 49' 11.60"
006	Stonehedge near tennis courts	38° 12' 35.44"	84° 48' 25.96"
007	Silverlake Subdivision Pump Station	38° 13' 22.22"	84° 48' 29.14"
008	Ridgeview Subdivision Pump Station	38° 12' 52.63"	84° 49' 17.55"
009	Schenkel Cave Entrance	38° 11' 22.43"	84° 50' 27.01"
010	Cardinal Hill Subdivision Pump Station	38° 12' 01.67"	84° 50' 34.58
011	Rolling Acres	38° 11' 59.83"	84° 49' 54.17"
012	Rancho Court	38° 11' 55.49"	84° 50' 22.33"
013	Myrtle Avenue	38° 11' 55.13"	84° 50' 35.39"
014	West Frankfort Pump Station	38° 09' 21.39"	84° 53' 44.31"
015	National Guard Pump Station	38° 12' 34.96"	84° 54' 09.82"
016	Cardwell Lane	38° 12' 35.65"	84° 54' 50.59"
017	Twilight Trail Pump Station	38° 12' 35.00"	84° 54' 27.17"
018	243 Crestwood Drive	38° 11' 51.00"	84° 50' 14.51"
019	245 Crestwood Drive	38° 12' 34.14"	84° 50' 14.91"
020	245 Crestwood Drive	38° 10' 08.44"	84° 50' 16.81"
021	Wilkinson Street @ the river	38° 12' 51.52"	84° 52' 56.78"
022	233 Crestwood Drive	38° 12' 50.99"	84° 50' 14.57"
023	Willowcrest Subdivision Pump Station	38° 12' 47.38"	84° 55' 17.29"
024	Schenkel Cave Entrance	38° 11' 14.09"	84° 50' 33.54"
025	Schenkel Cave Entrance	38° 12' 20.89"	84° 50' 30.89"
026	Fort Boone Plaza	38° 11' 56.12"	84° 51' 57.05"
027	Forrest Villa Siphon	38° 11' 14.95"	84° 50' 08.00"
028	Stonehedge and Forley	38° 12' 25.29"	84° 48' 19.39"
029	Myrtle Avenue & Rancho Dr. Intersection	38° 11' 56.12"	84° 50' 34.29"
030	266 Highland Parkway	38° 11' 14.95"	84° 50' 09.08"
031	20 Belmont	38° 12' 09.27"	84° 48' 34.31"
032	204 Glass Avenue	38° 12' 09.27"	84° 53' 04.89"
033	212 Myrtle Avenue	38° 11' 55.73"	84° 50' 35.20"

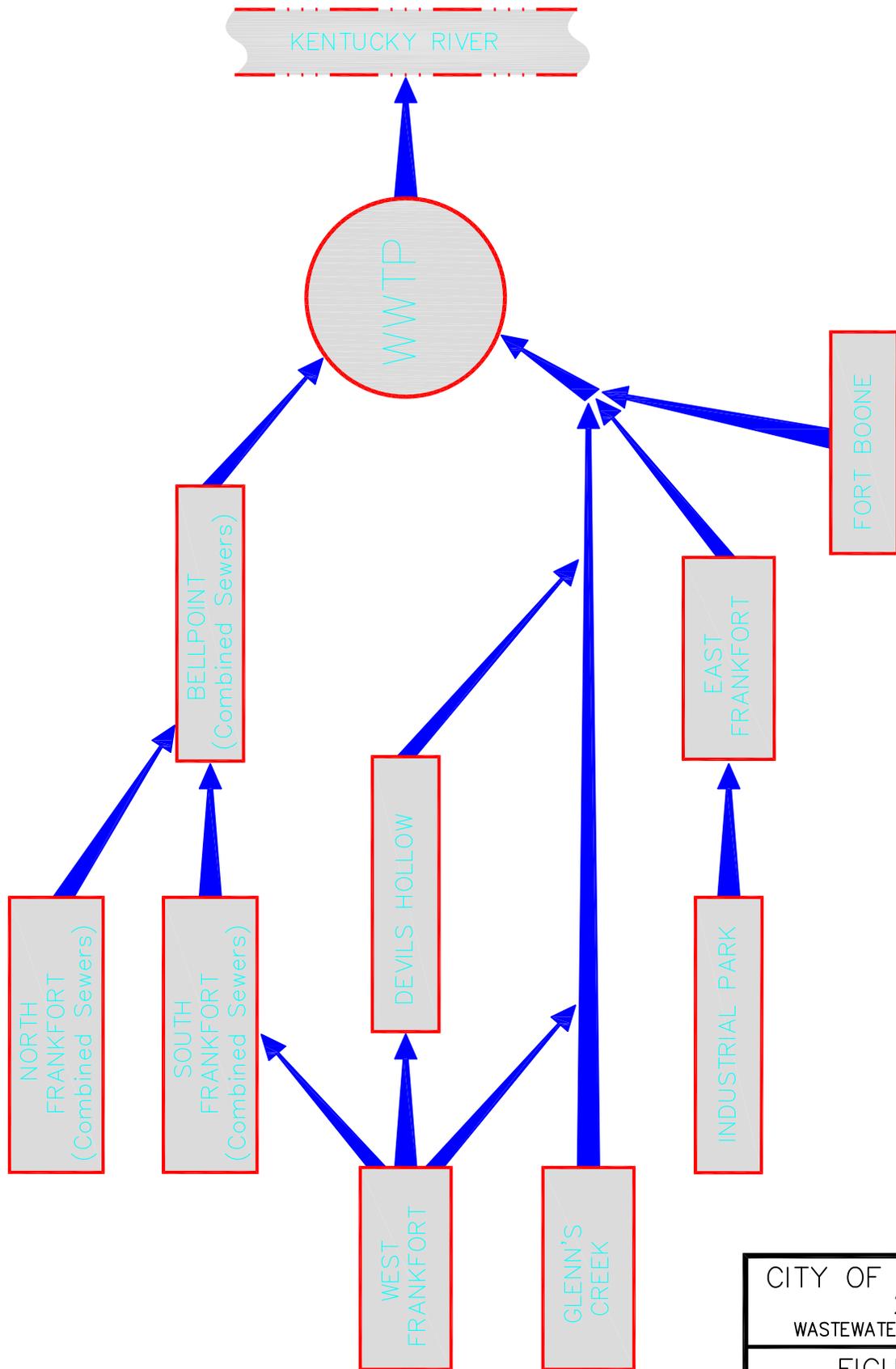
Note: These 14 SSOs shown in bold lettering have been eliminated
SSOs that are underlined have been mitigated



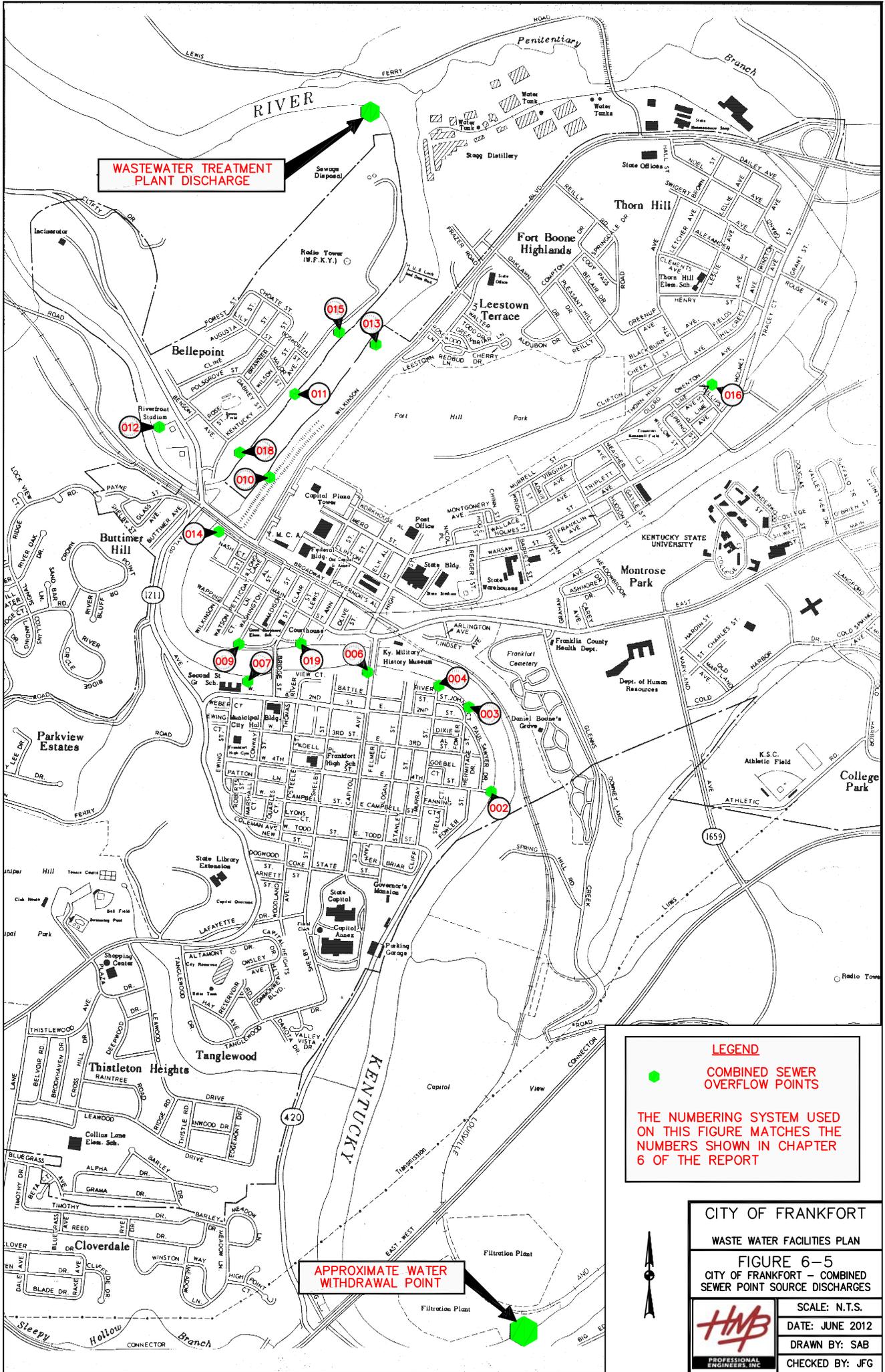
CITY OF FRANKFORT
WASTE WATER FACILITIES PLAN

FIGURE 6-1
PRIVATELY OWNED POINT SOURCE
DISCHARGE LOCATIONS

 PROFESSIONAL ENGINEERS, INC.	SCALE: 1" = 2 MILES
	DATE: JUNE 2012
	DRAWN BY: SAB
	CHECKED BY: JFG



CITY OF FRANKFORT 2012 WASTEWATER FACILITIES PLAN	
FIGURE 6-4 SCHEMATIC FLOW DIAGRAM OF EXIST. SEWERED AREAS	
	SCALE: N.T.S.
	DATE: JUNE 2012
	DRAWN BY: JFG
	CHECKED BY: RCB



WASTEWATER TREATMENT PLANT DISCHARGE

APPROXIMATE WATER WITHDRAWAL POINT

LEGEND

● COMBINED SEWER OVERFLOW POINTS

THE NUMBERING SYSTEM USED ON THIS FIGURE MATCHES THE NUMBERS SHOWN IN CHAPTER 6 OF THE REPORT

CITY OF FRANKFORT

WASTE WATER FACILITIES PLAN

FIGURE 6-5

CITY OF FRANKFORT - COMBINED SEWER POINT SOURCE DISCHARGES

SCALE: N.T.S.

DATE: JUNE 2012

DRAWN BY: SAB

CHECKED BY: JFG



TABLE 10.03-2-SOUTH FRANKFORT CSS LOCAL PROJECT EVALUATION

Project Type	Project Code	Description	Baseline	Alternatives	Rec. Plan	Project Fate (Reason to include, exclude, stop consideration, etc)	Notes
Baseline Projects	S.GS.1	New Capitol Avenue CSO control weir.	B		R	Baseline Project; Recommended Plan	Baseline project
Partial Separation	S.SEP.2	Remove Spring Inputs from Louisville Hill (2 of 3 known).		1, 2, 3, and 4	R	Best practical local alternative--included in all alternatives, Recommended Plan	Common to all alternatives.
Pumping	S.PS.1	Expand Ewing PS to handle wet weather flow from CSO 007; other upgrades.				Site constraints at existing Ewing Street PS rules out this project.	
	S.PS.2	Replace Ewing Street PS with expanded capacity.		1, 2, 3, and 4	R	Best practical local alternative--included in all alternatives, Recommended Plan	
	S.PS.3	Expand Capitol Avenue PS.		1, 2, 3, and 4	R	Best practical local alternative--included in all alternatives, Recommended Plan	Includes expansion of interceptor from CSO 006.
	S.PS.4	Replace Capitol Avenue PS with expanded capacity.				Not cost-effective compared to expanding existing PS.	
	S.PS.5	New Wet Weather PS near Ewing and Second Streets.				Not cost competitive compared to two separate PSs.	
Inline Storage in Trunk Sewer and Interceptors	S.IS.1	New interceptor from Capitol Avenue, to Ewing Street PS area.				Not cost competitive compared to S.PS.2, S.PS.3, and force mains.	
	S.IS.2	In Ewing Street area; includes increasing the size of existing interceptors in the sewer system to size large enough to attenuate peak flows and volumes, and avoid increasing the size of existing PSs.				Preliminary costs not competitive compared to upgrading PSs and force mains. Construction of large pipes also very difficult for this location.	
	S.IS.3	In Capitol Avenue area; includes increasing the size of existing interceptors in the sewer system to size large enough to attenuate peak flows and volumes, and avoid increasing the size of existing PSs.		4		Preliminary costs not competitive compared to upgrading PSs and force mains; construction of large pipes also very difficult for this location. In systemwide alternatives, not selected.	Solution may be competitive at lower levels of control.
	S.IS.4	New interceptor from Ewing Street Interceptor to Capitol Avenue PS area.				Sending flow from Ewing Street area to Capitol Avenue area not competitive because of increase in ground elevation from Ewing Street to Capitol Avenue.	
	S.IS.5	Construct new interceptor from CSO 003 to Capitol Avenue PS		1, 2, and 3	R	Recommended Plan	
Offline Storage	S.EB.1	Earthen basin storage near Dolly Graham Park (fill by gravity from CSOs 002, 003, 004, and 005).				Existing sewers are already 10 feet to 20 feet deep; basin would be excessively deep to be filled by gravity.	
	S.CT.1	Covered concrete tank storage near CSO 4 (fill by gravity from CSOs 002, 003, 004, and 005).				Existing sewers are already 10 feet to 20 feet deep; basin would be excessively deep to be filled by gravity.	
	S.EB.2	Earthen basin storage near CSO 4 (fill by pumping from expanded or new PSs).				Beneficial use (covered concrete) needed for any storage in this location.	
	S.CB.2	Concrete storage basin near CSO 4 (fill by pumping from expanded or new PSs).		2		In systemwide alternatives, not selected.	
	S.CB.3	Covered concrete tank Storage at Ewing and Second Streets.		1		In systemwide alternatives, not selected.	
High Rate Treatment	S.HT.1	Treatment near CSO 4.				Treatment costs shown to be more expensive than storage for all relevant sizes.	
	S.HT.2	Treatment near CSO 7.				Treatment facility in downtown at school not palatable.	
Force Mains	S.FM.1	Convey pumped flow from Ewing and Second Street area to CSO 004 area.		2		In systemwide alternatives, not selected.	
	S.FM.2	Convey pumped flow from Capitol Avenue area to Ewing and Second Street area.		1 and 3	R	Recommended Plan	Similar route to S.FM.1.
	S.FM.3	Convey pumped flow from Ewing and Second Street area to Glen Willis Property.		3		In systemwide alternatives, not selected.	
	S.FM.4	Convey pumped flow from Ewing and Second Street area to WWTP.		4	R	Recommended Plan	
	S.FM.5	Convey pumped flow from Capitol Avenue area to Glen Willis property.				Redundant; achieved with combination of S.FM.2 and S.FM.3.	
	S.FM.6	Convey pumped flow from Capitol Avenue area to WWTP.				Redundant; achieved with combination of S.FM.2 and S.FM.4.	
	S.FM.7	Convey pumped flow from Capitol Avenue PS to CSO 004 area.		2		In systemwide alternatives, not selected.	
	S.FM.8	Convey pumped flow from Ewing Street PS to local basin.				Redundant; included in project S.CT.3.	

Note(s): Projects with shading were not considered beyond local comparisons.

TABLE 10.03-3-EAST FRANKFORT CSS LOCAL PROJECT EVALUATION

Project Type	Project Code	Description	Baseline	Alternatives	Rec. Plan	Project Fate (Reason to include, exclude, stop consideration, etc)	Notes
Baseline Projects	M.GS.1	West Broadway Flow Diversion (RR crossing).	B		R	Baseline project; Recommended Plan.	
	M.GS.2	St. Clair Storm Sewer Diversion (RR crossing).	B		R	Baseline project; Recommended Plan.	
	M.GS.3	Modify and raise CSO 014 regulator.	B		R	Baseline project; Recommended Plan.	
	M.GS.4	Wilkinson Avenue Interceptor Point Repairs (SSO 21 related).	B		*	*Baseline project, <u>NOT IN RECOMMENDED PLAN</u>	Objective completed by M.IS.2.
Willow PS-CSO 016	W.EB.1	Earthen storage at green field next to PS, fill and drain to PS by gravity.				City and public input required covered concrete storage in this location.	
	W.CT.1	Covered concrete storage at greenfield next to PS, fill and drain to PS by gravity.		1, 2, and 3	R	Best practical local alternative-included in alternatives; Recommended Plan	
	W.PS.3	Replace VFDs at Capitol Avenue, Mero Street, and Willow Street PS.	B		R	Baseline project; Recommended Plan.	
	W.PS.1	Willow PS expansion to handle wet weather flow from CSO 016.				New force main would be required through Holmes Street area and downtown. Existing 14-inch force main would see velocities > 10 fps and 100+ feet of headloss even at a 2-month 1-hour storm.	
	W.PS.2	Abandon existing Willow PS; build new station to handle wet weather flow from CSO 016.				New force main would be required through Holmes Street area and downtown.	
	W.HT.1	Treat all CSO 016 locally; build treatment facility and two new PSs to pump to and from treatment.				Treatment costs shown to be more expensive than storage for all relevant sizes.	
	W.SEP.1	Complete Holmes Street Project, phase IIIB.		1, 3, and 4	**	**Complete, but not on LTCP schedule.	
	W.SEP.2	Complete Holmes Street Project, phase IIIC.		3 and 4	**	**Complete, but not on LTCP schedule.	
Washington St- CSO 009	M.SEP.3	Sewers separation around Washington Street and Wapping Street.		2		In systemwide alternatives; not selected.	
Broadway-CSO 014	M.SEP.2	Locally separate storm and sewer between floodwall and Wilkinson Street.				Project not extensively evaluated, could be completed in place of M.IS.1, if cost comparable	Functionally equivalent to M.IS.1; allows for additional infrastructure renewal.
	M.IS.1	Redirect flow from west to east, back to Broadway.		2		In systemwide alternatives; not selected.	Functionally equivalent to M.SEP.2.
CSO 009 and CSO 014	M.IS.2	Improve Wilkinson Avenue 8-inch interceptor (CSOs 9 and 14).		1, 3, and 4	R	Recommended Plan.	
Mero Area Offline Storage	M.CT.1	Construct deep shaft storage near Mero PS.				Not cost competitive based on depth to bedrock.	
Pumping	M.PS.N1	Abandon existing Mero PS and build new PS on riverside of floodwall to handle all flows from Mero Area.				Differential cost review and noneconomic factors allowed; Owner to determine if N2 is preferred option even with \$1 million higher capital cost.	
	M.PS.N2	Abandon existing Mero PS and build new PS on protected of floodwall to handle all flows from Mero Area.		1, 2, 3, and 4	R	Best practical local alternative-included in alternatives; Recommended Plan.	
	M.PS.E1	Expand existing Mero PS to handle all flows from Mero Area. Upgrade Infrastructure to get flow to that area.				Size of current wet well is too small to handle the required flows and pumps.	
	M.PS.E2	Retain existing Mero PS and build new PS on riverside of floodwall to handle excess flows from Mero Area.				Differential cost review and noneconomic factors allowed; Owner to determine if N2 is preferred option even with \$1 million higher capital cost.	
	M.PS.E3	Retain existing Mero PS and build new PS on protected side of floodwall to handle excess flows from Mero Area.				Differential cost review and noneconomic factors allowed; Owner to determine if N2 is preferred option even with \$1 million higher capital cost.	
Inline Storage in Trunk Sewer and Interceptors	M.IS.3	In Mero Street Collector Area; includes increasing the size of existing interceptors in the sewer system to a size large enough to attenuate peak flows and volumes.				Not thoroughly evaluated because of large sewers already in system and heavily developed service area.	
Force mains	M.FM.1	Convey pumped flow from Mero and Wilkinson to Glen Willis.		1 and 3		In systemwide alternatives; not selected.	
	M.FM.2	Convey pumped flow from Mero and Wilkinson to WWTP.		2 and 4	R	Recommended Plan	
	M.FM.3	Convey pumped flow from Mero Street and Wilkinson Boulevard to Kentucky Avenue Interceptors.				Flows required at Mero Street for level of control considered excludes using Kentucky Avenue interceptors.	
Glen Willis Property Storage Options	GW.HT.1	Glen Willis property high rate treatment.				Cost screening for treatment vs. storage shows treatment not competitive with storage.	
	GW.EB.1	Glen Willis property earthen basin storage.				Site constraints limit feasible size of earthen basin.	Concrete tankage required because of site.
	GW.CB.1	Glen Willis property covered concrete storage.		1 and 3		In systemwide alternatives; not selected.	

Note(s): Projects with shading were not considered beyond local comparisons.

TABLE 10.03-4-NORTH FRANKFORT CSS AND MISCELLANEOUS LOCAL PROJECT EVALUATION

Project Type	Project Code	Description	Baseline	Alternatives	Rec. Plan	Project Fate (Reason to include, exclude, stop consideration, etc)	Notes
North Frankfort Projects							
Baseline Projects	K.SEP.2	Partial separation within Wilson Street PS basin.				Level of control achieved with baseline projects.	Method for enhanced control.
	K.PS.1	Expand Wilson Street PS capacity.	B		R	Baseline project; Recommended Plan.	Force main expansion for enhanced control.
	K.GS.1	Modify Wilson Street CSO regulator	B		R	Baseline project; Recommended Plan.	
	K.SEP.3	Separate Benson Avenue PS basin and eliminate Benson PS CSO (CSO 012).	B		R	Baseline project; Recommended Plan.	
	K.SEP.4	Separate Kentucky Avenue area (CSO 018).	B		R	Baseline project; Recommended Plan.	
	K.GS.2	Major street flow diversion.	B		R	Baseline project; Recommended Plan.	
High Rate Treatment	WWTP.HT.1	High rate combined sewer treatment.				Cost screening for treatment vs. storage shows treatment not competitive with storage.	
Storage at WWTP	WWTP.EB.1	WWTP earthen basin storage.		2 and 4	R	Recommended Plan	
	WWTP.CB.1	WWTP concrete basin storage.				Not cost competitive with WWTP.EB project, since space is available.	
Miscellaneous Projects							
Tunnel Systems	(N/A)	Deep tunnel storage.				Preliminary cost screening indicates not competitive at scale of Frankfort CSS.	
Total Separation	S.SEP.1	Total separation Capitol Avenue area.				Not Cost Competitive.	Required by guidance.
	M.SEP.1	Total separation Mero Area.				Not Cost Competitive.	Required by guidance.
	K.SEP.1	Total separation Kentucky Avenue area.				Not Cost Competitive.	Required by guidance.

Note(s): Projects with shading were not considered beyond local comparisons.

SECTION 7
FORECAST of FLOWS and WASTELOADS in the PLANNING AREA

Forecasting Considerations

The Frankfort Plant Board provided customer data revealing that 11% of their customers are either industrial or commercial customers. Since it is known that there are only eleven industrial customers, we can determine the current customer make-up. Based on the population projections documented in Section 4 of this plan, the projected customer make-up can also be estimated. Those numbers are:

Customer Type	Current #	Current Flow Rate	Projected #	Projected Flow Rate
Residential	12,334	2.63 MGD*	13,369	2.85 MGD
Industrial	11	0.22 MGD*	11	0.22 MGD
Commercial	1,470	4.03 MGD*	1,528	4.19 MGD
Totals	13,815	6.88 MGD*	14,544	7.26 MGD

*MGD is million gallons per day

Residential Flow Rates

As reported in Section 4, the residential customer base is expected to grow by 1,035 customers. Based on the Census figures of 2.13 people per household and the DOW standard of 100 gallons per day per capita, the expected increase in residential sewer flows would be 0.22 MGD, calculated as follows: 1,035 new customers X 2.13 people per residence X 100 gallons per day per capita = 220,455 gallons per day.

Industrial Flow Rates

As reported in Section 4, the industrial sewage flow is projected to remain at 225,720 gallons per day for the entire planning period.

Commercial Flow Rates

Based on the discharge monitoring reports contained in Appendix B, Commercial sewage flow is projected to grow at the same annual rate as the general population, which is 0.20% annually. This annual growth rate will result in a 4% total increase of the commercial sewage flow over the 20 year planning period. This 4% increase represents 0.16 MGD in additional flow from commercial sources.

Forecasted Waste Load Allocation

The monthly influent and effluent averages for BOD, TSS, NH₃, Phosphorous, and e-coli are summarized in Table 7-1. These averages are based on the monthly discharge monitoring reports and operating reports from December 2011 through May 2013.

Using these average values for the influent, the current and projected daily WWTP loading for BOD₅, TSS and NH₃ were calculated. These results are summarized in Table 7-2.

Table 7-1 - E.C. MCMANNIS WASTEWATER TREATMENT PLANT AVERAGES

	WWTP TRENDS				NPDES PERMIT # KY 0022861			9.9 MGD Capacity					
	Influent				Effluent						% removal		
	Q	bod mg/l	tss mg/l	NH3 mg/l	bod mg/l	tss mg/l	NH3 mg/l	phos.	E-coli	TKN	T.S.S.	B.O.D.	MAX Q
Dec-11	11	377	244	8.1	35	16.6	0.511	1.16	78	0.57	99.93	99.91	26.9
Jan-12	9.1	140	187	8.9	6	12	0.5	0.78	35	0.45	99.94	99.96	17.1
Feb-12	8	166	280	10.4	5	10.5	0.173	1.12	31	0.35	99.96	99.97	17.2
Mar-12	9.7	134	238	9.3	4.8	9.5	0.704	0.45	66	4.19	99.96	99.96	17.2
Apr-12	6.1	598	358	14.6	3.2	14.6	0.158	2.38	115	1.07	99.96	99.99	9
May-12	6.7	151	448	12.9	3.3	16.1	0.355	2.36	1.95	0.1	99.96	99.98	17
Jun-12	5.5	144	425	15.3	1.4	11.2	0.224	1.61	106	0.44	99.97	99.99	15.2
Jul-12	6.3	169	344	16.7	4.8	9.3	1.059	0.46	89	0.52	99.97	99.97	21.8
Aug-12	5.6	554	271	22	2.8	7.3	0.239	0.63	60	0.61	99.97	99.99	8.7
Sep-12	5.6	148	219	15.4	3.1	15	0.366	1.19	138	0.2	99.93	99.98	15.6
Oct-12	4	190	323	16.8	6.2	29.3	0.149	0.83	72	--	99.91	99.97	6.9
Nov-12	4	213	224	15.4	8.6	18.4	0.279	1.69	93	--	99.92	99.96	10.3
Dec-12	8	152	210	9.5	9.2	15.7	0.778	0.88	68	0.6	99.93	99.94	18.7
Jan-13	8	142	226	8.6	11.8	22	0.743	1.15	39	0.1	99.90	99.92	23.3
Feb-13	5.6	150	322	10.9	6	14.3	0.161	1.03	77	--	99.96	99.96	7.9
Mar-13	8.4	92	185	6.9	8.3	20.1	0.513	1.11	120	0.01	99.89	99.91	22.2
Apr-13	5.9	155	291	11.9	4.6	12.2	0.463	2.44	159	--	99.96	99.97	11.7
May-13	7.1	151	250	11.1	6.4	13.1	0.56	1.67	114	0.2	99.95	99.96	19.6
Averages	6.9	212.6	280.3	12.5	7.3	14.8	0.4	1.3	81.2	0.7	99.9	100.0	15.9

Table 7-2 - E.C. McMANNIS WASTEWATER TREATMENT PLANT LOADINGS

<i>Average values for the WWTP influent, 2013</i>						
	BOD	Daily WWTP	tss mg/l	Daily WWTP	NH3	Daily WWTP
Q	mg/l	Loading, LBS per day	mg/l	Loading, LBS per day	mg/l	Loading, LBS per day
6.88	212.6	12,199	280.3	16,083	12.5	717

<i>Projected values for the WWTP influent, 2033</i>						
	BOD	Daily WWTP	tss mg/l	Daily WWTP	NH3	Daily WWTP
Q	mg/l	Loading, LBS per day	mg/l	Loading, LBS per day	mg/l	Loading, LBS per day
7.26	212.6	12,873	280.3	16,972	12.5	757

SECTION 8
ANALYSIS of ALTERNATIVES

Recommended Alternative for Wastewater Treatment and Disposal

Recommendation - Optimization of Existing Facilities is the chosen alternate for the wastewater treatment and disposal system. Section 4 of this report documented that the Planning Area has experienced very little growth in the past 10 years, and the population growth projections for the next twenty years are very small, as well. Section 7 used those projections to forecast the flows and waste loads expected at the wastewater treatment plant (WWTP). Based on those forecasts, the current WWTP capacity of 9.9 million gallons per day (MGD) will be adequate to treat the 7.26 MGD flow forecasted at the WWTP for 2033. The WWTP can also process the waste load expected from this future flow.

Section 6 contains a summary of the improvements that have been made to the WWTP since 1996. This list also contains six projects that are planned for 2014. Aside from a WWTP expansion that was completed in 2000, the projects on that list consist of upgrades, repairs and replacements. Since 2000, the purpose of the WWTP projects have been to optimize the operation of the existing facility. The Frankfort Sewer Department will continue to evaluate, upgrade, repair and/or rehabilitate each process in the wastewater treatment plant, as conditions and operations dictate.

Recommended Alternatives – Wastewater Collection and Conveyance

Several alternatives were considered for the various wastewater collection and conveyance projects needed within the planning area. Below is a brief discussion of how these alternatives apply to the collection and conveyance system.

Projects Recommended for No-Action

It is Frankfort’s goal to eliminate all privately owned wastewater discharges located in their planning area. However, the Administrative Order (AO) between the US Environmental Protection Agency and Frankfort has mandated that the City’s primary focus be aimed at eliminating CSOs and SSOs. Complying with that AO has placed a large demand on Frankfort’s resources, which has required the City to prioritize their goals. **It is with regret that Frankfort has chosen the “No-Action” alternative for eliminating the Fox Run, Ridgewood and Capital City Active wastewater discharges.**

Projects That Optimize Existing Facilities

This is the chosen alternate for the large majority of rehabilitation, replacement and repair projects listed in Table 10-2 of Section 10. The Planning Area has experienced very little growth in the past 10 years, and the population growth forecasted over the next twenty years is very small, as well. The Administrative Order, along with these small population growth projections, dictate that Frankfort should focus on replacing and rehabilitating the existing collection and conveyance systems that are currently in place.