Report

Hardin County Regional Wastewater Facilities Plan

Hardin County Water District No. 2, KY

October 2007

Report for Hardin County Water District No. 2

Hardin County Regional Wastewater Facilities Plan



1.1

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SECTION 1 EXECUTIVE SUMMARY

1.01 INTRODUCTION AND BACKGROUND

Hardin County Water District No. 2 retained Strand Associates, Inc.[®] to complete a Regional Wastewater Facility Plan to evaluate their current wastewater conveyance and treatment needs for a 20-year planning period ending in 2027 for areas of the county not currently included in a Regional Wastewater Facility Plan.

1.02 EXISTING ENVIRONMENT

Many areas within Hardin County that do not currently reside within a wastewater planning area have experienced strong population growth since 1990 and are anticipated to continue growing. Most of the areas that have experienced strong population growth are served by on-site wastewater treatment systems such as septic tanks and lateral fields. Many of these systems are failing due to the karst topography, clayey soils, and shallow bedrock that are typical throughout the county. If development continues under these conditions, there will be undesirable impacts on both the environment and public health. Hardin County also has one area within the county wastewater planning area that is anticipated to experience industrial development within the next 20 years. At present, no significant industry is located within the Hardin County Wastewater Planning Area.

1.03 EXISTING WASTEWATER COLLECTION AND CONVEYANCE

There are currently six wastewater planning areas that exist in Hardin County. The West Point, Vine Grove, Fort Knox, Radcliff, Elizabethtown, and Caveland Environmental Authority planning areas have been established by the Kentucky Division of Water. The existing collection and conveyance systems are composed of both gravity sewers and pump stations/force mains. Through conversations with the municipalities, their collections systems either have the capacity to accept county wastewater or may require an upgrade to do so. There are no existing collection and conveyance systems outside these existing planning areas. Most residents outside these existing planning areas still continue to rely upon on-site wastewater treatment systems. Based on conversations with the Hardin County Health Department, some of these systems have failed or are failing, making it difficult to continue utilizing this alternative.

1.04 EXISTING WASTEWATER TREATMENT FACILITIES

There are a total of five municipal WWTPs and 11 private or 'package' WWTPs within Hardin County. The Elizabethtown, Vine Grove, Radcliff, Fort Knox, and Caveland Environmental Authority municipal WWTPs were examined for capacity and utilized in the development of alternatives to accept county wastewater. The West Point WWTP was not considered in any county alternatives. Table 1.04-1 illustrates the rated capacity and the average flow at the municipal treatment plants as of 2003.

WWTP Name	Туре	Rated Capacity (mgd)	Average Flow April 2002 through March 2003 (mgd)	Percent of Capacity
Elizabethtown	Municipal	7.2	6.18	86
Fort Knox	Municipal	6.0	2.0	33
Radcliff	Municipal	4.0	2.34	59
Vine Grove	Municipal	0.714	0.30	41
Caveland Environmental Authority-Horse Cave	Municipal	0.28	0.15	54

 Table 1.04-1 Rated Capacity/Average Flow at Existing Wastewater Treatment Facilities

The Elizabethtown, Fort Knox, Radcliff, Vine Grove, and Caveland Environmental Authority-Horse Cave WWTPs all utilize an extended aeration activated sludge (oxidation ditch) process to treat wastewater. The Fort Knox, Radcliff, and Elizabethtown WWTPs dispose of solids by hauling to landfills, and the Vine Grove WWTP disposes of liquid sludge by applying it at a city-owned land farm adjacent to the plant.

1.05 WASTELOAD AND FLOW FORECASTS

The planning area was developed to include areas of the county not already in an existing wastewater planning area or in a planning area anticipated to be revised. For the purposes of this facilities plan. the anticipated wasteloads are typical of domestic strength wastewater. Any industrial users would be expected to pretreat their wastewater domestic to strength. unless other arrangements are accepted when they construct. The flow forecasts were developed by

		By Year	By Year							
Wastewater Flows	Unit	2017	2027							
Northern Service Area										
Average Daily Flow	mgd	1.016	1.924							
Peak Hourly Flow	gpm	2,080	3,570							
Southern Service Area ⁽¹⁾										
Average Daily Flow	mgd	2.553	2.875							
Peak Hourly Flow	gpm	4,520	4,980							
Eastern Service Area										
Average Daily Flow	mgd	0.116	0.377							
Peak Hourly Flow	gpm	300	880							
Upton and Sonora Service Area										
Average Daily Flow	mgd	0.092	0.105							
Peak Hourly Flow	gpm	240	280							
Total County Average Daily Flow	mgd	3.78	5.28							
(1) Includes Industrial Tract										
Table 1 05-1 Projected Wastewater Flows										

analyzing existing and projected population data from both the Kentucky State Data Center and the Lincoln Trail Area Development District. Flows were divided among five service areas throughout the county to be conveyed to three potential new county WWTPs. After discussions with the Kentucky Division of Water, only two of these county WWTPs (a northern and southern plant) were permitted wasteload allocations. The Valley Creek Service Area has been included in the revised Elizabethtown planning area and therefore excluded in the flow forecasts. Table 1.05-1 illustrates the anticipated flows from the four remaining service areas in the county.

1.06 CONVEYANCE AND TREATMENT ALTERNATIVES

During the development of this wastewater facilities plan, 74 collection and conveyance alternatives were developed for 32 separate subwatersheds in Hardin County. Since the initiation of this facilities plan, the City of Elizabethtown has expanded their planning area to include 10 entire subwatersheds and portions of three other subwatersheds. The developed alternatives included collecting and conveying wastewater to either an existing municipal WWTP or potentially a new county WWTP. The preliminary sizes of collector sewers, pump stations, and force mains were developed for each of the alternatives. Cost information was developed by contacting contractors and obtaining representative unit prices for infrastructure, as well as analyzing costs spent on other collection systems and wastewater treatment plants. Nonmonetary factors were also developed and considered for the collection and conveyance of each watershed. In general, the selected alternatives were the alternatives that provided conveyance and treatment to an existing municipal WWTP. A detailed analysis of each alternative for each watershed is illustrated in Section 7 of this report.

1.07 WASTEWATER TREATMENT ALTERNATIVES

In general, two types of wastewater treatment were evaluated for each subwatershed; one being municipal treatment by an existing WWTP, the other being treatment at a new county WWTP. Five municipal WWTPs were considered for municipal treatment; Fort Knox, Radcliff, Vine Grove, Elizabethtown, and Caveland WWTP. Strand Associates inquired about any upgrades and costs necessary for these municipal WWTPs to accept additional flow outside of their planning area. For the proposed county WWTPs, design criteria and costs were developed for an extended aeration, activated sludge WWTP. Nonmonetary factors were also considered in evaluating the wastewater treatment alternatives. The proposed county WWTPs were evaluated to be designed for the 0- to 10-year flow projections, and upgraded in the future to accept the 10- to 20-year flow projections. Table 1.07-1 summarizes the costs developed for the county WWTPs. Table 1.07-2 gives a more detailed approach.

	Otter Cree (to Serve Nor Service	≱k WWTP thern County Areas)	Nolin River WWTP (to Serve Southern County Service Areas)		
	Initial (1 MGD)	Expand to (2 MGD)	Initial (2 MGD)	Expand to (3 MGD)	
	\$5,109,000	\$2,469,000	\$7,437,000	\$2,557,000	
Cost per gpd capacity	\$5.00	\$2.00	\$4.00	\$3.00	
Ultimate Capacity cost per gpd		\$4.00		\$3.00	

Does not include General Conditions, Contingencies, and Technical Services as they are added in the cost spreadsheets.

Table 1.07-1 Summary of County WWTP Costs and Design Criteria

COUNTY WWTP COSTS AND DESIGN CRITERIA

		Otter C	Creek	Nolin River		
Item		Initial 1 MGD	Expand to 2 MGD	Initial 2 MGD	Expand to 3 MGD	
Influent Pumping		\$300,000	\$50,000	\$350,000	\$75,000	
Screening		\$215,000	\$100,000	\$310,000	\$100,000	
Grit Removal		\$270,000	\$0	\$325,000	\$0	
Oxidation Ditch		\$900,000	\$900,000	\$1,700,000	\$850,000	
Final Clarifiers		\$540,000	\$270,000	\$680,000	\$340,000	
RAS/WAS/S Pumping		\$200,000	\$75,000	\$300,000	\$80,000	
UV Disinfection		\$225,000	\$75,000	\$300,000	\$75,000	
Post aeration, Sampling, Me	etering	\$50,000	\$20,000	\$60,000	\$30,000	
Sludge Handling		\$525,000	\$200,000	\$725,000	\$200,000	
Su	btotal	\$3,225,000	\$1,690,000	\$4,750,000	\$1,750,000	
Site Work Piping Electrical & Controls HVAC & Plumbing Misc metals Painting	5% 15% 20% 3% 2% 1%	\$161,000 \$484,000 \$645,000 \$97,000 \$65,000 \$32,000	\$85,000 \$254,000 \$338,000 \$51,000 \$34,000 \$17,000	\$238,000 \$713,000 \$950,000 \$143,000 \$95,000 \$48,000	\$88,000 \$263,000 \$350,000 \$53,000 \$35,000 \$18,000	
Su	btotal	\$4,709,000	\$2,469,000	\$6,937,000	\$2,557,000	
Admin/Lab Building		\$200,000	\$0	\$250,000	\$0	
Land		\$200,000	\$0	\$250,000	\$0	
то	OTAL	\$5,109,000	\$2,469,000	\$7,437,000	\$2,557,000	
Cost per gpd capacity		\$5	\$2	\$4	\$3	
Ultimate Capacity cost per g	Ipd		\$4		\$3	

Does not include General Conditions, Contingencies, and Technical Services as they are added in cost spreadsheets.

Table 1.07-3 illustrates the required upgrades and wastewater treatment costs for the municipal entities.

1.14114	Terminal Force Main	Casta ta Cauntu		Volume
Utility	Location	Costs to County	Special Conditions	Charge/1,000 gai
Fort Knox	Wilson Road gate or Bullion Blvd. Gate	Share in cost to upsize lines	Subject to PSC approval	\$2.00
Radcliff	WWTP	New WWTP Headworks	Capacity Charge \$1,000/customer	\$4.10
Vine Grove	WWTP	Build WWTP Capacity		\$5.00
Elizabethtown	Varies by area		Capacity charge \$1,500/customer for conveyance; \$500/customer for WWTP	\$3.35 (soon)
Caveland	Bonnieville PS	Provide equalization to limit PHF to 180 gpm		\$4.54

1.08 RECOMMENDED PLAN

The evaluation of the Hardin County collection and conveyance systems included the assessment of 74 conveyance and treatment alternatives in 31 subwatersheds. Since the initiation of this facilities plan, the City of Elizabethtown has expanded their planning area to include 10 entire watersheds and portions of three others. The alternatives were considered based on topography and relative location of existing WWTPs. Cost opinions of alternatives were developed for each subwatershed and nonmonetary factors were considered when the economic evaluation showed that any alternatives were within 10 percent. All capital cost opinions are shown in 2007 dollars, and the capital cost opinion during 10 to 20 years is the incremental cost to develop additional infrastructure during the 10- to 20-year planning horizon. The recommended alternatives are established based on the four service areas within the Hardin County planning area.

A. Northern Service Area

Alternatives for the Northern Service Area were developed based on 0- to 10-year and 10- to 20-year projected wastewater needs. The Northern Service Area includes the Brushy Fork Creek (0 to 10 year and 10 to 20 year), Mill Creek Branch, (0 to 10 year), Mill Creek (10 to 20 year), Pawley Creek and Otter Creek (0 to 10 year and 10 to 20 year), and Flippin Creek (10 to 20 year) subwatersheds. These subwatersheds were evaluated to either be served by an existing municipal WWTP or a new Otter Creek WWTP. Table 1.08-1 illustrates the recommended plan for the Northern Service Area. Figures 1.08-1 and 1.08-2 show the recommended infrastructure for this service area by 2017 and 2027, respectively

NORTHERN SERVICE AREA RECOMMENDED PLAN

		Wa	astewater				
		Flo	ow (mgd)				
	Area of					Capital Cost Opinion ⁽¹⁾	Capital Cost Opinion ⁽¹⁾
Subwatershed	Concern	2003	2017	2027	Recommended Plan	(0 to 10 year)	(10 to 20 year)
Brushy Fork Creek	Burns-Deckard School Road Area	0.22	0.31	0.43	Collect wastewater through 8,10,12, and 15-inch trunk sewers to a regional 750 gpm pump station with 10-inch force main to the Wilson Road sewer for treatment at the Ft. Knox WWTP in the 0-10 year planning horizon. Utilize existing infrastructure and upgrade pump station to a 1,000 gpm pump station in the 10-20 year planning horizon.	\$5,866,000	\$117,000
Pawley Creek and Otter Creek	LaVista Estates, Boone Road area, and Rineyville	0.43	0.47	0.96	Collect wastewater through 8,10,12, and 15-inch trunk sewers, to a regional 1,100 gpm pump station with 15-inch force main to the Bullion Blvd. sewer for treatment at the Ft. Knox WWTP in the 0-10 year planning horizon. In the 10-20 year planning horizon, abandon the existing pump station and utilize existing trunk sewers, and construct additional 8,10, 18 and 21-inch trunk sewers to flow by gravity to a 1,700 gpm regional pump station at the location of the proposed Otter Creek WWTP. Utilize the existing 15-inch force main to the Bullion Blvd. sewer for treatment at the Ft. Knox WWTP.	\$8,204,000	\$5,916,000
Mill Creek Branch	Airview Estates	0.20	0.23	0.27	Collect wastewater through 8 and 10-inch trunk sewers to a regional 650 gpm pump station with a 10-inch force main to the Elizabethtown collection system for treatment at the Elizabethtown WWTP in the 0-10 year planning horizon. In the 10-	\$5,220,000	\$855,000

Hardin County Water District No. 2 Regional Wastewater Facilities Plan

Section 1–Executive Summary

		Wa Flo	astewater ow (mgd)				
Subwatarabad	Area of	2003	2017	2027	Possemmended Plan	Capital Cost Opinion ⁽¹⁾	Capital Cost Opinion ⁽¹⁾
	Concern	2003	2017	2021	20 year planning horizon, utilize the existing trunk sewers and construct new 8 and 10-inch trunk sewers. Upgrade the pump station capacity to 1,100 gpm and utilize existing force main to the Elizabethtown collection system for treatment at the Elizabethtown WWTP.	(0 10 10 year)	
Mill Creek		0.11	0.14	0.17	Collect wastewater through 8 and 12-inch trunk sewers to a regional 450 gpm pump station with a 6-inch force main to the 1,100 gpm Mill Creek Branch pump station. The existing 10-inch force main to the Elizabethtown collection system will be utilized and treatment will be provided at the Elizabethtown WWTP.	N/A	\$1,838,000
Flippin Creek		0.03	0.07	0.11	Collect wastewater through 8-inch trunk sewer to the regional 1,700 gpm pump station at the location of the proposed Otter Creek WWTP. Utilize the existing 15-inch force main to the Bullion Blvd. Sewer with treatment at the Fort Knox WWTP.	N/A	\$1,304,000
Total		1.00	1.22	1.92		\$19,290,000	\$10,030,000



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B. <u>Southern Service Area</u>

Alternatives for the Southern Service Area were developed based on 0- to 10-year and 10- to 20-year projected wastewater needs. The Southern Service Area includes the North Upper Nolin River (0 to 10 year and 10 to 20 year), Rose Run (0 to 10 year and 10 to 20 year), Cox Run (10 to 20 year), Jackson Branch (10 to 20 year), Nolin River (10 to 20 year), Upper West Rhudes (10 to 20 year), and Lower Valley Creek (10 to 20 year) subwatersheds. These subwatersheds were evaluated to either be served by an existing municipal WWTP or a new county-owned Nolin River WWTP. Table 1.08-2 illustrates the plan alternatives for the Southern Service Area. The recommended infrastructure for this service area is shown on Figure 1.08-3 for year 2017 and on Figure 1.08-4 for year 2027.

C. Eastern Service Area

Alternatives for the Eastern Service Area were developed based on 0 to 10 year and 10 to 20 year projected wastewater needs. The Eastern Service Area includes the Upper Younger Creek (0-10 year), Clear Creek (10 to 20 year), and Cedar Creek (10 to 20 year) watersheds. These watersheds were evaluated to either be served by the Elizabethtown WWTP or served by a new county-owned Younger Creek WWTP. A wasteload allocation was not provided by KDOW for the Younger Creek WWTP; therefore, it is recommended that the Eastern Service area watersheds construct infrastructure to convey wastewater to the existing Elizabethtown collection system for treatment by the Elizabethtown WWTP. Table 1.08-3 illustrates the recommended plan for each subwatershed and the capital cost opinion to develop that alternative. Figures 1.08-5 and 1.08-6 show the recommended infrastructure for this service area in the 0- to -10-year horizon and 11- to 20-year horizon, respectively.

D. Upton and Sonora Service Area

The Upton and Sonora Service Area, which includes the Dorsey Run and Sandy Creek Sub watersheds, was evaluated to be served by the Elizabethtown WWTP, Caveland WWTP, or a New Nolin River WWTP. The Dorsey Run and Sandy Creek Subwatersheds were assumed to reach the maximum projected population during the 0- to 10-year planning horizon. Table 1.08-4 illustrates the recommended plan for the subwatersheds and the capital cost opinion to develop that alternative. Figures 1.08-7 shows the recommended infrastructure for this service area in the 0- to -10-year horizon.

E. <u>Rural Watersheds</u>

The rural watersheds will be served by continued use of on-site treatment/disposal systems. In the event any subdivisions are planned, the developer will be expected to construct a cluster-type collection and treatment system for long-term management, operation and maintenance by HCWD1 or HCWD2. The cost of the construction will be borne by the developer and the OM&R costs will be funded by user rates.

SOUTHERN SERVICE AREA RECOMMENDED PLAN

		V	Vastewat	er			
Subwatershed	Area of Concern	2003	2017	2) 2027	Recommended Plan	Capital Cost Opinion ⁽¹⁾ (0 to 10 Year)	Capital Cost Opinion ⁽¹⁾ (10 to 20 Year)
Rose Run	Glendale	0.05	0.08	-	Collect wastewater through 8-inch trunk sewer to a regional 200 gpm pump station with a 6- inch force main to the Elizabethtown WWTP.	\$2,446,000	N/A
Rose Run, Lower Valley Creek, Upper West Rhudes Creek (partial)	Glendale	0.71	-	0.23	Collect wastewater through existing 8-inch trunk sewer and construct additional 8, 10, and 12- inch trunk sewers. The existing 200 gpm pump station will be abandoned and wastewater will flow by gravity to a new 350 gpm pump station with a 6-inch force main to the Elizabethtown WWTP. Trunk sewers in the Upper West Rhudes Creek will flow in the Elizabethtown collection system for treatment at the Elizabethtown WWTP.	N/A	\$3,613,000
North Upper Nolin River	Gilead Church- Glendale Road Area, Glendale Industrial Tract	0.02	2.48		Collect wastewater through 10 and 15-inch trunk sewers to regional 4,500 gpm pump stations with 18-inch force main to the Elizabethtown WWTP.	\$16,043,000	N/A
Nolin River, Cox Run, Jackson Branch	Gilead Church- Glendale Road Area, Glendale Industrial Tract	0.10	-	2.61	Utilize existing 10- and 15-inch trunk sewers with 4,500 gpm pump stations for the Glendale Industrial tract. Construct additional 8, 10, 15, 18, 21, and 24-inch trunk sewers with gravity flow to a new 1,200 gpm pump station at the location of the proposed Nolin River WWTP. Construct a 12-inch force main to the Elizabethtown WWTP.	N/A	\$7,102,000
Total		0.88	2.56	2.84		\$18,489,000	\$10,715,000





EASTERN SERVICE AREA RECOMMENDED PLAN

		Wastev	water Flow	w (mad)			
Subwatershed	Area of Concern	2003	2017	2027	Recommended Plan	Capital Cost Opinion ⁽¹⁾ (0 to 10 Year)	Capital Cost Opinion ⁽¹⁾ (10 to 20 Year)
Upper Younger Creek	Springfield Road Area	0.08	0.12	0.16	In the 0-10 year planning horizon, collect wastewater through 8-inch trunk sewer to a 100 gpm and 120 gpm pump station. Construct a 4 and 6-inch force main and pump to the Elizabethtown collection system for treatment at the Elizabethtown WWTP. In the 10-20 year planning horizon, utilize existing 8-inch and construct additional 8 and 10-inch trunk sewers; abandon existing 100 and 120 gpm pump stations and flow by gravity to a new 400 gpm pump station. Utilize existing 6-inch force main into the Elizabethtown collection system for treatment at the Elizabethtown WWTP.	\$5,281,000	\$1,034,000
Cedar Creek		0.04	0.04	0.05	Collect wastewater through 8-inch trunk sewer to a regional 140 gpm pump station with 6-inch force main and pump to Elizabethtown collection system for treatment at the Elizabethtown WWTP	N/A	\$1,545,000
Clear Creek		0.10	0.13	0.17	Collect wastewater through 8-inch trunk sewer, to regional 430 gpm pump station with 8-inch force main and pump to Elizabethtown collection system for treatment at the Elizabethtown WWTP	N/A	\$3,196,000
Total		0.22	0.29	0.38		\$5,281,000	\$5,775,000





UPTON AND SONORA SERVICE AREA RECOMMENDED PLAN

	Wastewater Flow (mgd)			Flow			
SubWatershed	Area of Concern	2003	2017	2027	Recommended Plan	Capital Cost Opinion ⁽¹⁾ (0 to 10 Year)	Capital Cost Opinion ⁽¹⁾ (10 to 20 Year)
Dorsey Run and Sandy Creek	Upton and Sonora	0.08	0.09	0.09	Collect wastewater through 8-inch trunk sewer to regional 200 and 300 gpm pump stations with 4-inch and 6- inch force main and on to the Bonnieville Intermediate Pump Station for treatment at the Caveland WWTP.	\$6,204,000	N/A
Total		0.08	0.09	0.09		\$6,204,000	\$0



1.09 PHASED IMPLEMENTATION

Because of the number of regulatory and funding agencies that will be involved in the development of county wastewater conveyance and treatment, and the length of time required for each, implementation of the recommended plan should begin as soon as possible to eliminate failing on-site wastewater treatment systems and protect the environment and the public health for the residents of Hardin County.

Hardin County Water District No. 2 should initiate the following actions:

- 1. Review, approve, and adopt this Facilities Plan report. Resolutions will be required by HCFC (adopting the planning area), HCWD2 (adopting the plan), HCWD1 (adopting the plan), and City of Elizabethtown (adopting their revised planning area).
- 2. Conduct a public hearing to discuss the Facilities Plan Report and Recommended Plan.
- 3. Submit the adopted Facilities Plan to the Kentucky Environmental and Public Protection Cabinet–Division of Water for review, comment, and approval.
- 4. Initiate the procurement process for engineering services necessary for the design, bidding, and construction of the facilities described in the Recommended Plan according to the requirements of the anticipated funding sources.
- 5. Gauge public interest, development pressure, public health, environmental impact, and availability of funding to prioritize 0- to 10-year projects.
- 6. Pursue sources of grant monies for the proposed projects.
- 7. Study and implement a customer System Development Charge to begin equitably charging new customers for their share of the proposed infrastructure.
- 8. Study and implement a customer rate to help offset the cost for continued improvement to your system. PSC approval is likely required.
- 9. Procure the sites to build new pump stations and acquire easements for gravity sewer and force mains as soon as it is feasible.
- 10. Negotiate equitable Interlocal Agreements with those treatment entities included in the Recommended Plan (Elizabethtown, Caveland Environmental, Radcliff, and Fort Knox).

1.10 RATE IMPACTS

HCWD2 does not have any customers at the present time, therefore, has no rate structure in place. The potential user charge rates for a representative service area (Brushy Fork Watershed–Burns-Deckard School Road) were computed based on many assumptions for funding sources and O&M costs. The evaluation predicted that a customer discharging 4,000 gallons per month would be charged about \$41 per month, an annual total cost of \$490 per year. Each homeowner would also be responsible for paying an assessment for the cost of collector sewer construction. An official rate study should be conducted to establish fair and equitable rates once the project is near completion. The Public Service Commission would be required to approve any rates prior to adoption.

HCWD2 will have to evaluate rates for each specific service area and determine the equatability of charging rates that vary by area, or rates that are universal. Rate determinations for other service areas are too dependent on actual project costs and funding scenarios to be predicted in this report. There is risk in under and over projecting potential rates.

1.11 PUBLIC PARTICIPATION

Many opportunities were presented for the public to be informed of the Regional Facilities Plan and its development. An advisory committee of key stakeholders was assembled to provide necessary input. In addition, a public hearing was held on October 25, 2007 to present the findings of this report, including impacts to present users. The following paragraphs discuss the public hearing process. Meeting minutes of the public hearing is included in Appendix A.

A. <u>Advertisement</u>

A public notice was published in the News-Enterprise on October 11 and October 18, 2007. A copy of the notice is included in Appendix B.

B. <u>Public Hearing</u>

A public hearing was held at 6:30 P.M. on October 25, 2007 at the H. B. Fife Courthouse in Elizabethtown, Kentucky. The presentation prepared for the hearing is included in Appendix C. A copy of the sign-in sheet is also attached.

C. <u>Thirty-Day Public Comment Period</u>

A 30-day public comment period was provided beginning on October 11, 2007 and extending to November 12, 2007. A copy of the Plan was available for public review at the Hardin County Water District No. 2 office at 360 Ring Road, Elizabethtown, KY during normal business hours. No comments were received.

As a result of the above process, the public participation requirements are satisfied and review of the facilities plan may proceed.

SECTION 2 INTRODUCTION AND BACKGROUND

2.01 INTRODUCTION

Strand Associates, Inc.[®] has been authorized by the Hardin County Water District No. 2 (HCWD2) to evaluate the wastewater needs within the unincorporated areas and areas without wastewater service in Hardin County. As these needs may have an impact on the wastewater facilities of the other major municipalities in the county, Hardin County Water District No. 1 (HCWD1), HCWD2, Elizabethtown, Radcliff, Fort Knox, and Vine Grove, KY are cooperating in this planning effort. This plan is not intended to be an update to the existing Regional Wastewater Facilities plan for Elizabethtown, Radcliff, Fort Knox, or Vine Grove, however some of this plan may prove beneficial to those entities when they elect to update their plans.

A Regional Wastewater Facilities Plan (RWWFP) is a comprehensive plan for the management of wastewater collection and treatment. The intent of an RWWFP is to define the most appropriate 'local' solution to providing wastewater service (collection and treatment) for a defined planning area over a defined period of time. Typically, the period of time is 20 years; however, other periods of time can be used. This report considers a 20-year planning period.

This RWWFP was initiated by HCWD2 in order to address significant population growth in areas of Hardin County without adequate wastewater treatment and the resulting impacts on public health and the environment.

2.02 PURPOSE AND SCOPE OF REPORT

The purpose of this RWWFP is to ultimately protect the environment of Hardin County and the health of its residents by providing reliable, cost-effective wastewater collection and treatment for areas of greatest need within the county. This RWWFP is intended to be a road map of the development and implementation of cost-effective wastewater conveyance and treatment alternatives for Hardin County. Objectives of this plan include:

- 1. Assessing the potential of utilizing existing collection and treatment systems in the county.
- 2. Providing growth/expansion projections that may be expected in the county.
- 3. Assessing the feasibility of providing wastewater collection systems to areas of need throughout the county.
- 4. Providing solutions to address capacity problems of existing package treatment facilities.
- 5. Identifying alternatives for treating the anticipated wastewater flows.
- 6. Evaluating and recommending the most favorable alternatives.

7. Providing guidance for implementation of the recommended alternatives with regard to scheduling and financial considerations.

2.03 KENTUCKY DIVISION OF WATER CONSIDERATIONS

Since the RWWFP ultimately needs to be reviewed and approved by the Kentucky Division of Water (KDOW), this report will follow KDOW guidelines. KDOW requires a checklist be submitted with the completed RWWFP. A copy of the most current checklist (dated October 10, 2007) is included as Appendix D for reference. Review and approval considers environmental and state clearinghouse reviews in addition to a technical review.

2.04 DEFINE THE PLANNING AREA

The planning area defines the boundaries in which alternatives are to be evaluated. Planning area boundaries can follow legal boundaries, but are preferred to follow drainage boundaries, if possible, as it is easier to provide collection services by gravity rather than by pumping. Planning areas should encompass populated areas, existing wastewater treatment plant (WWTP) discharges, areas with failing septic systems, areas with no treatment (straight pipes), proposed discharge sites (if a new WWTP is proposed), known future developments, administrative boundaries, and water supplies (wellhead/groundwater protection, lakes/reservoirs) to protect supply of drinking water. Planning areas can provide protection against propagation of future package plants. With an approved RWWFP, KDOW would offer the planning entity the right of first refusal for serving any new discharge.

Before the RWWFP can be approved, resolution from the fiscal court and other affected entities will be required for the new planning area. In the event the planning area should extend beyond the Hardin County line, resolutions from other affected county fiscal court(s) are required. Once the plan is approved, any modifications to the planning area boundaries require resolutions of acceptance from those impacted entities.

The planning area in this study consists of areas in Hardin County not currently served by a municipal wastewater facility or included in an existing municipal planning area. The planning area includes portions of the county that are anticipated to experience strong population growth over the next 20 years. These areas are subdivided into 31 subwatersheds, which allow a more defined means of developing projected wastewater flows and wastewater treatment alternatives. The subwatersheds with the highest anticipated population growth are considered for public sanitary sewer service in the 0- to 10-year time period of the 20 year planning horizon. The remaining subwatersheds have slower anticipated population growth and are considered in the 11-to 20-year time period of the 20 year planning horizon. Figure 2.03-1 illustrates existing planning area boundaries within the county and the proposed Hardin County Fiscal Court planning area boundary. Hardin County Fiscal Court (HCFC) will divide the planning area between HCWD1 and HCWD2, however, HCFC can revise the sewer service areas at their discretion.



2.05 DEFINITIONS AND ABBREVIATIONS

The following abbreviations may be utilized throughout this planning document.

BOD	_	Biological Oxygen Demand
cfu	—	colony forming units
cip	—	cast iron pipe
csp	—	concrete sewer pipe
dip	—	ductile iron pipe
DMR	-	Discharge Monitoring Report
FEMA	—	Federal Emergency Management Agency
gpd	—	gallons per day
gpcd	—	gallons per capita per day
gpm	—	gallons per minute
HCFC	—	Hardin County Fiscal Court
HCWD1	-	Hardin County Water District No. 1
HCWD2	-	Hardin County Water District No. 2
KDOW	_	Kentucky Division of Water
KSDC	—	Kentucky State Data Center
KPDES	—	Kentucky Pollutant Discharge Elimination System
lbs/day	—	pounds per day
MGD	—	million gallons per day
mg/L	_	milligrams per liter
NH₃-N	—	ammonia-nitrogen
O&M	—	Operation and Maintenance
psi	-	pounds per square inch
рус	_	polyvinyl chloride
RWWFF) _	Regional Wastewater Facilities Plan
SDR	—	Standard Dimension Ratio
SSO	_	sanitary sewer overflow
TDH	—	total dynamic head
TSS	_	total suspended solids
USEPA	—	United States Environmental Protection Agency
USGS	—	United States Geological Survey
vcp	—	vitrified clay pipe
WWTP	_	Wastewater Treatment Plant

2.06 RELATED STUDIES AND REPORTS

University of Kentucky, "Kentucky Atlas and Gazetteer," n.d., http://www.uky.edu/KentuckyAtlas/21093.html.

Kentucky Geological Survey, "Water Data," April 27, 2005, http://www.uky.edu/KGS/water/library/gwatlas/Hardin/Foreword.htm>.

Kentucky Cabinet for Economic Development, "Hardin County – Quality of Life," 2004, http://www.thinkkentucky.com/edis/cmnty/QltyLife.aspx?cw=003>.

Kentucky Geological Survey, "Geospatial Data Library," January 13, 2005, http://www.uky.edu/KGS/gis/kgs_gis.html

2002-303(d) *List of Waters for Kentucky*, Kentucky Report to Congress on Water Quality, Commonwealth of Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water, January 2003.

United States Department of Agriculture, "National Agricultural Statistics Service, "n.d. http://www.nass.usda.gov/Statistics_by_State/Kentucky/index.asp

Scorecard, "Pollution in Your Community," n.d. http://www.scorecard.org/env-releases/cap/county.tcl?fips_county_code=21093

United States Fish & Wildlife Service, "Threatened and Endangered Species in Kentucky," January 2002, http://www.fws.gov/cookeville/docs/endspec/ky/kycty.html

Lincoln Trail Area Development District, 2007, <http://www.ltadd.org/#>

SECTION 3 EXISTING ENVIRONMENT
3.01 INTRODUCTION

The assessment of environmental characteristics of Hardin County is a critical portion of the Regional Wastewater Facilities Plan. To date, many areas of Hardin County are not considered in any Regional Wastewater Facilities Plan (RWWFP). This RWWFP will provide the county with a plan for providing cost-effective wastewater collection, treatment, and disposal for areas within the planning area. Current and future needs for Hardin County will be considered. To effectively plan for these future needs, it is crucial to understand the environmental setting of the area.

3.02 PHYSIOGRAPHY

As shown in the *Kentucky Atlas and Gazetteer*, Hardin County lies in the Mississippian Plateaus physiographic region defined by sinkholes, subsurface channels, and karst topography. These geological formations can cause negative effects on water quality. The northern section of the Mississippian Plateaus form Muldraugh Hill, which divides the Mississippian plateaus from the Knobs and the Bluegrass physiographic formations.

A. <u>Topography</u>

Based on the United States Geological Survey (USGS), elevations in Hardin County range from 383 feet to 1,017 feet above mean sea level. Topography can play an important role in collecting and transporting wastewater. The influence of topography will be considered during development of detailed alternatives. For example, the City of Elizabethtown is nestled just south of a ridge that runs east-west through the middle of the county. Areas below the divide to the northeast and northwest naturally flow into Elizabethtown. Serving those areas by gravity with existing infrastructure may prove easier than areas south of the city. Areas south of Elizabethtown are lower in elevation and may require a separate treatment facility or a series of pump stations to convey wastewater to Elizabethtown's system. Similar observations can be made for areas above the divide. Figure 3.02-1 shows the major watersheds in the county relative to planning area boundaries.

B. <u>Geology</u>

Based on the USGS, the geology of Hardin County is composed of rock formations from the Devonian and Mississippian age. These formations consist of Alluviam, New Albany Shale, Mississippian sandstones and siltstones, with the most commonly found formations being Mississippian limestones. Because of the mass occurrence of limestone in the area, Hardin County is predominately a karst area. Karst areas are characterized by underground streams, caverns, and sinkholes. Most of the county is categorized as 'major karst', with some areas 'minor karst'. A few areas such as those along Rolling Fork and Upper Nolin are not considered karst. Since the county is mostly karst, groundwater can be more easily contaminated by surface water and inadequately treated wastewater. Because there are a great number of sinkholes, most of the county is considered very highly hydrosensitive for groundwater contamination. Figure 3.02-2 illustrates sensitivity to groundwater contamination throughout Hardin County. Septic systems and direct pipes under these conditions can easily have a major impact on groundwater quality.





C. <u>Soils</u>

The majority of the soils in Hardin County are silty loam or clay loam, neither of which is considered desirable for on-site systems with subsurface disposal. The quality of the soil in an area relative to use in on-site disposal of wastewater is very important when considering wastewater facilities. Figure 3.02-3 shows the soil map for Hardin County screened for suitability of on-site disposal. Septic system absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Excessive permeability, a high water table, shallow depth to bedrock, karst formations, and flooding negatively affect the proper absorption of the septic tank effluent. There must be acceptable unsaturated soil material beneath the absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage can detrimentally impact public health as effluent can then become part of runoff. Groundwater can also be polluted if karst formations are near, if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if site slope is excessive, or if the water table is near the surface.

All new on-site systems with subsurface disposal are permitted by the Hardin County Health Department-Environmental Health Office.

3.03 HYDROLOGY

Hydrology is the scientific study of the properties, distribution, use, and circulation of all the water of the earth and its atmosphere. This includes such factors as precipitation, groundwater and surface water storage and flow, and evaporation. The following addresses such factors in the vicinity of the planning area.

A. <u>Precipitation</u>

The average annual precipitation in Hardin County, Kentucky is 45.91 inches per year. The average annual snowfall is 15.7 inches per year. There are about 131 days per year that have recordable precipitation (defined as 0.01 inches or more).

B. <u>Groundwater</u>

The geological features of Hardin County have varying potential for groundwater yield and quality. The following descriptions of yield and quality start from near surface formations. Groundwater found in alluvial deposits generally yields anywhere from 100 to 500 gallons per day. The water obtained from these formations may be hard with high iron content. The Girkin formation does not typically produce adequate yields for domestic consumption. The Ste. Genevieve limestone formation contains connected large subsurface streams. Groundwater yields in this formation can equal or exceed 72,000 gallons per day. The St. Louis limestone formation can produce up to 72,000 gallons per day. Springs originating from this formation are typically used for public and industrial water supply in the county. The Salem and Harrodsburg limestone formations can produce yields from 100 to 500 gallons per day. The water from these formations is usually hard. The Borden formation can produce from 100 to 500



gallons per day or more. Water from this formation can contain iron, salt, or sulfate. The New Albany shale formation can yield from 100 to 500 gallons per day. Water from this formation can contain salt or hydrogen sulfide, and is usually hard.

C. <u>Surface Water</u>

Hardin County contains numerous streams and their respective tributaries that directly connect to the Ohio River which borders the northern most part of the county. The Rough River forms part of the southern border of the county. It too eventually flows to the Ohio River, but at point much further downstream. These two rivers are the two major drainage basins in the county. Surface water generally flows to one or the other. For the purposes of this RWWFP, areas with current or anticipated wastewater needs within Hardin County were divided into 31 sub watersheds. For purposes of developing alternatives, the watersheds were considered for improved service in either the 0- to 10-year time period or the 10- to 20-year time period of the 20 year planning horizon. Figures 3.03-1 and 3.03-2 illustrate the watersheds considered in this RWWFP.

3.04 100-YEAR FLOOD PLAIN LIMITS

Areas prone to flooding should be identified in the Regional Wastewater Facilities Plan. The established flood zones are shown in Figure 3.04-1. These zones are based on information from the Federal Emergency Management Data Agency (FEMA). FEMA defines many zones with regard to flooding. Zone X is defined as outside the 100- and 500-year flood limits. The majority of the county is in this zone. Flood Zones A and AE are both 100-year flood areas. Zone AE are areas from which a base flood elevation has been determined, Zone A has no base elevation. The 100-year flood areas in the county include:

- 1. Nolin River.
- 2. Rough River near Vertrees and again along the southerly county border.
- 3. Sandy Creek south of Sonora.
- 4. Valley Creek south of the Elizabethtown city limits.
- 5. East and West Rhudes Creek as they merge with Valley Creek near Bacon Creek Road.
- 6. Shaw Creek and Freeman Creek confluence near the Elizabethtown Bypass and Mulberry Street.
- 7. Billy Creek's confluence with Valley Creek south of the bypass.
- 8. Much of Rolling Fork, Mill Creek, and Cedar Creek north of Elizabethtown.
- 9. Flippin Creek, Otter Creek, and Brushy Fork in Radcliff and Vine Grove.







Construction in the 100-year flood plain should be avoided or at least minimized. However, for wastewater collection systems it is essentially unavoidable. Intercepting sewers and pump stations are often constructed within the 100-year flood plain. KDOW allows this, but requires the pump stations to be accessible in the 25-year flood. Electrical gear and controls are to be protected to the 100-year flood elevation. Manholes are to be sealed watertight.

Often WWTPs also have to be constructed in the 100-year flood plain. Such WWTP construction must be protected to allow operation up to the 100-year flood elevation.

3.05 WATER QUALITY AND STREAMS AND LAKES IN PLANNING AREA

The 305(b) and 303(d) reports originate from the Clean Water Act. These reports are submitted to Congress to provide water quality information in an area and define water bodies considered impaired, respectively. Hardin County has some 60 streams excluding the Ohio River and the Rough River and about 10 lakes. Several lakes and streams have segments considered "impaired". Impaired streams are streams that are not supporting their designated use or only partially supporting use as listed in Kentucky's 305(b) report to Congress. Among these uses are fishable and swimmable categories. These impaired streams are listed on the KDOW 303(d) list.

There are seven stream segments in Hardin County that are classified as "not supporting" and two segments that are classified as "partially supporting" designated uses. These streams are shown in Figure 3.05-1. Tables 3.05-1 and 3.05-2 describe the stream segments that are considered impaired, whether or not they are "nonsupporting" or "partially supporting," their respective impaired use, and the suspected pollution sources as determined by KDOW.

A small portion of Rough River Lake in Hardin County is listed in the 305(b) report as having a partial use failure for fish consumption. The pollutant is listed as Mercury, however, the source is unknown. Freeman Lake, located in Elizabethtown, is the only other Hardin County lake that is monitored. It was found to be fully supportive of all use categories. Rough River Lake is shown in Figure 3.05-1.

3.06 WETLANDS IN PLANNING AREA

The accepted definition of wetland is an area that is inundated by surface or ground water with a frequency sufficient to support, and under normal circumstances, does support a prevalence of vegetation or aquatic life that requires saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds. The largest wetland areas in Hardin County are around Rough River Lake, southern portions of Nolin River–especially along the Hardin County border, Freeman Lake, and Rolling Fork. Construction in wetlands should be avoided as special permitting would be required. The locations of wetlands are shown in Figure 3.06-1. Alternatives developed for the collection and treatment should, if possible, avoid wetlands.



TABLE 3.05-1

NONSUPPORTING STREAM SEGMENTS

Mill Creek of Salt River from mile 6.0 to 7.0

- Impaired Use(s): Aquatic Life (Nonsupport), Fish Consumption (Nonsupport)
- Pollutant(s): Mercury
- Suspected Sources: Municipal Point Sources (Major Municipal Point Sources).

Comment: Entirely contained on the Ft. Knox reservation. It is based on DMR data from Fort Knox. The KPDES permit requires in-stream monitoring upstream and downstream of the discharge location to define the contribution of mercury from the area. A streamflow gauging station has been installed.

Clear Creek of Rolling Fork from mile 0.0 to 4.4

- Impaired Use(s): Aquatic Life (Nonsupport)
- Pollutant(s): Unknown
- Suspected Sources: Unknown

Comment: Near Upper-Colesburg Road and I-65

Billy Creek of Valley Creek from mile 0.0 to 5.9

- Impaired Use(s): Swimming (Nonsupport), Aquatic Life (Partial Support)
- Pollutant(s): Siltation, Organic Enrichment/Low DO, Habitat Alterations (Other than Flow)
- Suspected Sources: Unknown

Comment: Section begins in Elizabethtown beyond Ring Road between Rineyville Road and St. John Road. It crosses Ring Road and turns toward Mulberry where it joins with Valley Creek near Central Hardin High School.

Valley Creek of Nolin River from mile 10.3 to 11.8

- Impaired Use(s): Swimming (Nonsupport)
- Pollutant(s): Pathogens
- Suspected Sources: Unknown

Comment: This segment of Valley Creek begins south of downtown Elizabethtown outside of I-65. It flows toward the downtown area, crossing under Dixie Highway just south of the Square. It follows along Mulberry until it crosses under the bypass.

Valley Creek of Nolin River from mile 8.0 to 10.3

- Impaired Use(s): Aquatic Life (Nonsupport)
- Pollutant(s): Siltation, Nutrients, Flow Alterations, Habitat Alterations (other than flow)
- Suspected Sources: Industrial Point Sources, Habitat Modification (other than hydromodification)–Removal of Riparian Vegetation and Bank Modification/Destabilization, Agriculture (Crop-related Sources), Agriculture (Grazing-related Sources), Urban Runoff/Storm Sewers (Hwy/Rd/Bridge Runoff)

Comment: This segment begins where the above segment ends along Mulberry to west of the bypass. It meanders along Mulberry until it reaches the confluence with Billy Creek near Central Hardin High School.

Valley Creek of Nolin River from mile 0.0 to 3.5

- Impaired Use(s): Swimming (Nonsupport), Aquatic Life (Partial Support)
- Pollutant(s): Pathogens, Unknown
- Suspected Sources: Unknown, Unknown

Comment: This segment of Valley Creek in Elizabethtown begins along Bacon Creek Road, crosses Glendale-Hodgenville Road until it reaches the confluence with Nolin River.

Dorsey Run of Sinks of Nolin River from mile 1.9 to 3.7

- Impaired Use(s): Aquatic Life (Nonsupport)
- Pollutant(s): Nutrients, Siltation, Habitat Alterations (other than flow), Algae Growth/Chlorophyll_a
- Suspected Sources: Agriculture (Grazing-related Sources–Pasture Grazing–Riparian and/or Upland), Habitat Modifications (other than hydromodification)–Removal of Riparian Vegetation, Urban Runoff/Storm Sewers (erosion and sedimentation)

Comment: Section is south of Sonora, and begins between I-65 and Dixie Hwy. then runs toward Sonora to Flint Hill Road.

TABLE 3.05-2

PARTIALLY SUPPORTING STREAM SEGMENTS

Mill Creek Branch of Mill Creek from mile 0.0 to 0.7

- Impaired Use(s): Aquatic Life (Partial Support)
- Pollutant(s): Organic Enrichment/Low DO, Ammonia (Unionized)
- Suspected Sources: Municipal Point Sources (Package Plants–Small Flows)

Comment: Near AirView Estates. DMR data showed significant noncompliance for ammonia. A Notice of Violation was issued on June 22, 2001 based on an inspection of May 31, 2001. Enforcement actions are continuing. Discussions have also been held with the City of Elizabethtown concerning the possibility of Elizabethtown incorporating this facility into its wastewater treatment network; gauging station has been installed.

Cox's Run of Nolin from mile 0.0 to 3.2

- Impaired Use(s): Aquatic Life (Partial Support)
- Pollutant(s): Siltation, Nutrients, Habitat Alterations (other than flow)
- Suspected Sources: Agriculture (Crop-related Sources and Grazing-related Sources), Habitat Modifications (other than hydromodification)–Bank Modification/Destabilization, Urban Runoff/Storm Sewers (Hwy/Rd/Bridge Runoff and Erosion and Sedimentation)

Comment: Cox's Run begins along I-65 between the rest stops north of Sonora. It runs northwest along Nolin Road (1407) until the confluence with Nolin River.



3.07 SEPTIC TANKS, STRAIGHT PIPE DISCHARGE, AND OTHER FAILING SYSTEMS

The majority of residences outside the Elizabethtown, Radcliff, and Vine Grove city limits and within the planning area utilize on-site treatment systems (septic tanks and absorption fields). There are a few small private package plants scattered throughout the proposed planning areas that would be decommissioned once sewers become available to that particular area. The majority of soils in Hardin County are either silty loam or clay loam, neither of which is considered desirable for on-site systems such as septic/subsurface disposal. Most problems with the septic tank systems in the planning area are due to the poor percolating soil conditions (types of soil), small lot sizes, and older systems. High water tables in the area can also limit the effectiveness of the septic tanks/absorption fields. Table 3.07-1 identifies "areas of concern" established through environmental considerations, discussions with the Hardin County Health Department-Environmental Health Office, and discussions with the Advisory Committee. A description of the general conditions of each area is included.

Areas presented in Table 3.07-1 exist within the sub watersheds shown in Figures 3.03-1 and 3.03-2. Wastewater conveyance and treatment alternatives will be developed later to address these areas of concern.

3.08 AGRICULTURAL LAND USE

Based on data from 2002, there are about 1,732 farms in Hardin County covering an area of 239,740 acres. The following data has been obtained from the National Agricultural Statistics Service for this planning area.

A. <u>Cropland</u>

A total of 151,149 acres of farmland was considered cropland in 2002. There were 95,882 acres harvested, 12,041 acres were not harvested, and 43,226 cropland acres were actually used as pasture.

B. <u>Pasture</u>

There were 21,557 acres included in the category "Other Pasture" and 11,974 acres were included in the category "Other Land."

C. <u>Woodland</u>

A total of 55,060 acres of farmland was considered to be woodland, with 16,744 acres being used as pasture land and 38,316 acres being included in the category "Other."

The average farm operator age in Hardin County in 2002 was 55. The total market value of agricultural products sold was about \$35.9 million.

TABLE 3.07-1

AREAS OF CONCERN

High Priority

- LaVista Estates (Pawley Creek Watershed)–This area has at least 400 homes and is problematic. Rolling Heights and LaVista Section 1 are in good shape. LaVista Sections 2 through 6 are problem areas. Most systems are very shallow with only 6-inches of soil. Approximately 10 percent of systems are failing already in this area due to misuse and/or poor soils. Some lots have not been allowed to build with septic systems.
- Boone Road (Upper Otter Creek Watershed)–This area is problematic. Most systems are very shallow. There are a considerable number of failures already due to misuse and/or poor soils. Some lots have not been allowed to build with septic systems.
- 3. Burns-Deckard School Road Area (Upper Otter Creek Watershed and Brushy Fork Creek Watershed)–The Burns Road area consists of a lot of clay. The area is very wet and has shallow systems.
- 4. Smithersville (Upper Shaw Creek Waterhsed)–This area is essentially a swamp.
- 5. Airview (Mill Creek Branch Watershed)–This area needs attention. The package plant is too small. This area is close to the Elizabethtown collection system.
- 6. Gilead Church–Glendale Road Area (North Upper Nolin River Watershed)–Presently there isn't much development, but this area is expected to see significant industrial development in the near future.
- Glendale and Areas North (Rose Run Watershed and East Rhudes Creek Watershed)–This area has potential for rapid development stemming from the anticipated industrial development. Off 31W soils get shallow and wet.
- 8. Oxmoor Village (East Rhudes Creek Watershed)–This area has potential for rapid development. Soils are shallow and wet.
- 9. New Glendale Road (East Rhudes Creek Watershed and Valley Creek Watershed)–This area has potential for rapid development. Brentwood, a new large development has 12 to 18 inches of soil. Other systems in the area are very shallow.
- 10. Thoroughbred Estates/Thousand Oaks (Middle Creek Branch Watershed)–Thoroughbred Estates is an older subdivision, and the soils are wet. Thousand Oaks has very shallow systems, 6- to 11-inches, with lots of failures.

- 11. Sonora (Dorsey Run Watershed)–Cherry View Estates has red clay soils. This area has lots of rock and sinkholes and is starting to experience some growth. Two package WWTPs are operable at this time. The new school (Creekside) has a peat moss treatment system.
- 12. Upton (Sandy Creek Watershed)–This area is in a similar situation to Sonora. There are a lot of sinkholes.
- 13. Septage Disposal (countywide)-consider centralized facility to accept and treat septage.

Medium Priority

- 1. Rineyville (Pawley Creek Watershed)–This area is not too bad. Areas along 1600 have very tight soils. There are currently more than 400 homes.
- 2. Hodgenville Road Area (Middle Creek Branch Watershed, East Rhudes Creek Watershed, and Upper Valley Creek Watershed)–Some growth in Mill Station. The soils in this area are not too bad, 12- to 24-inch systems.

Low Priority

- Bardstown Road Area (Buffalo Creek Watershed)–This area has a restricted soils horizon (depth to bedrock is about 24 inches. The Bentcreek subdivision has about 200 homes and very shallow systems. The Huntington Ridge subdivision has okay soils. Systems right along Bardstown road are in worse condition. The Lincoln trail school has a sand filter system that is functioning. The lower Colesburg (along Hwy 434) area has tight soils and occasionally floods.
- 2. Springfield Road Area (Upper Younger Creek Watershed)–There is not much development in this area and no known problems.
- 3. Cecilia (West Rhudes Creek Watershed)–Presently, there is not much development in this area.
- 4. Colesburg (Lower Clear Creek Watershed)–out Bardstown Road–soils are good.
- 5. West Hardin/Lakewood Schools/Stephensburg Area (Lower Nolin River Watershed)–school systems are sufficient at this time; consider connection in the future.
- 6. Glendale Children's Home (Nolin River Watershed)–Operable treatment plant. Low number of residents.
- 7. Landfill (Younger Creek Watershed)-has own treatment system. Consider elimination in the future.

3.09 AIR QUALITY

Based on the Air Quality Index, Hardin County experienced good air quality 81 percent of the time and moderate air quality 19 percent of the time in 2003. In 1999, the total emissions of all criteria air pollutants were 63,138 tons. In 1999, Hardin County was ranked 16th in the state of Kentucky for exposure to criteria air pollutants, but was not ranked in the top 16 counties for health risks from criteria air pollutants.

3.10 ENDANGERED AND NONENDANGERED PLANTS AND SPECIES

No significant impacts to the plant and animal communities are anticipated due to the implementation of wastewater collection and treatment system improvements. As of 2002, Hardin County hosted two species considered to be endangered. The first was the Gray Bat (*Myotis grisescens*) and the second was the Indiana Bat (*Myotis sodalist*). As of 2002, there were no plants found in Hardin County that were considered endangered.

3.11 HISTORICAL, ARCHITECTURAL, AND ARCHEOLOGICAL

Some of the culturally sensitive areas in Hardin County include Freeman Lake Park, the Brown-Pusey House, the Lincoln Heritage House, and the One-Room Schoolhouse. Others include the Fort Knox Military Reservation, Tioga Falls, Bridges to the Past (two historic walking trails), and Fort Duffield, which was occupied in the Civil War. No significant impacts to the historically, architecturally, or archeologically sensitive areas are anticipated due to the implementation of wastewater collection and treatment system improvements.

SECTION 4 EXISTING WASTEWATER FACILITIES

4.01 INTRODUCTION

There is currently no municipal wastewater collection or treatment infrastructure within the proposed Hardin County planning area. Existing municipal wastewater collection and treatment systems within the county were evaluated for adequate capacity to accept and treat county wastewater. This section describes the municipal wastewater collection systems of Elizabethtown, Vine Grove, Fort Knox, and Radcliff.

4.02 EXISTING MUNICIPAL COLLECTION SYSTEMS

There are five municipal collection systems in Hardin County: West Point, Fort Knox, Radcliff, Vine Grove, and Elizabethtown. Due to its isolated location in the county, the West Point system will not be evaluated for accepting county wastewater. Pump stations and connection points to major intercepting sewers near the outer boundary of each treatment plant's service area may be critical in routing county wastewater through the collection systems to the existing plants. Wastewater routing options for areas of concern are described below.

A. Elizabethtown, KY

There are 38 pump stations in the Elizabethtown collection system. Figure 4.02–1 is a schematic of the Elizabethtown collection system. The Upper Lake Road and Hawkins Drive pump stations may play a key role in routing county wastewater to the Elizabethtown WWTP. Currently, the City of Elizabethtown is considering a project to eliminate the Upper Lake Road pump station with a new gravity line around the lake. The Hawkins Drive station is capable of pumping at 1,500 GPM. Most of the Hodgenville Road (Middle Creek Branch Watershed, East Rhudes Creek Watershed, and Upper Valley Creek Watershed) area of concern, as well as the Thoroughbred Estates (Middle Creek Branch Watershed) area may be able to flow to this station by gravity. Other stations on the far west side of the city, the Airport Station, and the Briarwood Station may aid in serving areas of concern such as Rineyville (Pawley Creek Watershed) and LaVista Estates (Pawley Creek Watershed). Stations to the north such as Pine Valley and North Boundary Collector station may be used for Airview Estates (Mill Creek Branch Watershed) and Smithersville (Upper Shaw Creek Watershed). The Howell Court Station may be able to serve the Bardstown Road area (Buffalo Creek Watershed). Areas and package plants to the south may need to pump directly to the treatment plant. Table 4.02-1 summarizes possible routing options for potential areas of concern.

The City of Elizabethtown responded to a request for information on the acceptance of county wastewater into their collection system and WWTP. A copy of the April 18, 2006 letter is included in Appendix E. The city is willing and able to accept wastewater from county service areas, however, a capacity charge for conveyance and treatment would be charged to avoid any impact on city rate payers. In some cases, the county may have to deliver wastewater into the city to a point in the collection system that will avoid causing a capacity concern.



IP STATION LI	<u>ST</u>	
> STATION	APPROX. CAP. (GPM)	-
UBDIVISION. SECTION 01 UBDIVISION. SECTION 02	UNKNOWN GPM 30 GPM	
SUBDIVISION.	80 GPM 180 GPM	REVISIONS
Y COLLECTOR SUBDIVISION ROAD	UNKNOWN GPM 370 GPM	9
ALERSHIP SCHOOL BUS GARAGE 4 PTMENTS	80 GPM UNKNOWN GPM 80 GPM 40 GPM	DATE: 05/15/05 DES BY:CAS CHK BY MAS RECORD DRAWING PY: DATE: CONTRACTOR:
CE LANE DR.	1800 GPM 260 GPM 160 GPM UNKNOWN GPM 200 GPM	
APARTMENTS 1	30 GPM 800 GPM 350 GPM	VN SCHEMATIC FIRCT NO. 2 LITTES PLAN TUCKY
2 3	350 GPM 108 GPM 40 GPM	ABETHTOV SYSTEM S Y WATER DISI EWATER FACI OUNTY, KENT
	80 GPM 80 GPM 550 GPM	ELIZI LECTION ARDIN COUNT GIONAL WAST HARDIN C
DIVISION	100 GPM 100 GPM 150 GPM	COL
).	80 GPM 120 GPM 220 GPM	
ERCIAL SUBDIVISION	50 GPM 1500 GPM 400 GPM 80 GPM 80 GPM	STRAND ABBOCLATEB, INC.®
ELIZABETHTOWN AND LTADD	UNKNOWN GPM	FIGURE 4.02-1

TABLE 4.02-1

AREAS OF CONCERN NEAR ELIZABETHTOWN, KY POTENTIAL PUMP SEQUENCE

Area of Concern	Potential Pump Sequence		
Hodgenville Road	GravityHawkins PS (1500 GPM)East Poplar		
(Middle Creek Branch, East Rhudes Creek,	(550 GPM)GravityWWTP		
and Upper Valley Creek Watersheds)			
Thoroughbred Estates	GravityHawkins PS (1500 GPM)East Poplar		
(Middle Creek Branch Watershed)	(550 GPM)GravityWWTP		
Rineyville	1. New PSGravityWWTP		
(Pawley Creek Watershed)	2. New PSAirport (80 GPM)GravityWWTP		
LaVista Estates	1. GravityRineyville		
(Pawley Creek Watershed)	2. New PSAirport (80 GPM)GravityWWTP		
Airview Estates	New PSNorth Boundary (Unknown Capacity)		
(Mill Creek Branch Watershed)	GravityWWTP		
Smithersville	New PSGravityWWTP		
(Upper Shaw Creek Watershed)			
Bardstown Road	Howell Court (550 GPM)GravityWWTP		
(Buffalo Creek Watershed)			
Cecilia	New PSGravityWWTP		
(West Rhudes Creek Watershed)			
Package Plants and Areas to South	New PSWWTP		

B. Radcliff, KY

There are 52 pump stations in the Radcliff collection system. See Figure 4.02–2 for a schematic of the Radcliff collection system. Several stations could play a critical role in serving the county. The 80 GPM Watkins station may be able to serve Airview Estates (Mill Creek Branch Watershed) and/or Smithersville (Upper Shaw Creek Watershed). That flow will need to go through several stations, most importantly, the 1,900 GPM Boone Trace Station. The Heartland Mobile Home package plant (Brushy Fork Creek Watershed) may be eliminated with the new 100 GPM Emmaus Court Station. The new 780 GPM Hwy 313 Station may be able to assist in serving the Deckard School Road/Burns Road area (Upper Otter Creek and Brushy Fork Creek Watersheds) as well as the Boone Road area (Upper Otter Creek Watershed). The Hwy 313 station pumps to Radcliff's largest station, the 3,000 GPM Lincoln Trail Station. It is unlikely that any other areas of concern can be served by the Radcliff plant given the topography of the area. Table 4.02–2 summarizes potential areas of concern and possible routing options.

Potential Pump Sequence
Now BS Watking BS (80 CBM) John Hardin BS (250 CBM)
A Arnold PS (350 GPM) Quiggins (060 GPM) Boong Trace
GravityEmmans PS (100 GPM) & Arnold PS (350 GPM)
Quiggins (960 GPM)Boone Trace PS (1,900 GPM)WWTP
GravityHwy 313 PS (780 GPM)Lincoln Trail PS (3,000
GPM)WWTP

Table 4.02-2 Areas of Concern Near Radcliff, KY Potential Pump Sequence

The City of Radcliff provided a letter dated February 9, 2006 that provides the conditions the city would require for accepting county wastewater. A copy of their letter is included in Appendix E. Radcliff would require that all county wastewater be pumped directly to their WWTP. The county wastewater would pass through separate headworks facilities (metering, screening, grit removal, odor control). The county would be responsible for paying for the headworks. Radcliff would also charge a hookup fee for county customers.

C. Vine Grove, KY

The Vine Grove WWTP is located at the lowest point in its watershed. Therefore, only three pump stations are needed in the collection system. Figure 4.02–3 is a schematic of the Vine Grove collection system. Only one pump station may play a role in serving the county. The Crume Road Pump Station only runs a few hours a day and its capacity is not known. Its location near the edge of Vine Grove may be of value to some areas of concern. Because the Vine Grove WWTP is located at the bottom of the watershed, Rineyville (Pawley Creek Watershed), LaVista Estates (Pawley Creek Watershed), Boone



File: S:\05\951--1000\980\001\Wrd\Facilities Plan Report\Figures for Report\SystemSchematics-1-4-Figs. 4.01-1-4.01-4.dwg - Radcliff Time: Oct 10, 2007 - 3:03pm

PUMP STATIC	<u>IN LISI</u>
DUMP STATION	APPROX. CAP.
PUME STATION	(GPM)
INDUSTRIAL PARK	250 GPM
SAFARI TRAIL	26 GPM
	125 GPM
	200 GPM
RED HAWK	80 GPM
PARIDISE #2	100 GPM
PARIDISE #1	200 GPM
	300 GPM
SEMINOLE	850 GPM
	125 GPM
HULCREST	465 GPM
	80 GPM
PEDMAR RIVD	380 GPM
	120 GPM
BROWN STREET	120 GPM
BROWN SIREE	GRINDER
SWUPES	37.5 CDM
SPRING STREET EAST	200 CPM
WOODODEEK	100 GPM
	75 CPM
CITY HALL	CRINDER
	3000 CPM
	130 CPM
HENSLEIS	125 CPM
INDIANA TRAIL	250 CPM
	80 CPM
LUGAN	125 CPM
CHURCH (METHODIST)	120 CPM
DUCS	150 CPM
	75 CPM
CROCUS DRIVE (WEST)	
MARVINS	ZUU GPM
CHRISTOPHER SQUARE	550 GPM
GREENVIEW LANE	400 GPM
MAPLE FOREST	200 GPM
STOVALL	290 GFM
BOONE TRACE	1900 GPM
SHERWOOD	40 GPM
OAK DRIVE (HEARDS)	400 GPM
CONROE DRIVE	20 GPM
QUIGGINS	JOU GPM
SKYLARK DRIVE	37.5 GPM
HWY 313	780 GPM
MASIER STREET	OU GPM
BYERLY BOULEVARD	95 GPM
DEER HAVEN	80 GPM
BATTLE TRAINING ROAD	250 GPM
A ARNOLD & SONS	350 GPM
EMAUS	109 GPM
JOHN HARDIN 250 GPM	
APPLE WOOD	110 GPM
WATKINS	80 GPM

NO. REVISIONS DATE:					
DATE: 05/15/05	DES BY: CAS CHK BY MAS	RECORD DRAWING	BY:	DATE:	CONTRACTOR:
RADCLIFF	COLLECTION SYSTEM SCHEMATIC		HARDIN COUNTY WATER DISTRICT NO. 2	REGIONAL WASTEWATER FACILITIES PLAN	HARDIN COUNTY, KENTUCKY
	BTRAND ABBOCIATEB, INC.® E N G I N E E R B				
	FIGU	sh RE	ЕЕТ 4.()2-	-2



Road (Upper Otter Creek Watershed), and parts of the Deckard School Road (Upper Otter Creek and Brushy Fork Creek Watersheds) areas may actually be able to flow all the way to the plant by gravity. It is unlikely that any other areas of concern can be served by the Vine Grove WWTP. Table 4.02–3 summarizes potential areas of concern and possible routing options.

Area of Concern	Potential Pump Sequence
Rineyville (Pawley Creek Watershed)	GravityCrume Road PSGravityWWTP
LaVista Estates (Pawley Creek Watershed)	GravityRineyville
Deckard School/Burns (Upper Otter Creek and Brushy Fork Creek Watersheds)	GravityCrume Road PSGravityWWTP
Boone Road (Upper Otter Creek Watershed)	GravityBurns Road

Table 4.02-3 Areas of Concern Near Vine Grove, KY Potential Pump Sequence

The City of Vine Grove provided a letter dated May 4, 2006 that discusses their ability to accept county wastewater. A copy of the letter is included in Appendix E. Vine Grove is unable to accept any additional wastewater from the county without expanding their WWTP. The county would be required to pay the cost of expansion of the WWTP and deliver wastewater directly to their facility.

D. Fort Knox

The Fort Knox collection system has four primary pump stations. See Figure 4.02-4 for a schematic of the Fort Knox collection system. The station closest to Radcliff, KY, and most likely to be used in conveying county flow, is a 450 GPM pump station near the Wilson Road entrance. Other pump stations, including the 2,800 GPM Chaffee/Gold Vault station, are probably too far north to be effectively used in any county wastewater conveyance alternatives. A new pump station with force main all the way to the plant may be necessary to convey county wastewater to the WWTP. Table 4.02-4 summarizes potential areas of concern and possible routing options.

Area of Concern	Potential Pump Sequence
Any Area	1. New PSWWTP
	2. New PSWilson Road PS (450 GPM)GravityWWTP

Table 4.02-4 Areas of Concern Near Fort Knox, KY Potential Pump Sequence



The Fort Knox collection and treatment system is operated by Hardin County Water District No. 1 (HCWD1). A copy of their December 29, 2005 letter is included in Appendix E. HCWD1 noted county wastewater can be delivered to one of two points in the collection system. The county would be expected to share in the cost to upgrade the Fort Knox collection system. No modifications are expected to be made at the Fort Knox WWTP.

E. <u>Caveland Environmental Authority</u>

Caveland Environmental Authority (CEA) operates wastewater collection systems in Hart and Barren counties. In previous planning conducted by CEA, provisions were made to accept up to 180 GPM of wastewater from Upton to the Bonnieville service area. Wastewater would be pumped from that location to the Horse Cave WWTP for treatment.

A copy of e-mail correspondence with CEA and their consulting engineers is included in Appendix E.

4.03 EXISTING TREATMENT FACILITIES

Based on a search of USEPA and KDOW records, a total of five municipal WWTPs and 11 private or 'package' WWTPs were identified. Table 4.03-1 lists the rated capacities and the reported utilization (average daily flow from April 2002 to March 2003). More information on the utilization and capacity of each municipal WWTP is provided below.

4.04 DESCRIPTION OF EXISTING MUNICIPAL TREATMENT FACILITIES

The following sections give a general overview of the WWTPs operated by Elizabethtown, KY, Radcliff, KY, Vine Grove, KY, and Fort Knox, KY. An accompanying schematic will illustrate the treatment process at each WWTP. These WWTPs were considered in the municipal wastewater treatment alternatives in the planning area.

A. Elizabethtown, KY

The Elizabethtown WWTP, located southwest of downtown on Gaither Station Road, has а capacity of 7.2 MGD. It uses an oxidation ditch (extended aeration, activated sludge) process. A schematic of the process is shown in Figure 4.04-1.



TABLE 4.03-1

LIST OF WWTPS, RATED CAPACITY, AND REPORTED UTILIZATION

		Rated	Average Flow	
		Capacity	(4/02 - 3/03)	Percent of
WWTP Name	Туре	(mgd)	(mgd)	Capacity
Elizabethtown	Municipal	7.2	6.18	86
Fort Knox	Municipal	6.0	2.0	33
Radcliff	Municipal	4.0	2.34	59
Vine Grove	Municipal	0.714	0.30	41
West Point	Municipal	0.20	0.11	53
Airview Estates Subdivision	Private	0.055	0.032	58
Glendale Children's Home	Private	0.022	0.010	45
Glendale Auto Truck Plaza	Private	0.015	0.006	40
Hardin County Board of Education Outfall 001	Private	0.012	0.005	25
Hardin County Board of Education Outfall 002	Private	0.012	0.004	33
Heartland Mobile Home Community	Private	0.007	0.004	57
KTC Hardin Co Rest Area I-65 Outfall 001	Private	0.02	0.009	45
KTC Hardin Co Rest Area I-65 Outfall 002	Private	0.02	0.01	50
Petro Shopping Centers	Private	0.06	0.036	60
Sonora Auto Truck Plaza Outfall 001	Private	Unknown	0.001	Unknown
Sonora Auto Truck Plaza Outfall 002	Private	Unknown	0.001	Unknown

The plant flow currently averages 6.18 MGD with 1.0 MGD available for growth within the city and for county wastewater. The city is currently evaluating a potential expansion to their WWTP. Dewatered sludge from the plant is hauled to the Pearl Hollow landfill.

B. Radcliff, KY WWTP

The Radcliff WWTP, located between Radcliff and Fort Knox, KY, has a capacity of 4.0 MGD. More specifically, it is located on East New Street just North of Lincoln Trail Boulevard. Similar to the Elizabethtown, KY Plant, the Radcliff WWTP also uses an oxidation ditch process. The Radcliff plant includes a new screening process at the headworks and a UV system



for disinfection. A schematic of the process is shown in Figure 4.04-2. Currently, the plant receives an average of 2.35 MGD with 1.65 MGD available for growth within the city and for county wastewater. Due to the WWTP location, pump stations will play a key role in conveying county wastewater to Radcliff, KY. Dewatered sludge from the plant is currently hauled to the Outer Loop landfill.

C. Vine Grove, KY WWTP

The 0.71 MGD treatment plant in Vine Grove is located on Ditto Lane where Otter Creek exits Hardin County. Vine Grove has one oxidation ditch and two final clarifiers, though only one is currently used. A schematic of the process is shown in Figure 4.04-3. The plant operates at 0.34 MGD, and while it has 0.37 MGD reserve capacity, renovations to the plant would likely be needed if it



accepted a significant amount of county flow. The influent pump station can handle a maximum of 3.8 MGD, but it still overflows approximately once a year. Liquid sludge from the plant is land-applied at a land farm adjacent to the plant owned by the city.

D. Fort Knox, KY WWTP

The Fort Knox WWTP has a large amount of excess capacity, and it may be more affordable to pump to Fort Knox than to substantially upgrade a closer plant. The 6.0 MGD plant is located about 3 miles north of the Radcliff Plant along Mill Creek. A schematic of the process is shown in Figure 4.04-4. Currently, only half of the plant is being used to treat approximately 2.0 MGD. As of July 1, 2005, Fort



Knox privatized their plant with operational responsibilities going to Hardin County Water District No. 1 (HCWD1). According to discussions with Fort Knox personnel, the US government will remain a copermittee on the discharge permit after HCWD1 takes over. The Fort Knox discharge permit contains a limit on the concentration of mercury that can be discharged. The facility has struggled to meet this effluent limitation and the contamination in Mill Creek, which classifies it as an "Impaired Stream", has been attributed to the Fort Knox WWTP. Taking additional wastewater from off the base could potentially lower the mercury concentration of the effluent. Dewatered sludge from the plant is currently hauled to the Outer Loop landfill.

4.05 TREATMENT PLANT PERFORMANCE

Tables 4.05-1, 2, 3, and 4 illustrate the KPDES permit limits and performance for the WWTPs at Elizabethtown, Radcliff, Vine Grove, and Fort Knox, respectively.

	Influent	Effluent	Capacity/Permit Limit		
Flow, MGD	N/A	5.91	7.2		
BOD, mg/L	154	5	10		
TSS, mg/L	278	11	30		
NH ₃ -N, mg/L *2004 Average D	9.88 ata	0.23	2		
KPDES Permit 22039, Issued January 1, 1999; Expired December 31, 2004					
Table 4.05-1 Elizabethtown, KY Plant Performance					

			Capacity/Permit		
	Influent	Effluent	Limit		
Flow, MGD	N/A	2.35	4.0		
BOD, mg/L	206	5	10		
TSS, mg/L	239	4	30		
NH ₃ -N, mg/L	18.31	0.41	2		
*2004 Average Data					
KPDES Permit 22390, Issued April 1, 2003; Expires February 29, 2008					
Table 4.05-2 Radcliff, KY Plant Performance					

	Influent	Effluent	Capacity/Permit Limit	
Flow, MGD	N/A	0.34	0.7145	
BOD, mg/L	231	4	20	
TSS, mg/L	149	5	30	
NH ₃ -N, mg/L	23	0.22	4	
*2004 Average Data KPDES Permit 24988, Issued October 1, 2003; Expires March 31, 2008				
Table 4.05-3 Vine Grove, KY Plant Performance				

	Influent	Effluent	Capacity/Permit Limit	
Flow, MGD	unknown	2	6	
BOD, mg/L	unknown	5	15	
TSS, mg/L	unknown	10	30	
NH ₃ -N, mg/l	unknown	0.2	2	
*Average Data Provided by Fort Knox KPDES Permit 2917, Issued December 1, 2004; Expires February 29, 2008				
Table 4.05-4 Fort Knox, KY Plant Performance				

4.06 TREATMENT PLANT PERSONNEL

Data on the existing municipal treatment plant personnel was not collected for this study.

4.07 INDUSTRIAL DISCHARGE

Industry does not presently exist within the Hardin County planning area, although it is anticipated that industry will be developed at the Glendale Industrial tract. Significant industrial flow may be expected from this area after it is developed.

4.08 EXISTING COLLECTION SYSTEM OPERATING DEFICIENCIES

A. <u>Collection System</u>

Hardin County Water District No. 2 does not currently own or operate any municipal wastewater infrastructure. As such, the existing collection systems of the municipalities were not evaluated other than for adequate capacity to accept county wastewater. Data on municipal collection system deficiencies was not obtained. Collection system operating deficiencies could be obtained from the municipal entities listed in this plan, if necessary.

B. <u>Pumping Stations</u>

Pumping stations near areas of concern were evaluated only for capacity to accept county wastewater flow, if necessary. Data on operating deficiencies of the pump stations was not obtained for this plan. Pump station operating deficiency data could be obtained from the municipal entities listed in this plan, if necessary.

4.09 EXISTING TREATMENT PLANT OPERATING DEFICIENCIES

Hardin County Water District No. 2 does not currently own any municipal WWTPs. As such, the existing municipal WWTPs were not evaluated other than for adequate capacity to accept county wastewater. Data on municipal WWTP operating deficiencies was not obtained. WWTP operating deficiencies could be obtained from the municipal entities listed in this plan, if necessary.

4.10 INFILTRATION AND INFLOW

Hardin County Water District No. 2 does not currently own any municipal wastewater infrastructure. Infiltration and inflow information (I/I) was not collected for the municipal collection systems. As the county begins to develop wastewater infrastructure, I/I may need to be addressed in the future.

4.11 BYPASSES AND OVERFLOWS

Hardin County Water District No. 2 does not currently own any municipal wastewater infrastructure. Data on existing bypasses and overflows in the municipal collection systems was not collected for this study. This data could be obtained from the municipal entities listed in this plan, if necessary.

SECTION 5 DEMOGRAPHICS AND LAND USES
5.01 INTRODUCTION

This section will describe the demographics and land use in the planning area defined in Section 2 of this report. Demographic information will be based on data supplied by the University of Louisville Center for Population Research, the Kentucky State Data Center (KSDC), and the Lincoln Trail Area Development District (LTADD).

5.02 POPULATION DATA

A. Historical Population

Using census data from the University of Louisville Center for Population Research and the Kentucky State Data Center, past population history for Hardin County can be summarized. From 1900 to 1930, the county experienced fluctuations in population. From 1940 to 1980, a sharp increase in population was noted, and

from 1980 to 2000, the population remained fairly stable. Historical data is presented graphically in Figure 5.02-1 and detailed data is given in Table 5.02-1.

Table 5.02-2 provides a breakdown of the Hardin County population based on the 2000 Census provided by the United States Census Bureau.

This information shows that slightly less than two thirds of the county population lives in cities with the majority residing in Elizabethtown, KY and Radcliff, KY. Slightly more than one third of the Hardin County population resides in rural areas.



Figure 5.02-1 Hardin County Historical Census Population

Year	Population	Percent Increase
1900	22,937	
1910	22,696	(1.05)*
1920	24,287	7.01
1930	20,913	(13.89)*
1940	29,108	39.19
1950	50,312	72.85
1960	67,789	34.74
1970	78,421	15.68
1980	88,917	13.38
1990	89,240	0.36
2000	94,174	5.53

*Indicates a negative value.

Table 5.02-1 Hardin County Historical CensusPopulation

Area	2000 Census Population			
Elizabethtown, KY	22,542			
Fort Knox, KY	9,294			
Radcliff, KY	21,961			
Sonora, KY	350			
Upton, KY	391			
Vine Grove, KY	4,169			
West Point, KY	1,100			
Rural-Hardin County	34,367			
Total-Hardin County	94,174			
Table 5.02-2Census Population Breakdowns for Hardin County				

A. Projected Population

To aid in the adequate planning and possible addition of county wastewater collection and treatment facilities, it is necessary to have an understanding of future system needs based on population. Projections of growth rate are difficult to predict with a high degree of accuracy. Projections, however, do provide a rational basis for estimating probable short- or long-term trends. Continual monitoring by local planning authorities of actual growth in the community compared with the projected growth for medium term (five-year) periods will allow adjustment of facility expansion programs to account for variations that may occur because of unforeseen circumstances.

Historic and projected population data from the Kentucky State Data Center indicate that the overall population growth rate in Hardin County from 2000 to 2030 is expected to be 29 percent. Subsequent investigations by the LTADD indicate that most of the growth is projected to occur in the rural parts of the county. The LTADD divided the county into 254 population zones based on census blocks. Zones within the Vine Grove planning area are predicted to have a 20 percent growth. The Radcliff planning area has a predicted growth rate of 18 percent. The Elizabethtown planning area is predicted to have a 29 percent growth rate. All the remaining county zones are projected to grow by 39 percent. Both Vine Grove and Radcliff have planning areas that are similar to their city limits. However, Elizabethtown city limits are projected to grow 21 percent, while the remaining area between the Elizabethtown city limits and its planning area boundary is projected to grow at 67 percent. If the area between the Elizabethtown city limits and its current planning boundary is consolidated with the county zones, the net growth in the county would be 44 percent. Table 5.02-3 and Figure 5.02-3 illustrate the zone specific growth as determined by the LTADD.



Area	Population 2003	Population 2030	Population Change	Percentage of Population Growth
Vine Grove Planning	4,619	5,543	924	20%
Radcliff Planning	21,382	25,263	3,881	18%
Elizabethtown Planning	30,382	39,324	8,942	29%
Elizabethtown City	24,699	29,845	5,146	21%
Elizabethtown Remainder	5,683	9,479	3,796	67%
County minus Planning Areas	31,781	44,303	12,522	39%
County with Elizabethtown Remainder	37,464	53,782	16,318	44%

Table 5.02-3 Zone Specific Growth by LTADD

The Hardin County population is projected to increase by about 27,673 people during the period from 2000 through 2030. This implies year 2000 population of 94,174 will increase to an estimated 121,847 by year 2030. The KSDC provides data for projections of household population, number of households, and the population per household. Estimating population per household helps quantify future wastewater project flows based on a per capita per day usage. The population per household in Hardin County has declined from 1990 to 2000 from 2.78 to 2.62. This data indicates a decreasing trend creating population per household projections of 2.58 in 2005, 2.53 in 2010, and 2.51 for the years from 2015 to 2030. These estimates will be utilized in estimating flow projections in subsequent sections of this report.

In addition to population projection studies, construction data was also examined to determine growth. Figure 5.02-4 shows the 13 subdivisions actively under construction in 2003. With a total of 423 homes proposed, the 13 developments are very close to either an area of concern or a growth zone. Eight of the 13 developments are within the Elizabethtown Planning area, but outside the city limits. Subdivision development inside the city limits of Elizabethtown, Radcliff, or Vine Grove was not obtained. However, historical data may indicate a trend in the county. Over 6,000 lots have been approved for development since 1990. According to the Hardin County Planning and Development Commission, nearly 70 percent of lots since 2000 have been approved in the Rural Residential Sector, which is defined as the areas of Hardin County not in one of the three planning areas. Additionally, over 1,700 permits were issued by Hardin County for single family dwellings since the year 2000. Converting these permits to actual population using 2.5 people per home reveals a much stronger growth rate than indicated by KSDC or LTADD.



A comparison of building permits is summarized in Table 5.02-4.

Area	2002	2003	2004		
Vine Grove	76	13	25		
Radcliff	53	75	79		
Elizabethtown	109	118	159		
County Less Planning Areas	368	429	399		
Total County	606	635	662		
Population (2.5 people per home)	1,515	1,587	1,655		
KSDC Predicted Population Increase	756	756	756		
Table 5.02-4 Building Permit Summary by Hardin County Planning and Development Commission					

Table 5.02-5 also illustrates strong county growth through lots platted and building permits.

Year	County Lots Platted	County House Starts	City House Starts		
2000	735	232	277		
2001	745	315	277		
2002	479	368	238		
2003	741	429	216		
2004	566	399	263		
Table 5.02-5 Lots and Permits Summary by Hardin County Planning and Development Commission					

A detailed discussion of population based on service areas and areas of concern will be provided in Section 6. The preceding data justifies very strong growth and use of more aggressive projections than data provided by KSDC.

In addition to the documented growth in the county, another factor that will serve to sustain or even accelerate growth is the Base Realignment and Closure (BRAC) that is affecting the Fort Knox Military Reservation. Ultimately, because of BRAC, more of the assigned personnel to Fort Knox will live off base rather than on base.

5.03 LAND USE

A. Existing Land Use

A land use map for Hardin County currently does not exist.

B. <u>Future Land Use</u>

In order to predict future wastewater generation, an assessment of future land use is necessary. New residential development is anticipated to occur throughout the county. In addition, 11 sites which amount to nearly 4,000 acres of land are expected to host industrial development.

SECTION 6 WASTELOAD AND FLOW FORECASTS

6.01 INTRODUCTION

To plan for adequate capacity of the wastewater collection and treatment facilities, a rate of population growth and associated sewer system flows will be assumed as a starting point for planning future system needs. Resources used to estimate population and potential growth rates in the planning area include publications from the University of Louisville Center for Population Research, the Kentucky State Data Center, and the Lincoln Trail Area Development District (LTADD), and the recent development data provided by Hardin County Planning and Development as discussed in Section 5.

6.02 EXISTING SERVICE AREA POPULATION

For this RWWFP, areas in Hardin County not currently receiving public sanitary sewer service were divided into five service areas as shown in Figures 6.02-1 through 6.02-5. These service areas were further divided into a total of 31 sub watersheds that encompass the "areas of concern" and were identified as either an "urban area" or "near urban area." The watersheds defined as "urban areas" were identified to have the most immediate need for wastewater collection and are considered to require service by Design Year 2017 (Year 10). Watersheds defined as "near urban areas" were identified to have future wastewater collection needs and are

Service Area	2003 Population			
Northern Service Area				
Urban Area	7,510			
Near Urban Area	2,500			
Southern Service Area				
Urban Area	660			
Near Urban Area	1,850			
Eastern Service Area				
Urban Area	830			
Near Urban Area	3,090			
Upton and Sonora Service Area	810			
Table 6.02-1 Service Area Populations (2003)				

considered to require service by Design Year 2027 (Year 20). Since the initiation of this RWWFP, the city of Elizabethtown has accepted 10 of these watersheds and one service area (Valley Creek Service Area) into its revised planning area. Table 6.02-1 illustrates the existing service area populations.

Table 6.02-2 illustrates the watersheds accepted into the City of Elizabethtown's updated planning area. Population projections and wastewater collection and treatment alternatives were developed for these watersheds. These are included in Appendix F.

Public sanitary sewer systems currently exist in Elizabethtown, Radcliff, Vine Grove, West Point, and Fort Knox, KY. The Hardin County Fiscal Court planning area include remaining areas of the county not currently served by public sanitary sewer systems and not currently within a regional wastewater planning area.

6.03 POPULATION PROJECTIONS

Population projections for areas within the proposed county planning area are necessary to account for anticipated future flows in the various subwatersheds. In order to obtain projected populations, information from the LTADD was examined.











TABLE 6.02-2

2003 POPULATIONS FOR WATERSHEDS ACCEPTED INTO ELIZABETHTOWN PLANNING AREA

Service Area	2003 Population
Northern Service Area	
Urban Area: Upper Shaw Creek (Smithersville)	541
Near Urban Area: Upper Freeman Creek	453
Southern Service Area	
Urban Areas: East Rhudes Creek (Oxmoor Village and Hodgenville)	1,944
Middle Creek Branch (Thoroughbred Estates)	485
West Rhudes Creek (Cecilia)	992
Near Urban Area: Billy Creek	1,298
Eastern Service Area	
Urban Area: Buffalo Creek (Bardstown Rd Area)	1,360
Near Urban Areas: Upper Valley Creek	1,184
Upper Buffalo Creek	588
Valley Creek Service Area	
Valley Creek (New Glendale Road)	394
Valley Creek (Industrial Area)	353

Population projections for the county wastewater plan were estimated at twice the predicted growth of the Hardin County Metropolitan Planning Organization. This projection is justified because recent population growth predicted by the number of housing starts that has more than doubled the Hardin County Metropolitan Planning Organization predicted population growth. Tables 6.03-1 through 6.03-4 illustrate the equivalent population projections in each of the sub watersheds in the four service areas of the HCWD2 planning area.

	2003	2017	2027
Northern Service Area	Population	Population	Population
Pawley Creek (Lavista Estate & Rineyville)	2,010	2,650	3,460
Upper Otter Creek (Boone Rd. Area)	1,270	2,060	3,040
Brushy Fork (Burns-Deckard School Rd			
Area)	2,230	3,140	4,270
Mill Creek Branch (Airview Estates)	2,010	2,310	2,680
Lower Otter Creek	750	N/A	1,350
Flippin Creek	330	N/A	1,060
Upper Pawley Creek	310	N/A	1,710
Mill Creek	1,110	N/A	1,670

Table 6.03-1 Northern Service Area 2017 and 2027 Populations

	2003	2017	2027
Southern Service Area	Population	Population	Population
North Upper Nolin River (Gilead Church - Glendale Rd, Glendale Industrial Site)	155	24,800 ⁽¹⁾	24,800 ⁽¹⁾
Rose Run (Glendale/North Glendale)	500	750	1,060
Upper West Rhudes Creek	640	N/A	890
Lower Valley Creek	210	N/A	310
Nolin River	350	N/A	480
Cox Run	160	N/A	220
Upper Nolin River	110	N/A	160
Jackson Branch	380	N/A	830
¹⁾ Equivalent Population			

	2003	2017	2027
Eastern Service Area	Population	Population	Population
Upper Younger Creek (Bluegrass Pkwy/Springfield Rd)	830	1,160	1,580
Clear Creek	970	N/A	1,690
Cedar Creek	350	N/A	500

 Table 6.03-3
 Eastern Service Area 2017 and 2027 Populations

Upton and Sonora Service Area	2003 Population	2017 Population	2027 Population
Dorsey Run (Sonora)	510	580	670
Sandy Creek (Upton)	310	340	380

 Table 6.03-4
 Upton and Sonora Service Area 2017 and 2027 Populations

6.04 PROJECTED INDUSTRIAL WASTEWATER FLOWS

There is one anticipated major industrial development site in the county planning area within the planning horizon. The Glendale Industrial site in the North Upper Nolin River watershed is expected to have significant industrial development in the future. The projected flow from this industrial area is computed by multiplying the industrial acreage by 1,500 gallons per day. The estimated acreage at the Glendale Industrial site is anticipated to be 1,628 acres in 2017, which translates to an average daily flow of 2,442,000 gallons per day. In the projection of daily wastewater flows and the cost analysis, this flow is converted to an equivalent population by dividing the flow by 100 gallons per day.

The Glendale Industrial site is pursuing an auto manufacturing facility. To make sure enough wastewater capacity is projected, the daily wastewater flow from the Toyota Camry plant in Georgetown, Kentucky was reviewed. Daily wastewater discharge from that facility is about 1 MGD with a peak flow of 1.9 MGD. Allowing for about twice this usage should allow nearly any facility to be located at the Glendale Industrial site. Final infrastructure planning for this area will be completed when the future tenant and daily flows are known.

6.05 PROJECTED DAILY WASTEWATER FLOWS

Projected daily wastewater flows generated within the proposed service areas for the 10- and 20-year planning horizons are presented in Table 6.05-1 through Table 6.05-8. The projected average daily flows were computed by multiplying the equivalent projected population by 100 gallons per person per day for Design Year 2017 (0- to 10-year period) and Design Year 2027 (11- to 20-year period). The peak hourly flow in gallons per minute was computed using a peak factor based on the equivalent population.

This peak factor was derived from *Recommended Standards for Wastewater Facilities, 1997 Edition* (aka Ten State Standards), and was computed using the following formula:

$$PF = \frac{18 + \sqrt{P}}{4 + \sqrt{P}}$$

where P is the equivalent population (in thousands)

Flow volume for generation of future residential wastewater was based on information obtained from *Recommended Standards for Wastewater Facilities, 1990 Edition* (aka Ten State Standards), which states "the sizing of wastewater facilities receiving flows from new wastewater collection systems shall be based on an average daily flow of 100 gallons per capita per day plus wastewater flow from industrial plants and major institutional and commercial facilities unless water use data or other justification upon which to better estimate flow is provided." This approach is "intended to cover normal infiltration for systems built with modern design techniques." The projected flows computed in each watershed will be used to determine size of trunk sewers, conveyance facilities, and any proposed WWTP in the corresponding service area.

	Design Year 2017			
Northern Service Area Watersheds	Eq. Population	Peak Factor	ADF (gpd)	PHF (gpm)
Pawley Creek (Lavista Estate and Rineyville)	2,650	3.49	265,000	642
Upper Otter Creek (Boone Road Area)	2,060	3.58	206,000	512
Brushy Fork (Burns-Deckard School Road Area)	3,140	3.43	314,000	747
Mill Creek Branch (Airview Estates)	2,310	3.54	231,000	567
Total Average Daily Flow to North County WWTP	10,160	2.95	1,016,000	2,080
ADF-Average Daily Flow			P	

PHF-Peak Hourly Flow

Table 6.05-1 Northern Service Area 2017 Flow Projections

		Design Ye	ear 2017	
	Eq.	Peak	ADF	PHF
Southern Service Area Watersheds	Population	Factor	(gpd)	(gpm)
Rose Run (Glendale/North Glendale)	750	3.88	75,000	202
North Upper Nolin River (Gilead Church - Glendale Rd, Glendale Industrial Site)	24,780	2.56	2,478,000	4,404
Total Average Daily Flow to South County WWTP	25,530	2.55	2,553,000	4,515

ADF–Average Daily Flow PHF–Peak Hourly Flow

Table 6.05-2 Southern Service Area 2017 Flow Projections

	Design Year 2017				
Eastern Service Area Watersheds	Eq. Population	Peak Factor	ADF (gpd)	PHF (gpm)	
Upper Younger Creek (Bluegrass Pkwy/Springfield Rd)	1,160	3.76	116,000	303	
Total Average Daily Flow to East County WWTP	1,160	3.76	116,000	303	

ADF–Average Daily Flow PHF–Peak Hourly Flow

Table 6.05-3 Eastern Service Area 2017 Flow Projections

	C	esign Year 2017		
Upton and Sonora Service Area Watersheds	Eq. Population	Peak Factor	ADF (gpd)	PHF (gpm)
Dorsey Run (Sonora)	580	3.94	58,000	159
Sandy Creek (Upton)	340	4.05	34,000	96
County WWTP	920	3.82	92,000	244

ADF–Average Daily Flow PHF–Peak Hourly Flow

Table 6.05-4 Upton and Sonora Service Area 2017 Flow Projections

		Design Yea	r 2027	
Northern Service Area Watersheds	Eq. Population	Peak Factor	ADF (gpd)	PHF (gpm)
Pawley Creek (Lavista Estate & Rineyville)	3,460	3.39	346,000	814
Upper Otter Creek (Boone Rd. Area)	3,040	3.44	304,000	726
Brushy Fork (Burns-Deckard School Rd Area)	4,270	3.31	427,000	981
Mill Creek Branch and Mill Creek (Airview Estates)	4,350	3.30	435,000	997
Lower Otter Creek	1,350	3.71	135,000	348
Flippin Creek	1,060	3.78	106,000	279
Upper Pawley Creek	1,710	3.64	171,000	432
Total Average Daily Flow to North County WWTP	19,240	2.67	1,924,000	3,567

ADF–Average Daily Flow PHF–Peak Hourly Flow

Table 6.05-5 Northern Service Area 2027 Flow Projections

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Section 6-Wasteload and Flow Forecasts

	Design Year 2027				
Southern Service Area Watersheds	Eq. Population	Peak Factor	ADF (gpd)	PHF (gpm)	
Rose Run (Glendale/North Glendale)	1,060	3.78	106,000	279	
North Upper Nolin River (Gilead Church - Glendale Rd, Glendale Industrial Site)	24,800	2.56	2,480,000	4,407	
Lower Valley Creek	310	4.07	31,000	88	
Nolin River	480	3.98	48,000	133	
Upper West Rhudes	890	3.83	89,000	237	
Cox Run	220	4.13	22,000	63	
Upper Nolin River	160	4.18	16,000	46	
Jackson Branch	830	3.85	83,000	222	
Total Average Daily Flow to Southern County WWTP	28,750	2.50	2,875,000	4,982	

ADF–Average Daily Flow PHF–Peak Hourly Flow

Table 6.05-6 Southern Service Area 2027 Flow Projections

	C	Design Year 2027		
Eastern Service Area Watersheds	Eq. Population	Peak Factor	ADF (gpd)	PHF (gpm)
Upper Younger Creek (Bluegrass Pkwy/Springfield Rd)	1,580	3.66	158,000	402
Clear Creek	1,690	3.64	169,000	427
Cedar Creek	500	3.97	50,000	138
Total Average Daily Flow to Eastern County WWTP	3,770	3.36	377,000	879

ADF–Average Daily Flow PHF–Peak Hourly Flow

Table 6.05-7 Eastern Service Area 2027 Flow Projections

	Design Year 2027			
Upton and Sonora Service Area Watersheds	Eq. Population	Peak Factor	ADF (gpd)	PHF (gpm)
Dorsey Run (Sonora)	670	3.91	67,000	182
Sandy Creek (Upton)	380	4.03	38,000	106
Total Average Daily Flow to Southern County WWTP	1.050	3.79	105.000	276

Table 6.05-8 Upton and Sonora Service Area 2027 Flow Projections

6.06 PROJECTED WASTELOADS

For the purposes of this plan, the projected wasteloads are assumed to be typical of domestic strength wastewater. Wastewater concentrations for the purpose of sizing WWTP process units assumed BOD = 225 mg/L, TSS = 250 mg/L, NH₃-N = 20 mg/L and TP = 7 mg/L.

6.07 PROJECTED PERMIT LIMITS AND WASTELOAD ALLOCATION

The Kentucky Division of Water (KDOW) was contacted on September 29, 2005 requesting wasteload allocations for three potential WWTPs in Hardin County. KDOW provided wasteload allocations in a letter dated January 18, 2007. A copy of the letter is included in Appendix E. The Nolin River WWTP (southern county WWTP) was considered for a 3.5 mgd initial and up to a 10.5 mgd ultimate facility. Table 6.07-1 illustrates the permitted loads for the proposed Nolin River WWTP.

	ADF :	= 3.5 mgd	ADF = 1	0.5 mgd
	May 1 – October 31	November 1 – April 30	May 1 – October 31	November 1 – April 30
CBOD ₅ , mg/L	25 mg/L	25 mg/L	25 mg/L	25 mg/L
TSS, mg/L	30 mg/L	30 mg/L	30 mg/L	30 mg/L
NH ₃ -N, mg/L	20 mg/L	20 mg/L	10 mg/L	20 mg/L
DO, mg/L	7 mg/L	7 mg/L	7 mg/L	7 mg/L
Total Residual	0.011 mg/L	0.011 mg/L	0.011 mg/L	0.011 mg/L
Chlorine, mg/L				
E. Coli Weekly	240 colonies/100 mL	240 colonies/100 mL	240 colonies/100 mL	240 colonies/100 mL
Geometric Mean,				
mg/L				
E. Coli Monthly	130 colonies/100 mL	130 colonies/100 mL	130 colonies/100 mL	130 colonies/100 mL
Geometric Mean,				
mg/L				
Reliability Classificatio	n = Grade 1			

Table 6.07-1 Wasteload Allocation for Proposed Nolin River WWTP

The Otter Creek WWTP (northern county WWTP) was considered for a 2.0 mgd initial and up to 6.0 mgd ultimate facility. Table 6.07-2 illustrates the permitted loads for the proposed Otter Creek WWTP.

	ADF = 2 or 6 mgd			
	May 1 – October 31	November 1 – April 30		
CBOD ₅ , mg/L	25 mg/L	25 mg/L		
TSS, mg/L	30 mg/L	30 mg/L		
NH ₃ -N, mg/L	4 mg/L	10 mg/L		
DO, mg/L	7 mg/L	7 mg/L		
Total Residual Chlorine, mg/L	0.011 mg/L	0.011 mg/L		
E. Coli Weekly Geometric Mean, mg/L	240 colonies/100 mL	240 colonies/100 mL		
E. Coli Monthly Geometric Mean, mg/L	130 colonies/100 mL	130 colonies/100 mL		
Reliability Classification = Grade 1				

Table 6.07-2 Wasteload Allocation for Proposed Otter Creek WWTP

The Younger Creek WWTP (eastern county WWTP) was not considered by KDOW to be a viable option for a WWTP due to the dissolved oxygen violations in the Rolling Fork River downstream of the proposed Younger Creek WWTP. KDOW did not provide a wasteload allocation.

SECTION 7 CONVEYANCE AND TREATMENT ALTERNATIVES

7.01 INTRODUCTION

This section will evaluate alternatives for providing collection and conveyance of wastewater for subwatersheds in the proposed service areas of the Hardin County planning area.

7.02 GENERAL

Hardin County, Kentucky has five municipal WWTPs that serve various cities in the county. This RWWFP explores alternatives that could be used to provide public sanitary sewer service to areas of the county that do not currently have existing sanitary sewer service. Many residents utilize on-site sewage disposal systems such as septic tanks/absorption fields or package treatment plants. Providing public sanitary sewer service to these residents could help improve water quality and public health by reducing the number of failing septic systems. Section 4 of this report summarized existing municipal collection systems in place in Hardin County. The following paragraphs will explain the proposed alternatives for the conveyance and treatment of wastewater for the four service areas in Hardin County.

7.03 EVALUATION OF ALTERNATIVES

This section explains the alternatives considered for the collection and conveyance of wastewater from each watershed in the planning area. The watersheds are divided into service areas and design years. The alternatives include a summary of the estimated projected cost in 2006 dollars.

A. Northern Service Area–Design Year 2017

Figure 7.03-1 illustrates the proposed collection systems and conveyance alternatives for the Northern Service Area–Design Year 2017. In each scenario, the property owner would be responsible for the cost to connect to the new trunk sewer. The costs of collector sewers have not been included in these alternative evaluations since they are common to each alternative. Appendix G presents the cost development for the 20-year net present worth analysis. The following paragraphs discuss the watersheds in the Northern Service Area.

1. Pawley Creek and Upper Otter Creek Watersheds (LaVista Estates, Boone Road, and Rineyville)

The Pawley Creek and Upper Otter Creek Watersheds are included together because the proposed collection system in each watershed conveys wastewater to a common pump station. Table 7.03-1 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives for the Pawley Creek and Upper Otter Creek Watersheds.



NORTHERN SERVICE AREA YEAR 2017-PAWLEY CREEK AND UPPER OTTER CREEK WATERSHEDS

		Co	onveyance and Tr	eatment Alternativ	es
	Size (in)	Vine Grove WWTP	Fort Knox WWTP	Otter Creek WWTP	Radcliff WWTP
Population		4710	4710	4710	4710
Residential Flow (mgd)		0.471	0.471	0.471	0.471
Industrial Flow (mgd)					
Total Flow (mgd)		0.471	0.471	0.471	0.471
Pumping Stations					
Number		1	1	1	1
Capacity (gpm)		1,100	1,100	1,100	1,100
Gravity Interceptors (LF)					
	8	17,580	17,580	17,580	17,580
	10	8,370	8,370	8,370	8,370
	12	4,030	4,030	4,030	4,030
	15	7,460	7,460	7,460	7,460
Manholes (number)		150	150	150	150
Force Main (LF)					
	8	0	0	0	0
	10	21,730	36,330	11,590	36,370
	12	0	0	0	0
Total Present Worth					
Operation and Maintenance (20 yr)		\$16,801,000	\$10,615,000	\$10,565,000	\$16,714,000
Initial Capital Costs		\$9,669,000	\$8,204,000	\$9,693,000	\$10,722,000
Total Present Worth		\$26,470,000	\$18,819,000	\$20,258,000	\$27,436,000
Percent Greater Than Most Cost-Effect Alternative	ctive	41%	0%	8%	46%

Based on the present worth analysis presented in Table 7.03-1, the Fort Knox WWTP alternative has the lowest total present worth, but the Otter Creek WWTP is only 7 percent more on a total present worth basis. Since the two alternatives are less than 10 percent different on a total present worth basis, they could be considered equivalent on a monetary basis. Section 7.04 of this report reviews the noneconomic factors for each of these alternatives. The noneconomic factors will be considered in the selection of the most favorable alternative.

2. Brushy Fork Creek Watershed (Burns-Deckard School Road)

Table 7.03-2 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives for the Brushy Fork Creek Watershed.

Based on the present worth analysis presented in Table 7.03-2, the Fort Knox WWTP alternative has the lowest total present worth. No other alternative is within 10 percent of the Fort Knox alternative.

3. Mill Creek Branch Watershed (Airview Estates)

Table 7.03-3 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives for the Mill Creek Branch Watershed.

Based on the present worth analysis presented in Table 7.03-3, the Elizabethtown collection alternative has the lowest total present worth. No other alternative is within 10 percent of the Elizabethtown alternative.

4. Upper Shaw Creek Watershed (Smithersville)

The Upper Shaw Creek Watershed was accepted into the City of Elizabethtown updated planning area. The population projection for the Upper Shaw Creek Watershed is given in Appendix F, and the table summarizing the system components required for each alternative and a present worth comparison for each alternative is included in Appendix G.

B. <u>Southern Service Area–Design Year 2017</u>

Figure 7.03-2 illustrates the proposed collection systems and conveyance alternatives for the Southern Service Area–Design Year 2017. In each scenario, the property owner would be responsible for the cost to connect to the new trunk sewer. The costs of collector sewers have not been included in these alternative evaluations since they are common to each alternative. Appendix G presents the cost development for the present worth analysis. The following paragraphs discuss the watersheds in the Southern Service Area.

NORTHERN SERVICE AREA YEAR 2017-BRUSHY FORK CREEK WATERSHED

	Conveyance and Treatment Alternatives				
	Size (in)	Vine Grove WWTP	Fort Knox WWTP	Otter Creek WWTP	Radcliff WWTP
Population Residential Flow (mgd)		3,140 0.314	3,140 0.314	3,140 0.314	3,140 0.314
Total Flow (mgd) Pumping Stations		0.314	0.314	0.314	0.314
Number Capacity (gpm)		1 750	1 750	1 750	1 750
Gravity Interceptors (LF)					
	8 10 12 15	11,140 9,750 7,170 0	11,140 9,750 7,170	11,140 9,750 7,170 0	11,140 9,750 7,170 0
Manholes (number)		112	112	112	112
Force Main (LF)	8 10 12	0 22,110 0	0 25,570 0	0 32,000 0	0 22,580 0
Total Present Worth					
Operation and Maintenance (20 yr)		\$11,811,000	\$6,870,000	\$8,445,000	\$10,160,000
Initial Capital Costs		\$7,404,000	\$5,866,000	\$8,679,000	\$6,904,000
Total Present Worth		\$19,215,000	\$12,736,000	\$17,124,000	\$17,064,000
Percent Greater Than Most Cost Alternative	t Effective	51%	0%	34%	34%

NORTHERN SERVICE AREA YEAR 2017-MILL CREEK BRANCH WATERSHED

	Conveyance and Treatment Alternatives				
	Size (in)	Elizabethtown WWTP	Otter Creek WWTP	Radcliff WWTP	
Population Residential Flow (mgd) Industrial Flow (mgd)		2,310 0.231	2,310 0.231	2,310 0.231	
Total Flow (mgd) Pumping Stations		0.231	0.231	0.231	
Number		1	2	1	
Capacity (gpm)		650	650 650	650	
Gravity Interceptors (LF)					
	8	6,020	6,020	6,020	
	10	7,480	7,480	7,480	
	12	0	0	0	
	15	0	0	0	
Manholes (number)		54	54	54	
Force Main (LF)					
	8	0	0	0	
	10	23,960	49,980	36,940	
	12	0	0	0	
Total Present Worth					
Operation and Maintenance (20 yr) Initial Capital Costs		\$6,876,000 \$5,220,000	\$7,652,000 \$7,920,000	\$8,004,000 \$5,820,000	
Total Present Worth		\$12,096,000	\$15,572,000	\$13,824,000	
Percent Greater Than Most Cost-Effect Alternative	tive	0%	29%	14%	



)

1. North Upper Nolin River Watershed (Gilead Church–Glendale Road and Glendale Industrial Tract)

Table 7.03-4 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives for the North Upper Nolin River Watershed.

Based on the present worth analysis presented in Table 7.03-4, the Elizabethtown WWTP alternative has the lowest total present worth, but the Nolin River WWTP is only 7 percent more on a total present worth basis. Since the two alternatives are less than 10 percent different on a total present worth basis, they would be considered equivalent on a monetary basis. Section 7.04 of this report reviews the noneconomic factors for each of these alternatives. The noneconomic factors will be considered in the selection of the most favorable alternative.

2. Rose Run Watershed (Glendale)

Table 7.03-5 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives for the Rose Run Watershed.

Based on the present worth analysis presented in Table 7.03-5, the Elizabethtown WWTP alternative has the lowest total present worth. The other alternative is not within 10 percent of the Elizabethtown alternative.

3. East Rhudes Creek Watershed (Glendale, Oxmoor Village, New Glendale Road, Hodgenville Road Area)

The East Rhudes Creek Watershed was accepted into the City of Elizabethtown updated planning area. The population projection for the East Rhudes Creek Watershed is given in Appendix F, and the table summarizing the system components required for each alternative and a present worth comparison for each alternative is included in Appendix G.

4. Middle Creek Branch Watershed (Thoroughbred Estates/Thousand Oaks, Hodgenville Road Area)

The Middle Creek Branch Watershed was accepted into the City of Elizabethtown updated planning area. The population projection for the Middle Creek Branch Watershed is given in Appendix F and the table summarizing the system components required for each alternative and a present worth comparison for each alternative is included in Appendix G.

SOUTHERN SERVICE AREA YEAR 2017-NORTH UPPER NOLIN RIVER WATERSHED

		Conveyance and Treatment Alternatives	
	Size (in)	Elizabethtown WWTP	Nolin River WWTP
Population		377	377
Residential Flow (mgd)		0.0377	0.0377
Industrial Flow (mgd)		2.442	2.442
Total Flow (mgd) Pumping Stations		2.4797	2.4797
Number		2	2
Capacity (gpm)		4,500	4,500
		4,500	4,500
Gravity Interceptors (LF)			
	8	0	0
	10	7,960	7,960
	12	0	0
	15	12,050	12,050
Manholes (number)		80	80
Force Main (LF)			
	14	0	0
	16	0	0
	18	25,610	29,730
Total Present Worth			
Operation and Maintenance (20 yr)		\$50,150,000	\$42,779,000
Initial Capital Costs		\$16,043,000	\$28,316,000
Total Present Worth		\$66,193,000	\$71,095,000
Percent Greater Than Most Cost-Effective Alternative		0%	7%

SOUTHERN SERVICE AREA YEAR 2017-ROSE RUN WATERSHED

		Conveyance and Treatment Alternatives	
-	Size (in)	Elizabethtown WWTP	Nolin River WWTP
Population		750	750
Residential Flow (mgd)		0.075	0.075
Total Flow (mgd) Pumping Stations		0.075	0.075
Number		1	1
Capacity (gpm)		200	200
Gravity Interceptors (LF)			
	8	12,580	12,580
	10	0	0
	12	0	0
	15	0	0
Manholes (number)		50	50
Force Main (LF)			
	6	12,410	22,350
	8	0	0
	10	0	0
Total Present Worth			
Operation and Maintenance (20 yr)		\$2,701,000	\$2,852,000
Initial Capital Costs		\$2,446,000	\$3,409,000
Total Present Worth		\$5,147,000	\$6,261,000
Percent Greater Than Most Cost-Effective Alternative		0%	22%

5. West Rhudes Creek Watershed (Cecilia)

The West Rhudes Creek Watershed was accepted into the City of Elizabethtown updated planning area. The population projection for the West Rhudes Creek Watershed is given in Appendix F, and the table summarizing the system components required for each alternative and a present worth comparison for each alternative is included in Appendix G.

C. <u>Eastern Service Area–Design Year 2017</u>

Figure 7.03-3 illustrates the proposed collection systems and conveyance alternatives for the Eastern Service Area–Design Year 2017. In each scenario, the property owner would be responsible for the cost to connect to the new trunk sewer. The costs of collector sewers have not been included in these alternative evaluations since they are common to each alternative. Appendix G presents the cost development for the present worth analysis. The following paragraphs discuss the watersheds in the Eastern Service Area.

1. Upper Younger Creek Watershed (Springfield Road Area)

The Upper Younger Creek Watershed was evaluated for the conveyance of wastewater to both the Elizabethtown collection system as well as a new Younger Creek WWTP. A wasteload allocation for the Younger Creek WWTP was not permitted by KDOW, thereby leaving the Elizabethtown collection system as the only feasible alternative.

Table 7.03-6 summarizes the system components required and the total present worth for the Elizabethtown collection alternative for the Upper Younger Creek Watershed.

2. Buffalo Creek Watershed (Bardstown Road Area)

The Buffalo Creek Watershed was accepted into the City of Elizabethtown updated planning area. The population projection for the Buffalo Creek Watershed is given in Appendix F, and the table summarizing the system components required for each alternative and a present worth comparison for each alternative is included in Appendix G.

D. Valley Creek Service Area–Design Year 2017

The Valley Creek Watershed was accepted into the City of Elizabethtown updated planning area. The population projection for the Valley Creek Watershed is given in Appendix F, and the table summarizing the system components required for each alternative and a present worth comparison for each alternative is included in Appendix G.



EASTERN SERVICE AREA YEAR 2017-UPPER YOUNGER CREEK WATERSHED

		Conveyance and Treatment Alternatives	
_	Size (in)	Elizabethtown WWTP	
Population Residential Flow (mgd) Industrial Flow (mgd)		1,160 0.116	
Total Flow (mgd) Pumping Stations		0.116	
Number Capacity (gpm)		3 100 120 220	
Gravity Interceptors (LF)	8	14 080	
	10	0	
	12 15	0	
Manholes (number)		56	
Force Main (LF)			
	4 6	3,820 36.800	
	8	0	
Total Present Worth			
Operation and Maintenance (20 y Initial Capital Costs	vr)	\$5,197,000 \$5,281,000	
Total Present Worth		\$10,478,000	
Percent Greater Than More Cost	-Effective Alternat	tive 0%	
E. Upton and Sonora Service Area–Design Year 2017 and 2027

The Upton and Sonora Service Area contain the Dorsey Run and Sandy Creek Watersheds. Figure 7.03-4 illustrates the proposed collection systems and conveyance alternatives for the Upton and Sonora Service Area–Design Year 2017 and 2027. In each scenario, the property owner would be responsible for the cost to connect to the new trunk sewer. The costs of collector sewers are not included in these alternative evaluations since they are common to each alternative. Appendix G presents the cost development for the present worth analysis.

1. Dorsey Run and Sandy Creek Watersheds (Upton and Sonora)

Table 7.03-7 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives for the Dorsey Run and Sandy Creek Watersheds.

Based on the present worth analysis presented in Table 7.03-7, the Caveland WWTP alternative has a total present worth more than 10 percent less than any other alternative.

The following paragraphs explain the proposed alternatives for Design Year 2027. These alternatives will include the near urban watersheds not included under Design Year 2017. Additionally, any incremental infrastructure needed to handle wastewater flow projections is evaluated for the urban watersheds listed under Design Year 2017. The opinions of cost exclude infrastructure constructed in Design Year 2017.

F. Northern Service Area–Design Year 2027

Figure 7.03-5 illustrates the proposed collection systems and conveyance alternatives for the Northern Service Area–Design Year 2027. In each scenario, the property owner would be responsible for the cost to connect to the new trunk sewer. The costs of collector sewers are not included in these alternative evaluations since they are common to each alternative.

1. Pawley Creek and Otter Creek Watersheds (LaVista Estates, Boone Road, and Rineyville)

The Upper Pawley Creek, Pawley Creek, Upper Otter Creek, and Lower Otter Creek Watersheds are included together because wastewater from these watersheds will be conveyed to a common pump station before it is transported to a WWTP. Table 7.03-8 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives for the Pawley Creek and Otter Creek Watersheds.

Based on the present worth analysis presented in Table 7.03-8, the Otter Creek WWTP has the lowest total present worth, but if the decision is made to convey wastewater to a Municipal WWTP in the 0- to 10-year time period, this alternative would continue to be utilized through design year 2027 instead of constructing a new WWTP.



UPTON AND SONORA SERVICE AREA YEAR 2017-DORSEY RUN AND SANDY CREEK WATERSHEDS

		Conveyance and Treatment Alternatives			
-	Size (in)	Elizabethtown WWTP	Nolin River WWTP	Caveland WWTP	
Population		920	920	920	
Residential Flow (mgd)		0.092	0.092	0.092	
Industrial Flow (mgd)		0.002	0.002	0.002	
Pumping Stations		0.092	0.092	0.092	
Number		3	3	2	
Capacity (gpm)		300	300	150	
		300	300	180	
		100	100		
Gravity Interceptors (LF)	8	27 830	27 830	20 830	
	10	27,000	27,000	20,030	
	12	0	0	0	
	15	0	0	0	
Manholes (number)		111	111	83	
Force Main (LF)					
	4	24,230	24,230	24,230	
	6	47,140	46,150	33,700	
	8	0	0	0	
Total Present Worth					
Operation and Maintenance (20 yr)		\$6,663,000	\$6,358,000	\$5,862,000	
Initial Capital Costs		\$7,864,000	\$8,271,000	\$6,204,000	
Total Present Worth		\$14,527,000	\$14,629,000	\$12,066,000	
Percent Greater Than Most Cost-Effective Alternative	9	20%	21%	0%	



NORTHERN SERVICE AREA YEAR 2027-PAWLEY CREEK AND OTTER CREEK WATERSHEDS

	Conveyance and Treatment Alternatives				
	Size (in)	Vine Grove WWTP	Fort Knox WWTP	Otter Creek WWTP*	Radcliff WWTP
Population		9,560	9,560	9,560	9,560
Residential Flow (mgd)		0.956	0.956	0.956	0.956
Industrial Flow (mgd)					
Total Flow (mgd)		0.956	0.956	0.956	0.956
Pumping Stations					
Number		2	3	1	3
Capacity (gpm)		1,700	1,700	450	1,700
		450	1,700		1,700
			450		450
Gravity Interceptors (LF)					
	8	16,690	16,690	16,690	16,690
	10	2,880	2,880	2,880	2,880
	18	8,270	8,270	8,270	8,270
	21	2,270	2,270	2,270	2,270
Manholes (number)		120	120	120	120
Force Main (LF)					
	6	6,500	6,500	6,500	6,500
	10	0	0	0	0
	15	13,990	40,750	0	38,530
Total Present Worth					
Operation and Maintenance (2	20 yr)	\$6,191,000	\$4,685,000	\$2,676,000	\$6,521,000
Initial Capital Costs		\$5,420,000	\$5,916,000	\$3,300,000	\$7,039,000
Total Present Worth		\$11,611,000	\$10,601,000	\$5,976,000	\$13,560,000
Percent Greater Than Most C Alternative	ost-Effective	94%	77%	0%	127%

* Assumes infrastructure for same alternative was built in the year 2017.

2. Brushy Fork Creek Watershed (Burns-Deckard School Road)

Table 7.03-9 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives for the Brushy Fork Creek Watershed.

Based on the present worth analysis presented in Table 7.03-9, the Fort Knox WWTP alternative has a total present worth more than 10 percent less than any other alternative.

3. Mill Creek Branch (Airview Estates)

Table 7.03-10 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives for the Mill Creek Branch Watershed.

Based on the present worth analysis presented in Table 7.03-10, the Elizabethtown collection alternative has the lowest total present worth.

4. Mill Creek

Table 7.03-11 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives for the Mill Creek Watershed.

Based on the present worth analysis presented in Table 7.03-11, the Elizabethtown collection alternative has the lowest total present worth, but the Radcliff WWTP alternative is only 4 percent more on a total present worth basis. Since the two alternatives are less than 10 percent different on a total present worth basis, they would be considered equivalent on a monetary basis. Section 7.04 of this report reviews the noneconomic factors for each of these alternatives. The noneconomic factors will be considered in the selection of the most favorable alternative.

Although an "area of concern" is not directly located within the Mill Creek Watershed, it is close to other areas of concern (Airview Estates and Smithersville). The watershed is expected to experience growth, therefore, it was included in wastewater planning.

5. Flippin Creek Watershed

Table 7.03-12 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives for the Flippin Creek Watershed.

Based on the present worth analysis presented in Table 7.03-12, the Fort Knox WWTP alternative has the lowest total present worth. No other alternative is within 10 percent of the Fort Knox WWTP alternative.

NORTHERN SERVICE AREA YEAR 2027-BRUSHY FORK CREEK WATERSHED

		Conveyance and Treatment Alternatives				
_	Size (in)	Vine Grove WWTP	Fort Knox WWTP*	Otter Creek WWTP	Radcliff WWTP	
Population Residential Flow (mgd) Industrial Flow (mgd)		4,270 0.427	4,270 0.427	4,270 0.427	4,270 0.427	
Total Flow (mgd) Pumping Stations		0.427	0.427	0.427	0.427	
Number Capacity (gpm)		1 1,000	1 1,000	1 1,000	1 1,000	
Gravity Interceptors (LF)						
	8	0	0	0	0	
	10	0	0	0	0	
	12	0	0	0	0	
Manholes (number)		0	0	0	0	
Force Main (LF)	_					
	8	0	0	0	0	
	10 12	0	0	0	0	
Total Present Worth						
Operation and Maintenance Initial Capital Costs	(20 yr)	\$1,075,000 \$503,000	\$470,000 \$117,000	\$485,000 \$359,000	\$863,000 \$406,000	
Total Present Worth		\$1,578,000	\$587,000	\$844,000	\$1,269,000	
Percent Greater Than Most Alternative	Cost-Effective	169%	0%	44%	116%	

* Assumes infrastructure for same alternative was built in the year 2017.

NORTHERN SERVICE AREA YEAR 2027-MILL CREEK BRANCH WATERSHED

		Conveyance and Treatment Alternatives					
	Size (in)	Vine Grove WWTP	Fort Knox WWTP	Otter Creek WWTP	Radcliff WWTP	Elizabethtown WWTP*	
Population Residential Flow (mgd)		2,680 0.268	2,680 0.268	2,680 0.268	2,680 0.268	2,680 0.268	
Total Flow (mgd) Pumping Stations		0.268	0.268	0.268	0.268	0.268	
Number Capacity (gpm)		2 450 1,100	2 450 1,100	2 450 1,100	2 450 1,100	1 1,100	
Gravity Interceptors (LF)							
	8 10	7,089 3,240	7,089 3,240	7,089 3,240	7,089 3,240	7,089 3,240	
	12	0	0	0 0	0	0	
Manholes (number)		41	41	41	41	41	
Force Main (LF)							
	6	46,030	41,610	47,750	36,080	0	
	8	0	0	0	0	0	
	10	0	0	0	0	0	
Total Present Worth							
Operation and Maintenance Initial Capital Costs	(20 yr)	\$1,621,000 \$2,458,000	\$1,420,000 \$2,358,000	\$1,449,000 \$2,462,000	\$546,000 \$1,934,000	\$622,000 \$855,000	
Total Present Worth		\$4,079,000	\$3,778,000	\$3,911,000	\$2,480,000	\$1,477,000	
Percent Greater Than Most Effective Alternative	Cost-	176%	156%	165%	68%	0%	

* Assumes infrastructure for same alternative was built in the year 2017.

NORTHERN SERVICE AREA YEAR 2027-MILL CREEK WATERSHED

		Conveyance and Treatment Alternatives						
_	Size (in)	Vine Grove WWTP	Fort Knox WWTP	Otter Creek WWTP	Radcliff WWTP	Elizabethtown WWTP		
Population		1,670	1,670	1,670	1,670	1,670		
Residential Flow (mgd)		0.167	0.167	0.167	0.167	0.167		
Industrial Flow (mgd)								
Total Flow (mgd)		0.167	0.167	0.167	0.167	0.167		
Pumping Stations								
Number		2	2	2	2	1		
Capacity (gpm)		450	450	450	450	450		
		450	450	450	450			
Gravity Interceptors (LF)								
	8	11,230	11,230	11,230	11,230	11,230		
	10	0	0	0	0	0		
	12	2,930	2,930	2,930	2,930	2,930		
	15	0	0	0	0	0		
Manholes (number)		57	57	57	57	57		
Force Main (LF)								
	6	38,280	33,860	40,000	28,330	7,750		
	8	0	0	0	0	0		
	10	0	0	0	0	0		
	12	0	0	0	0	0		
Total Present Worth								
Operation and Maintenar	nce (20 yr)	\$2,564,000	\$1,624,000	\$1,747,000	\$1,100,000	\$1,636,000		
Initial Capital Costs		\$2,813,000	\$2,268,000	\$2,735,000	\$2,513,000	\$1,838,000		
Total Present Worth		\$5,377,000	\$3,892,000	\$4,482,000	\$3,613,000	\$3,474,000		
Percent Greater Than Mo Effective Alternative	ost Cost-	55%	12%	29%	4%	0%		

NORTHERN SERVICE AREA YEAR 2027-FLIPPIN CREEK WATERSHED

		Conveyance and Treatment Alternatives				
_	Size (in)	Vine Grove WWTP	Otter Creek WWTP	Radcliff WWTP	Fort Knox WWTP	
Population		1,060	1,060	1,060	1,060	
Residential Flow (mgd)		0.106	0.106	0.106	0.106	
Industrial Flow (mgd)						
Total Flow (mgd)		0.106	0.106	0.106	0.106	
Number		1	1	2	1	
Capacity (gpm)		280	280	280	280	
				280		
Gravity Interceptors (LF)						
	8	18,790	18,790	18,790	18,790	
	10	0	0	0	0	
	12	0	0	0	0	
	15	0	0	0	0	
Manholes (number)		75	75	75	75	
Force Main (LF)						
	6	12,660	4,700	43,230	4,700	
	8	0	0	0	0	
	10	0	0	0	0	
Total Present Worth						
Operation and Maintenance	e (20 yr)	\$1,613,000	\$959,000	\$1,914,000	\$911,000	
Initial Capital Costs		\$1,904,000	\$1,531,000	\$2,847,000	\$1,304,000	
Total Present Worth		\$3,517,000	\$2,490,000	\$4,761,000	\$2,215,000	
Percent Greater Than Mos Effective Alternative	t Cost-	52%	11%	115%	0%	

Although an "area of concern" is not directly located within the Flippin Watershed, it is close to other areas of concern (Rineyville and LaVista Estates). The watershed is expected to experience growth, therefore, it was included in wastewater planning.

6. Upper Freeman Creek Watershed

The Upper Freeman Creek Watershed was accepted into the City of Elizabethtown updated planning area. The population projection for the Upper Freeman Creek Watershed is given in Appendix F, and the table summarizing the system components required for each alternative and a present worth comparison for each alternative is included in Appendix G.

G. <u>Southern Service Area–Design Year 2027</u>

Figure 7.03-6 illustrates the proposed collection systems and conveyance alternatives for the Southern Service Area–Design Year 2027. In each scenario, the property owner would be responsible for the cost to connect to the new trunk sewer. The costs of collector sewers are not included in these alternative evaluations since they are common to each alternative. Appendix G presents the cost development for the present worth analysis.

1. North Upper Nolin River, Upper Nolin River, Cox Run, Jackson Branch, and Nolin River Watersheds (Glendale Industrial Tract, Gilead Church-Glendale Road)

The Upper Nolin River, Cox Run, Jackson Branch, and Nolin River Watersheds are included together for Design Year 2027 because these watersheds convey wastewater to a common pump station for the Elizabethtown WWTP alternative or to the Nolin River WWTP (new southern WWTP) via gravity collection. After an initial analysis, leaving North Upper Nolin River Watershed to convey wastewater (Design Year 2017 selected alternative) was considered more cost-effective than abandoning that infrastructure and upsizing the 2027 gravity infrastructure for this entire area. Table 7.03-13 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives.

Based on the present worth analysis presented in Table 7.03-13, the Nolin River WWTP alternative has the lowest total present worth, but if the decision is made to convey wastewater to a Municipal WWTP in the 0-10 year time period, this alternative would continue to be utilized through design year 2027 instead of constructing a new WWTP.

2. Upper West Rhudes Creek, Lower Valley, and Rose Run Watersheds (Glendale)

The Upper West Rhudes Creek, Lower Valley, and Rose Run Watersheds are included together for Design Year 2027 because the topography of these watersheds direct flow to a common area. However, the collection infrastructure in the Upper West Rhudes Creek watershed will most likely convey the wastewater into the West Rhudes Creek watershed (Elizabethtown revised planning area) and ultimately into the Elizabethtown collection system.



SOUTHERN SERVICE AREA YEAR 2027-NORTH UPPER NOLIN RIVER, UPPER NOLIN RIVER, NOLIN RIVER, COX RUN, AND JACKSON BRANCH WATERSHEDS

		Conveyance and Treatment Alternatives		
_	Size (in)	Elizabethtown WWTP	Nolin River WWTP*	
Population		1 690	1 690	
Residential Flow (mgd)		0,169	0.169	
Industrial Flow (mgd)		2.442	2.442	
Total Flow (mgd)		2.611	2.611	
Pumping Stations				
Number		1	0	
Capacity (gpm)		1,200		
Gravity Interceptors (LF)				
	8	14,210	14,210	
	10	25,580	25,580	
	12	0	0	
	15	5,710	5,710	
	18	5,580	5,580	
	21	15,990	15,990	
	24	10,570	10,570	
	27	0	0	
	30	0	0	
	33	0	0	
Manholes (number)		311	311	
Force Main (LF)		_	_	
	8	0	0	
	10	0	0	
	12	28,630	0	
Total Present Worth				
Operation and Maintenance (20 yr)		\$3,981,000	\$2,840,000	
Initial Capital Costs		\$7,102,000	\$5,857,000	
Total Present Worth		\$11,083,000	\$8,697,000	
Percent Greater Than Most Cost-Effective Alternative		27%	0%	

* Assumes infrastructure for same alternative was built in the year 2017.

Lower Valley Creek and Rose Run watersheds were still analyzed together to develop the Design Year 2027 alternatives. Table 7.03-14 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives. This table includes the collection system components necessary for both the Upper West Rhudes Creek Watershed and Lower Valley Creek and Rose Run Watersheds.

Based on the present worth analysis presented in Table 7.03-14, the Nolin River WWTP alternative has the lowest total present worth, but the Elizabethtown WWTP is only 8 percent more on a total present worth basis. Since the two alternatives are less than 10 percent different on a total present worth basis, they would be considered equivalent on a monetary basis. Section 8.04 of this report reviews the non-economic factors for each of these alternatives. The nonmonetary factors will be considered in the selection of the most favorable alternative.

3. Billy Creek Watershed

The Billy Creek Watershed was accepted into the City of Elizabethtown updated planning area. The population projection for the Billy Creek Watershed is given in Appendix F, and the table summarizing the system components required for each alternative and a present worth comparison for each alternative is given in Appendix G.

H. Eastern Service Area–Design Year 2027

Figure 7.03-7 illustrates proposed collection systems and conveyance alternatives for the Eastern Service Area–Design Year 2027. In each scenario, the property owner would be responsible for the cost to connect to the new trunk sewer. The costs of collector sewers are not included in these alternative evaluations since they are common to each alternative. Appendix G presents the cost development for the present worth analysis.

1. Upper Younger Creek Watershed (Springfield Road Area)

Table 7.03-15 summarizes the system components required and the total present worth for the Elizabethtown collection alternative for the Upper Younger Creek Watershed.

2. Cedar Creek Watershed

Table 7.03-16 summarizes the system components required for each alternative and provides a comparison of the total present worth for each of the alternatives for the Cedar Creek Watershed.

Based on the present worth analysis presented in Table 7.03-16, the Elizabethtown collection alternative has a total present worth more than 10 percent less than any other alternative.

SOUTHERN SERVICE AREA YEAR 2027-UPPER WEST RHUDES, LOWER VALLEY CREEK, AND ROSE RUN WATERSHEDS

		Conveyance and Treatment Alternatives		
-	Size (in)	Elizabethtown WWTP	Nolin River WWTP*	
Population		2,260	2,260	
Residential Flow (mgd)		0.226	0.226	
Industrial Flow (mgd)		0.000	0.000	
Lotal Flow (mgd) Pumping Stations		0.226	0.226	
Number		1	1	
Capacity (gpm)		350	350	
Gravity Interceptors (LF)				
	8	35,090	35,090	
	10	4,650	4,650	
	12	7,230	7,230	
	15	0	U	
Manholes (number)		188	188	
Force Main (LF)				
	6	14,690	15,970	
	8	0	0	
	10	0	0	
Total Present Worth				
Operation and Maintenance (20 yr)		\$1,860,000	\$1,651,000	
Initial Capital Costs		\$3,613,000	\$3,429,000	
Total Present Worth		\$5,473,000	\$5,080,000	
Percent Greater Than Most Cost-Effective Alternative		8%	0%	

* Assumes infrastructure for same alternative was built in the year 2017.



EASTERN SERVICE AREA YEAR 2027-UPPER YOUNGER CREEK WATERSHED

		Conveyance and Treatment Alternatives
	Size (in)	Elizabethtown WWTP*
Population Residential Flow (mgd)		1,580 0.158
Total Flow (mgd) Pumping Stations		0.158
Number Capacity (gpm)		2 400 400
Gravity Interceptors (LF)	8	6,920
	10 12 15	3,940 0 0
Manholes (number)		43
Force Main (LF)	4 6 8	0 0 0
Total Present Worth		
Operation and Maintenance (20 yr) Initial Capital Costs		\$794,000 \$1,034,000
Total Present Worth		\$1,828,000
Percent Greater Than Most Cost-Effec	tive Alternative	0%

* Assumes infrastructure for same alternative is built in the year 2017.

EASTERN SERVICE AREA YEAR 2027-CEDAR CREEK WATERSHED

		Conveyance and Tre	ce and Treatment Alternatives		
_	Size (in)	Elizabethtown WWTP	Fort Knox WWTP		
Population Residential Flow (mgd)		500 0.05	500 0.05		
Industrial Flow (mgd) Total Flow (mgd) Pumping Stations		0.05	0.05		
Number		1	2		
Capacity (gpm)		140	140 140		
Gravity Interceptors (LF)					
	8	14,060	14,060		
	10	0	0		
	12	0	0		
Manholes (number)		56	56		
Force Main (LF)					
	4	19,210	50,080		
	6	0	0		
	8	0	0		
Total Present Worth					
Operation and Maintenance (20 yr)		\$906,000	\$1,219,000		
Initial Capital Costs		\$1,545,000	\$2,428,000		
Total Present Worth		\$2,451,000	\$3,647,000		
Percent Greater Than Most Cost-Effective Alternative		0%	49%		

Although an "area of concern" is not directly located within the Cedar Creek Watershed, it is close to other areas of concern (Colesburg). The watershed is expected to experience growth therefore, it was included in wastewater planning.

3. Clear Creek Watershed

The Clear Creek Watershed was evaluated for the conveyance of wastewater to both the Elizabethtown collection system as well as a new Younger Creek WWTP. A wasteload allocation was not provided by KDOW for the Younger Creek WWTP, which resulted in the Elizabethtown collection system being the most desirable alternative.

Table 7.03-17 summarizes the system components required and the total present worth for the Elizabethtown collection alternative for the Clear Creek Watershed.

Although an "area of concern" is not directly located within the Clear Creek Watershed, it is close to other areas of concern (Colesburg). The watershed is expected to experience growth, therefore it was included in wastewater planning.

4. Upper Buffalo Creek Watershed

The Upper Buffalo Creek Watershed was accepted into the City of Elizabethtown updated planning area. The population projection for the Upper Buffalo Creek Watershed is given in Appendix F, and the table summarizing the system components required for each alternative and a present worth comparison for each alternative is included in Appendix G.

5. Upper Valley Creek Watershed

The Upper Valley Creek Watershed was accepted into the City of Elizabethtown updated planning area. The population projection for the Upper Valley Creek Watershed is given in Appendix F, and the table summarizing the system components required for each alternative and a present worth comparison for each alternative is given in Appendix G.

I. <u>Rural Watersheds</u>

Any development that occurs outside of the above 0- to 10-year and 10- to 20-year watersheds (service areas), as shown in Figure 7.03-8, is anticipated to be served by properly designed rural wastewater treatment systems such as recirculating media filters and drip irrigation, etc. These facilities would be designed and constructed in accordance with HCWD2 design standards for wastewater infrastructure. A responsible management utility (HCWD1 or HCWD2) would be responsible for management, operation, and maintenance of these facilities.

EASTERN SERVICE AREA YEAR 2027-CLEAR CREEK WATERSHED

		Conveyance and Treatment Alternatives
	Size (in)	Elizabethtown Collection
Population Residential Flow (mgd) Industrial Flow (mgd)		1,690 0.169
Total Flow (mgd) Pumping Stations		0.169
Number Capacity (gpm)		1 430
Gravity Interceptors (LF)	0	22 120
	8 10	33,120 0
	12 15	0 0
Manholes (number)		132
Force Main (LF)	8	18 890
	10 12	0 0
Total Present Worth		
Operation and Maintenance (20 yr) Initial Capital Costs		\$2,206,000 \$3,196,000
Total Present Worth		\$5,402,000
Percent Greater Than Most Cost-Effect	ctive Alternative	0%



7.04 EVALUATION OF NON-MONETARY FACTORS

The economic analysis considers only the cost implications of each alternative. There are often nonmonetary factors that can influence the selection or rejection of a given alternative. The nonmonetary factors were developed by evaluating the alternatives for the full 20-year planning horizon. The nonmonetary factors for each watershed are given in Appendix H. The nonmonetary factor evaluation will be considered when the monetary costs are within 10 percent of each other

7.05 WASTEWATER TREATMENT ALTERNATIVES

In general, two types of wastewater treatment were evaluated for each sub watershed; one being municipal treatment by an existing WWTP, the other being treatment at a new county WWTP. Five municipal WWTPs were considered for municipal treatment; Fort Knox, Radcliff, Vine Grove, Elizabethtown, and Caveland WWTP. Strand Associates inquired about upgrades and costs necessary for these municipal WWTPs to accept county wastewater flow. See Appendix B for correspondence from these municipal treatment entities.For the proposed county WWTPs, design criteria and costs were developed for an extended aeration, activated sludge WWTP for the 0- to 10-year flow projections, and upgrades in the future to accept the 10- to 20-year flow projections. Table 7.05-1 illustrates the design criteria and costs developed for the county WWTPs (Nolin River and Otter Creek).

Table 7.05-2 illustrates costs for upgrades and wastewater treatment required by the municipal entities to collect and treat county wastewater.

	Terminal Force Main			Volume
Utility	Location	Costs to County	Special Conditions	Charge/1,000 gal
Fort Knox	Wilson Road gate or Bullion Blvd. Gate	Share in cost to upsize lines	Subject to PSC approval	\$2.00
Radcliff	WWTP	New WWTP Headworks	Capacity Charge \$1,000/customer	\$4.10
Vine Grove	WWTP	Build WWTP Capacity		\$5.00
Elizabethtown	Varies by area		Capacity charge \$1,500/customer for conveyance; \$500/customer for WWTP	\$3.35 (soon)
Caveland	Bonnieville PS	Provide equalization to limit PHF to 180 gpm		\$4.54

Table 7.05-2 Upgrades and Costs for Municipal Systems

NEW COUNTY WWTP DESIGN CRITERIA AND COSTS

		Otter C	reek	Nolin River		
ltem	-	Initial 1 MGD	Expand to 2 MGD	Initial 2 MGD	Expand to 3 MGD	
Influent Pumping		\$300,000	\$50,000	\$350,000	\$75,000	
Screening		\$215,000	\$100,000	\$310,000	\$100,000	
Grit Removal		\$270,000	-	\$325,000	-	
Oxidation Ditch		\$900,000	\$900,000	\$1,700,000	\$850,000	
Final Clarifiers		\$540,000	\$270,000	\$680,000	\$340,000	
RAS/WAS/S Pumping		\$200,000	\$75,000	\$300,000	\$80,000	
UV Disinfection		\$225,000	\$75,000	\$300,000	\$75,000	
Post aeration, Samplin	g, Metering	\$50,000	\$20,000	\$60,000	\$30,000	
Sludge Handling	=	\$525,000	\$200,000	\$725,000	\$200,000	
	Subtotal	\$3,225,000	\$1,690,000	\$4,750,000	\$1,750,000	
Site Work Piping Electrical & Controls HVAC & Plumbing Misc metals Painting	5% 15% 20% 3% 2% 1% _	\$161,000 \$484,000 \$645,000 \$97,000 \$65,000 \$32,000	\$85,000 \$254,000 \$338,000 \$51,000 \$34,000 \$17,000	\$238,000 \$713,000 \$950,000 \$143,000 \$95,000 \$48,000	\$88,000 \$263,000 \$350,000 \$53,000 \$35,000 \$18,000	
	Subtotal	\$4,709,000	\$2,469,000	\$6,937,000	\$2,557,000	
Admin/Lab Building		\$200,000	-	\$250,000	-	
Land	=	\$200,000	-	\$250,000		
	TOTAL	\$5,109,000	\$2,469,000	\$7,437,000	\$2,557,000	
Cost per gpd capacity		\$5.11	\$2.47	\$3.72	\$2.56	
Ultimate Capacity cost	per gpd		\$3.79		\$3.33	

A. <u>"All or Nothing" County Treatment Approach</u>

In the selection of alternatives, an "all or nothing" county treatment approach was considered. The "all or nothing" approach focused on either providing the majority of watersheds in a service area with wastewater conveyance and treatment at a new county WWTP or providing conveyance to an existing municipal WWTP based on present worth analysis and nonmonetary factors, where applicable. With cost playing a major role in the selection of the "all or nothing" approach, the lowest present worth for each municipal alternative was totaled and compared to the present worth of the County WWTP alternative for the same watersheds. This analysis was completed for the 0- to 10-year alternatives and for the 0- to 10-year added to the 10- to 20-year alternatives to determine the most economical solution within 10 years and within 20 years. The following paragraphs illustrate the results of this analysis

B. Northern Service Area

Tables 7.05-3 and 7.05-4 illustrate the capital costs and present worth of conveyance and treatment at a municipal WWTP as compared to a new county Otter Creek WWTP for the Northern Service Area watersheds.

		Municipal Treatn	nent	County 1	reatment	
Watershed	Location	Capital Cost	Present Worth (0-10 year alternative–20 year present worth)	Otter Creek WWTP Capital Costs	WWTP Present Worth (0- 10 year alternative–20 year present worth)	
Brushy Fork Creek	Fort Knox	\$5,866,000	\$12,736,000	\$8,679,000	\$17,124,000	
Mill Creek Branch	Elizabethtown	This watershed was assumed to be treated by Elizabethtown, so it is excluded from the comparison.				
Pawley Creek and Otter Creek	Fort Knox	\$8,204,000	\$18,819,000	\$9,693,000	\$20,258,000	
Total		\$14,070,000	\$31,555,000	\$18,372,000	\$37,382,000	

Table 7.05-3 10-Year Planning Horizon "All or Nothing" Cost Summary–Northern Service Area

		Municipal Treatm	nent	County	Treatment			
Watershed	Location	Capital Cost	Present Worth (0-10+10-20 year)	Otter Creek WWTP Capital Costs	WWTP Present Worth (0-10+10-20 year)			
Brushy Fork Creek	Fort Knox	\$5,983,000	\$13,323,000	\$9,038,000	\$17,968,000			
Mill Creek Branch	Elizabethtown	These two watersheds were assumed to be treated by Elizabethtow						
Mill Creek	Elizabethtown	are excluded from the comparison.						
Flippin Creek	Fort Knox	\$1,304,000	\$2,215,000	\$1,531,000	\$2,490,000			
Pawley Creek and Otter Creek	Fort Knox	\$14,120,000	\$29,420,000	\$12,993,000	\$26,234,000			
Total		\$21,407,000	\$44,958,000	\$23,562,000	\$46,692,000			
Table 7.05-4 20-Year Planning Horizon "All or Nothing" Cost Summary Northern Service Area								

The alternative evaluations for the Mill Creek Branch and Mill Creek Watersheds greatly favored municipal treatment, therefore, the economic contribution of these watersheds is excluded from the cost summary for the 0- to 10-year and the 10- to 20- year cost summary table in order to consider only those watersheds that would possibly be treated by a new Otter Creek WWTP.

The "all or nothing" county treatment evaluation of the Northern Service Area favors the municipal treatment alternative in the 10-year horizon and can be considered essentially equal in the 20-year horizon. The ability to attract grant funding by pursuing the more regional (municipal) solution would favor treatment by municipal entities as the preferred alternative.

Tables 7.05-5 and 7.05-6 illustrate that considering only the 0- to 10-year planning horizon, the most economical choice is municipal treatment in the southern service area. However, if the full 20-year planning horizon is considered, it is nearly as cost effective to initially construct a new Nolin River WWTP to provide wastewater treatment to the southern service area.

Section 7–Conveyance and Treatment Alternatives

		Municipal Treat	County Treatment		
Watershed	Location	Capital Cost	Present Worth (0-10 Year Alternative-20 Year Present Worth)	Nolin River WWTP Capital Costs	Nolin River WWTP Present Worth (0-10 Year Alternatives-20 Year Present Worth)
North Upper Nolin River	Elizabethtown	\$16,043,000	\$66,193,000	\$28,316,000	\$71,095,000
Rose Run	Elizabethtown	\$2,446,000	\$5,147,000	\$3,409,000	\$6,261,000
Dorsey Run and Sandy Creek	Caveland	\$6,204,000	\$12,066,000	\$8,271,000	\$14,629,000
Total		\$24,693,000	\$83,406,000	\$39,996,000	\$91,985,000

Table 7.05-5 10-Year "All or Nothing" Cost Summary–Southern Service Area

		Municipal Treatr	County Treatment		
Watershed	Location	Capital Cost	Present Worth (0-10+10-20 year)	Nolin River WWTP Capital Costs	Nolin River WWTP Present Worth (0-10+10-20 year)
Dorsey Run and Sandy Creek	Caveland	\$6,204,000	\$12,066,000	\$8,271,000	\$14,629,000
Nolin River, Cox Run, and Jackson Branch	Elizabethtown	\$23,145,000	\$77,276,000	\$34,173,000	\$79,792,000
Rose Run and Lower Valley	Elizabethtown	\$6,059,000	\$10,620,000	\$6,838,000	\$11,341,000
Total		\$35,408,000	\$99,962,000	\$49,282,000	\$105,762,000

Table 7.05-6 20-Year Planning Horizon "All or Nothing" Cost Summary Southern Service Area

7.06 SELECTION OF ALTERNATIVES

A. Northern Service Area

The selected alternatives are based primarily on the economic evaluation, and when the economic evaluation presents two or more alternatives within 10 percent, nonmonetary factors are considered. The following paragraphs discuss the selected alternatives for the watersheds in the Northern Service Area.

1. Brushy Fork Creek (Burns-Deckard School Road Area)

The present worth cost opinion to convey wastewater from the Brushy Fork Creek watershed to the Fort Knox WWTP is at least 34 percent less than all other alternatives, as shown in Table 7.03-2. Conveying wastewater to the Fort Knox WWTP is the most cost effective and is the

selected alternative for the Brushy Fork Creek watershed.

2. Pawley Creek and Otter Creek (LaVista Estates, Boone Road area, and Rineyville)

The present worth cost opinion to convey wastewater from the Pawley Creek and Otter Creek watershed to the Fort Knox WWTP is 8 percent less than conveying wastewater to the proposed Otter Creek WWTP during the 0- to 10-year planning horizon as shown in Table 7.03-2. However, in the 10- to 20-year planning horizon, conveying wastewater to the Otter Creek WWTP is the most cost effective. Considering the economic evaluation in the 0- to 10-year planning horizon, the nonmonetary factors (Appendix H), and that population projections may not occur as predicted, the Fort Knox WWTP is the selected alternative for the Pawley Creek and Otter Creek watersheds. Although the Otter Creek WWTP is the most cost effective alternative in the 10- to 20-year planning horizon, selecting the Fort Knox WWTP during the 0- to 10-year planning horizon means this alternative would continue to be utilized from 10 to 20 years.

3. <u>Mill Creek Branch (Airview Estates)</u>

The present worth cost opinion to convey wastewater from the Mill Creek Branch watershed to the Elizabethtown collection system and on to the Elizabethtown WWTP is at least 14 percent less than all other alternatives, as shown in Table 7.03-3. Conveying wastewater to the Elizabethtown WWTP is the most cost effective and is the selected alternative for the Mill Creek Branch watershed.

4. Mill Creek

The present worth cost opinion to convey wastewater from the Mill Creek watershed to the Elizabethtown collection system and on to the Elizabethtown WWTP is 4 percent less than conveying wastewater to the Radcliff WWTP, as shown in Table 7.03-11. The nonmonetary factors (Appendix H) indicate that conveying wastewater to the Elizabethtown collection system is more favorable than the Radcliff WWTP. Conveying wastewater to the Elizabethtown collection system and on to the Elizabethtown WWTP is the selected alternative for the Mill Creek watershed.

5. Flippin Creek

The present worth cost opinion to convey wastewater from the Flippin Creek watershed to the proposed Fort Knox WWTP is at least 11 percent less than all other alternatives, as shown in Table 7.03-12. Conveying wastewater to the Fort Knox WWTP is the most cost effective and is the selected alternative for the Flippin Creek watershed.

B. <u>Southern Service Area</u>

The following paragraphs discuss the selected alternatives for the watersheds in the Southern Service Area.

1. <u>Rose Run</u> (Glendale)

The present worth cost opinion to convey wastewater from the Rose Run watershed to the Elizabethtown WWTP is 22 percent less than conveying wastewater to the Nolin River WWTP, as shown in Table 7.03-5. Conveying wastewater to the Elizabethtown WWTP is the most cost effective and is the selected alternative for the Rose Run watershed.

2. <u>Rose Run and Lower Valley Creek</u> (Glendale)

The present worth cost opinion to convey wastewater from the Rose Run and Lower Valley Creek watersheds to the proposed Nolin River WWTP is 8 percent less than conveying wastewater to the Elizabethtown WWTP in the 10- to 20-year planning horizon as shown in Table 7.03-14. Considering the economic evaluation in the 0- to 10-year planning horizon, the nonmonetary factors (Appendix H), and that population projections may not occur as predicted, the Elizabethtown WWTP is the selected alternative for the Rose Run and Lower Valley Creek watersheds. Although the Nolin River WWTP is the most cost effective alternative in the 10- to 20-year planning horizon, the Nolin River WWTP would not be constructed based on the 2017 analysis and therefore is not available as an alternative.

3. North Upper Nolin River (Gilead Church–Glendale Road area, Glendale Industrial Tract)

The present worth cost opinion to convey wastewater from the North Upper Nolin River watershed to the Elizabethtown WWTP is 7 percent less than conveying wastewater to the Nolin River WWTP, as shown in Table 7.03-4. The nonmonetary factors (Appendix H) show that conveying wastewater to the Elizabethtown WWTP is slightly more favorable than conveying wastewater to the proposed Nolin River WWTP. The North Upper Nolin River watershed is expected to receive an industrial tenant in the future that may produce a considerable amount of wastewater flow. Conveying wastewater to the Elizabethtown WWTP is the selected alternative for the North Upper Nolin River watershed; however, this alternative may be revisited in the future once the industrial tenant is known.

4. <u>Nolin River, Cox Run, and Jackson Branch</u> (Gilead Church–Glendale Road area, Glendale Industrial Tract)

The present worth cost opinion to convey wastewater from the Nolin River, Cox Run, and Jackson Branch watersheds to the proposed Nolin River WWTP is 27 percent less than conveying wastewater to the Elizabethtown WWTP in the 10- to 20-year planning horizon as shown in Table 7.03-13. Considering the economic evaluation in the 0- to 10-year planning horizon, the nonmonetary factors (Appendix H), the "all or nothing" evaluation, and that

population projections may not occur as predicted, the Elizabethtown WWTP is the selected alternative for the Nolin River, Cox Run, and Jackson Branch watersheds. Although the Nolin River WWTP is the most cost-effective alternative in the 10- to 20-year planning horizon, the Nolin River WWTP would not be constructed based on the 2017 analysis and therefore is not available as an alternative.

C. <u>Eastern Service Area</u>

A county-owned treatment alternative was not permittable by KDOW. Alternatives for the Eastern Service Area were developed based on 0- to 10-year and 10- to 20-year projected wastewater needs. The Eastern Service Area includes the Upper Younger Creek (0- to 10- year), Clear Creek (10- to 20- year), and Cedar Creek (10- to 20-year) watersheds. These watersheds were evaluated to either be served by the Elizabethtown WWTP or served by a new Younger Creek WWTP. The wasteload allocation was not permitted by KDOW for the Younger Creek WWTP; therefore, the selected alternative for the Eastern Service Area watersheds is conveyance to the Elizabethtown collection system and treatment at the Elizabethtown WWTP.

D. <u>Upton and Sonora Service Area</u>

The plan did not consider a county-owned treatment plant for these areas. The Upton and Sonora Service Area, which includes the Dorsey Run and Sandy Creek watersheds, was evaluated to be served by the Elizabethtown WWTP, Caveland WWTP, or a new Nolin River WWTP. The Dorsey Run and Sandy Creek watersheds were assumed to reach the maximum projected population during the 0-to 10-year planning horizon. The present worth cost opinion to convey wastewater from the Dorsey Run and Sandy Creek watersheds to the Bonnieville Intermediate Pump Station and on to the Caveland WWTP is at least 20 percent less than all other alternatives, as shown in Table 7.03-7. Conveying wastewater to the Bonnieville Intermediate Pump Station and on to the Caveland WWTP is the most cost effective and is the selected alternative for the Dorsey Run and Sandy Creek watersheds.

E. <u>Rural Watersheds</u>

Any development within the rural watersheds shown in Figure 7.03-8 will be serviced by cluster-type systems designed and constructed in accordance with HCWD2 standards. A responsible management entity (HCWD1 or HCWD2) will be responsible for management, operation, and maintenance.

SECTION 8 RECOMMENDED PLAN

8.01 RECOMMENDED PLAN

The evaluation of the Hardin County collection, conveyance and treatment systems included the assessment of 74 conveyance and treatment alternatives in 31 watersheds. Since the initiation of this facilities plan, the City of Elizabethtown has expanded their planning area to include 10 entire watersheds and portions of three others. The alternatives were considered based on topography and relative location of existing WWTPs. Cost opinions of alternatives were developed for each watershed and nonmonetary factors were considered when the economic evaluation showed that any alternatives were within 10 percent of each other on a monetary basis. All capital cost opinions are shown in 2007 dollars, and the capital cost opinion during 10 to 20 years is the incremental cost to develop additional infrastructure during the 10- to 20- year planning horizon. The recommended alternatives are established based on the five service areas within the Hardin County planning area. The municipal treatment options were based on vicinity and capacity of existing WWTPs, and the new proposed WWTP was selected based on location and wasteload allocations for the receiving stream.

A. <u>Northern Service Area</u>

The Northern Service Area includes the Brushy Fork Creek (0- to 10-year and 10- to 20-year), Mill Creek Branch, (0- to 10-year), Mill Creek (10- to 20-year), Pawley Creek and Otter Creek (0- to 10-year and 10- to 20-year), and Flippin Creek (10- to 20-year) subwatersheds. These subwatersheds were evaluated to either be served by an existing municipal WWTP or a new Otter Creek WWTP. Table 8.01-1 illustrates the recommended alternatives for the Northern Service Area. Figure 8.01-1 and Figure 8.01-5 illustrate collection, pumping, and routing for the Recommended Plan for the 2017 and 2027 Northern Service Areas.

B. <u>Southern Service Area</u>

The Southern Service Area includes the North Upper Nolin River (0 to 10 year and 10 to 20 year), Rose Run (0 to 10 year and 10 to 20 year), Cox Run (10 to 20 year), Jackson Branch (10 to 20 year), Nolin River (10 to 20 year), Upper West Rhudes (10 to 20 year), and Lower Valley Creek (10 to 20 year) subwatersheds. These subwatersheds were evaluated to either be served by an existing municipal WWTP or a new Nolin River WWTP. Table 8.01-2 illustrates the recommended plan for the Southern Service Area. Figure 8.01-2 and Figure 8.01-6 illustrates collection, pumping, and routing for the Recommended Plan for the 2017 and 2027 Southern Service Areas.

C. Eastern Service Area

The Eastern Service Area includes the Upper Younger Creek (0 to 10 year), Clear Creek (10 to 20 year), and Cedar Creek (10 to 20 year) watersheds. These watersheds were evaluated to either be served by the Elizabethtown WWTP or served by a new Younger Creek WWTP. The wasteload allocation was not permitted by KDOW for the Younger Creek WWTP; therefore, it is recommended that the Eastern Service area watersheds construct infrastructure to convey wastewater to the existing Elizabethtown collection system for treatment at he Elizabethtown WWTP.

NORTHERN SERVICE AREA RECOMMENDED PLAN

		Wastewater					
	1	Flo	ow (mgd)			1	
						Capital Cost	Capital Cost
	Area of					Opinion	Opinion ⁽¹⁾
Subwatershed	Concern	2003	2017	2027	Recommended Plan	(0 to 10 year)	(10 to 20 year)
Brushy Fork Creek	Burns-Deckard	0.22	0.31	0.43	Collect wastewater through 8,10,12, and	\$5,866,000	\$117,000
	School Road				15-inch trunk sewers to a regional 750		
	Area				gpm pump station with 10-inch force main		
					to the Wilson Road sewer for treatment at		
					the Ft. Knox WWVIP in the 0-10 year		
					planning horizon. Utilize existing		
					infrastructure and upgrade pump station to		
					a 1,000 gpm pump station in the 10-20		
Daviday Oracli and	L a) l'ata	0.40	0.47	0.00	year planning norizon.	¢0.004.000	#F 040 000
Pawley Creek and	Lavista	0.43	0.47	0.96	Collect wastewater through 8, 10, 12, and	\$8,204,000	\$5,916,000
Oller Creek	Estates, boone				app nump station with 15 inch force main		
	Ruau area, anu Rinovyillo				to the Bullion Blvd, sower for treatment at		
	Kineyville				the Et Knox W/W/TP in the 0.10 year		
					planning borizon. In the 10-20 year		
					planning horizon, abandon the existing		
					numn station and utilize existing trunk		
					sewers and construct additional 8 10 18		
					and 21-inch trunk sewers to flow by gravity		
					to a 1 700 gpm regional pump station at		
					the location of the proposed Otter Creek		
					WWTP. Utilize the existing 15-inch force		
					main to the Bullion Blvd, sewer for		
					treatment at the Ft. Knox WWTP.		
Mill Creek Branch	Airview Estates	0.20	0.23	0.27	Collect wastewater through 8 and 10-inch	\$5,220,000	\$855,000
					trunk sewers to a regional 650 gpm pump		
					station with a 10-inch force main to the		
					Elizabethtown collection system for		
					treatment at the Elizabethtown WWTP in		
					the 0-10 year planning horizon. In the 10-		

Hardin County Water District No. 2 Regional Wastewater Facilities Plan

Section 8–Recommended Plan

		Wa Flo	astewater ow (mgd)				
Subwatershed	Area of	2003	2017	2027	Recommended Plan	Capital Cost Opinion ⁽¹⁾ (0 to 10 year)	Capital Cost Opinion ⁽¹⁾ (10 to 20 year)
	Contern	2000	2017		20 year planning horizon, utilize the existing trunk sewers and construct new 8 and 10-inch trunk sewers. Upgrade the pump station capacity to 1,100 gpm and utilize existing force main to the Elizabethtown collection system for treatment at the Elizabethtown WWTP.		
Mill Creek		0.11	0.14	0.17	Collect wastewater through 8 and 12-inch trunk sewers to a regional 450 gpm pump station with a 6-inch force main to the 1,100 gpm Mill Creek Branch pump station. The existing 10-inch force main to the Elizabethtown collection system will be utilized and treatment will be provided at the Elizabethtown WWTP.	N/A	\$1,838,000
Flippin Creek		0.03	0.07	0.11	Collect wastewater through 8-inch trunk sewer to the regional 1,700 gpm pump station at the location of the proposed Otter Creek WWTP. Utilize the existing 15-inch force main to the Bullion Blvd. Sewer with treatment at the Fort Knox WWTP.	N/A	\$1,304,000
Total		1.00	1.22	1.92		\$19,290,000	\$10,030,000

⁽¹⁾Does not include cost of collector sewers.





TABLE 8.01-2

SOUTHERN SERVICE AREA RECOMMENDED PLAN

		W	lastewat low (mg	er d)			
Subwatershed	Area of Concern	2003	2017	2027	Recommended Plan	Capital Cost Opinion ⁽¹⁾ (0 to 10 Year)	Capital Cost Opinion ⁽¹⁾ (10 to 20 Year)
Rose Run	Glendale	0.05	0.08	-	Collect wastewater through 8-inch trunk sewer to a regional 200 gpm pump station with a 6- inch force main to the Elizabethtown WWTP.	\$2,446,000	N/A
Rose Run, Lower Valley Creek, Upper West Rhudes Creek (partial)	Glendale	0.71	-	0.23	Collect wastewater through existing 8-inch trunk sewer and construct additional 8, 10, and 12- inch trunk sewers. The existing 200 gpm pump station will be abandoned and wastewater will flow by gravity to a new 350 gpm pump station with a 6-inch force main to the Elizabethtown WWTP. Trunk sewers in the Upper West Rhudes Creek will flow in the Elizabethtown collection system for treatment at the Elizabethtown WWTP.	N/A	\$3,613,000
North Upper Nolin River	Gilead Church- Glendale Road Area, Glendale Industrial Tract	0.02	2.48		Collect wastewater through 10 and 15-inch trunk sewers to regional 4,500 gpm pump stations with 18-inch force main to the Elizabethtown WWTP.	\$16,043,000	N/A
Nolin River, Cox Run, Jackson Branch	Gilead Church- Glendale Road Area, Glendale Industrial Tract	0.10	-	2.61	Utilize existing 10- and 15-inch trunk sewers with 4,500 gpm pump stations for the Glendale Industrial tract. Construct additional 8, 10, 15, 18, 21, and 24-inch trunk sewers with gravity flow to a new 1,200 gpm pump station at the location of the proposed Nolin River WWTP. Construct a 12-inch force main to the Elizabethtown WWTP.	N/A	\$7,102,000
lotal		0.88	2.56	2.84		\$18,489,000	\$10,715,000

⁽¹⁾Does not include cost of collector sewers.




Table 8.01-3 illustrates the recommended plan for each subwatershed and the capital cost opinion to develop that alternative. Figure 8.01-3 and Figure 8.01-7 illustrates collection, pumping, and routing for the Recommended Plan for the 2017 and 2027 Eastern Service Areas.

D. <u>Upton and Sonora Service Area</u>

The Upton and Sonora Service Area, which includes the Dorsey Run and Sandy Creek subwatersheds, was evaluated to be served by the Elizabethtown WWTP, Caveland WWTP, or a new Nolin River WWTP. The Dorsey Run and Sandy Creek subwatersheds were assumed to reach the maximum projected population during the 0- to 10-year planning horizon. Table 8.01-4 illustrates the recommended alternative for the subwatersheds and the capital cost opinion to develop that alternative.

Conveying wastewater to the Bonnieville pump station then to the Caveland WWTP is the most cost effective and is the recommended alternative for the Dorsey Run and Sandy Creek watersheds. Figure 8.01-4 illustrates collection, pumping, and routing for the Recommended Plan for the 2017 and 2027 Upton and Sonora Service Areas.

E. <u>Rural Watersheds</u>

The rural watersheds will be served by continued use of on-site treatment/disposal systems. In the event any subdivisions are planned, the developer will be expected to construct a cluster-type collection and treatment system for long-term management, operation and maintenance by HCWD1 or HCWD2. The cost of the construction will be borne by the developer and the OM&R costs will be funded by user rates.

8.02 SUMMARY

The Recommended Plan includes an ambitious effort to provide reliable wastewater service to many densely populated and unsewered areas of the county. The completion of these projects will take many years and require substantial funding. In total, the capital costs total over \$76 million for the recommended plan. See Table 8.02-1 for a breakdown of capital costs.

Service Area	Capital Cost by Year 2017 ⁽¹⁾	Capital Cost by Year 2027 ⁽¹⁾	Total
Northern	\$19,290,000	\$10,030,000	\$29,320,000
Southern	\$18,489,000	\$10,715,000	\$30,059,000
Eastern	\$5,281,000	\$5,775,000	\$11,056,000
Upton and Sonora	\$6,204,000	N/A	\$6,204,000
Rural	\$0	\$0	\$0
TOTAL	\$49,264,000	\$26,520,000	\$75,784,000

⁽¹⁾Does not include cost of collector services.

Table 8.02-1 Service Area Capital Costs

TABLE 8.01-3

EASTERN SERVICE AREA RECOMMENDED PLAN

	Was	tewater (mgd)	Flow				
SubWatershed	Area of Concern	2003	2017	2027	Recommended Plan	Capital Cost Opinion ⁽¹⁾ (0 to 10 Year)	Capital Cost Opinion ⁽¹⁾ (10 to 20 Year)
Upper Younger Creek	Springfield Road Area	0.08	0.12	0.16	In the 0-10 year planning horizon, collect wastewater through 8-inch trunk sewer to a 100 gpm and 120 gpm pump station. Construct a 4 and 6-inch force main and pump to the Elizabethtown collection system for treatment at the Elizabethtown WWTP. In the 10-20 year planning horizon, utilize existing 8-inch and construct additional 8 and 10-inch trunk sewers; abandon existing 100 and 120 gpm pump stations and flow by gravity to a new 400 gpm pump station. Utilize existing 6-inch force main into the Elizabethtown collection system for treatment at the Elizabethtown WWTP.	\$5,281,000	\$1,034,000
Cedar Creek		0.04	0.04	0.05	Collect wastewater through 8-inch trunk sewer to a regional 140 gpm pump station with 6-inch force main and pump to Elizabethtown collection system for treatment at the Elizabethtown WWTP	N/A	\$1,545,000
Clear Creek		0.10	0.13	0.17	Collect wastewater through 8-inch trunk sewer, to regional 430 gpm pump station with 8-inch force main and pump to Elizabethtown collection system for treatment at the Elizabethtown WWTP	N/A	\$3,196,000
Total		0.22	0.29	0.38		\$5,281,000	\$5,775,000

⁽¹⁾Does not include cost of collector sewers.







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TABLE 8.01-4

UPTON AND SONORA SERVICE AREA RECOMMENDED PLAN

		Wast	tewater (mgd)	Flow			
SubWatershed	Area of Concern	2003	2017	2027	Recommended Plan	Capital Cost Opinion ⁽¹⁾ (0 to 10 Year)	Capital Cost Opinion ⁽¹⁾ (10 to 20 Year)
Dorsey Run and Sandy Creek	Upton and Sonora	0.08	0.09	0.09	Collect wastewater through 8-inch trunk sewer to regional 200 and 300 gpm pump stations with 4-inch and 6- inch force main and on to the Bonnieville Intermediate Pump Station for treatment at the Caveland WWTP.	\$6,204,000	N/A
Total		0.08	0.09	0.09		\$6,204,000	\$0

⁽¹⁾Does not include cost of collector sewers.

8.03 WORKING WITH MUNICIPAL TREATMENT PROVIDERS

HCWD2 has engaged the entities whom may provide treatment service for county wastewater (Elizabethtown, Radcliff, Fort Knox, and Caveland Environmental) in dialogue concerning the manner of working together in this endeavor. Each treatment plant either has adequate capacity or is in the process of being expanded. Table 8.03-1 lists the treatment needs for the existing facilities. This plan can provide insight to those cities expanding their plants. The previously mentioned entities have welcomed the concept of providing wholesale treatment of county wastewater under certain terms and conditions spelled out in letters included in Appendix E. The terms and conditions of the working relationship between HCWD2, HCWD1, and the treatment entities, including rates, should be documented in an Interlocal Agreement.

		Current	2017	2027	
	Current	Average	County	County	
	Capacity	Flow	Wastewater	Wastewater	
Municipal Facility	(mgd)	(mgd)	Flow (mgd)	Flow (mgd)	Comment
Elizabethtown	7.20	6.20	2.90	3.60	Expansion under design
Radcliff	4.00	2.30	0.00	0.00	Adequate Capacity
Fort Knox	6.00	2.00	0.80	1.50	Adequate Capacity
Caveland Environmental	0.28	0.15	0.10	0.10	Adequate Capacity

 Table 8.03-1
 Treatment Needs for Existing Facilities

8.04 FUNDING SOURCES

Funding for the proposed sewer collection and conveyance system can be through many sources. Anticipated funding sources at this time include the following:

- Community Development Grant (CDBG)
- Kentucky Infrastructure Authority Grant (KIA)
- Economic Development Administration Grant (EDA)
- Rural Development (RD)-50% Grant/50% Loan-(May be eligible for 60/40 or 75/25 Loan.)
- State Revolving Fund Loan
- User Tap Fees (System Development Charges for Conveyance and Treatment)
- User Assessments (for collector sewers)
- Cash on Hand
- Direct Grants
- Developers/Recapture Agreements

HCWD2 should work closely with developers to help pay for or offset some of the capital costs for conveyance infrastructure. Many regional sewering agencies were able to fund portions of their infrastructure in this manner.

As previously mentioned, the regional nature of the proposed projects and the environmental benefit that will result make the projects very attractive for grant funding. HCWD2 should prepare project profiles and regularly discuss these projects with funding agencies and elected officials to maximize the funding with grants.

8.05 USER CHARGE EVALUATION

HCWD2 does not have any sewer customers at this time and thus does not have any current rates. The potential user charge rates for an assumed area were computed based on several assumptions. An official rate study should be prepared to establish fair and equitable rates once the project is near completion. The following assumptions were made in this cursory evaluation:

- Existing customers would pay an assessment for the construction of collector sewers. The amount of the assessment is dependent on the cost to install sewers and the number of customers. Where other agencies have used this approach, assessments ranged from \$8,000 to \$12,000.
- HCWD2 would use grant monies (\$1,000,000) and an additional 25 percent grant/75 percent loan package from Rural Development to provide funding for the \$5,866,000 project.
- The entire life of the loan would be over 40 years.
- The anticipated interest rate for the 75 percent loan is expected to be approximately 4.5 percent.
- The estimated annual debt service payment is approximately \$198,000 per year.
- Rates would collect 5 percent additional revenue for debt service coverage.
- A replacement fund account would be funded at \$5,000 per year.
- An operational budget would include the following:
 - \$10,000 in administrative expense
 - \$25,000 for part-time employees
 - \$10,000 for electric and chemicals
 - \$10,000 for emergency expenses (clogs, etc.)
 - \$5,000 for billing expense
- The Brushy Fork Creek watershed generates 223,000 gpd of wastewater (assumes nominal I/I).
- HCWD2 pays Fort Knox rates of \$2 per 1,000 gallons.
- Each customer discharges 4,000 gallons per month of wastewater.

Customers would be billed based on their metered water usage.

Based upon the above assumptions, a customer discharging 4,000 gallons per month would be charged about \$41 per month to become an annual total of \$489 per year. These costs do not include the installation of collector sewers (assessment).

If the initial construction was limited to just the more densely-populated Burns-Deckard School Road area, the monthly rates using similar assumptions as above would be about \$38 per month or \$450 per year. These costs do not include the installation of collector sewers (assessment).

Any additional grants or customers above the existing number of homes will help to reduce these future costs.

A more extensive rate evaluation study will need to be completed at the time of the project. Public Service Commission approval would be required.

HCWD2 will have to evaluate rates for each specific service area and determine the equitability of charging rates that vary by area or rates that are universal. Public Service Commission approval would be required.

Rate determinations for other service areas are too dependent on actual project costs and funding scenarios to be predicted in this report. There is risk in under and over projecting potential rates.

8.06 IMPLEMENTATION PLAN

A. <u>General</u>

Because of the number of regulatory and funding agencies that will be involved in the development of county wastewater conveyance and treatment, and the length of time required for each, implementation of the recommended plan should begin upon plan approval to eliminate failing on-site wastewater treatment systems and protect the environment and the public health for the residents of Hardin County. Projects within the 0- to 10-year time frame can be prioritized based on need, citizen interest, development interest, and funding availability.

B. <u>Action Plan</u>

Hardin County Water District No. 2 should initiate the following actions:

- 1. Review, approve, and adopt this Facilities Plan report. Resolutions will be required by HCFC (adopting the planning area), HCWD2 (adopting the plan), HCWD1 (adopting the plan), and City of Elizabethtown (adopting their revised planning area).
- 2. Conduct a public hearing to discuss the Facilities Plan Report and Recommended Plan.

- 3. Submit the adopted Facilities Plan to the Kentucky Environmental and Public Protection Cabinet–Division of Water for review, comment, and approval.
- 4. Initiate the procurement process for engineering services necessary for the design, bidding, and construction of the facilities described in the Recommended Plan according to the requirements of the anticipated funding sources.
- 5. Gauge public interest, development pressure, public health, environmental impact, and availability of funding to prioritize 0- to 10-year projects.
- 6. Pursue sources of grant monies for the proposed projects.
- 7. Study and implement a customer System Development Charge to begin equitably charging new customers for their share of the proposed infrastructure.
- 8. Study and implement a customer rate to help offset the cost for continued improvement to your system. PSC approval is likely required.
- 9. Procure the sites to build new pump stations and acquire easements for gravity sewer and force mains as soon as it is feasible.
- 10. Negotiate equitable Interlocal Agreements with those treatment entities included in the Recommended Plan (Elizabethtown, Caveland Environmental, Radcliff, and Fort Knox).

SECTION 9 PUBLIC PARTICIPATION

9.01 INTRODUCTION AND BACKGROUND

KDOW requires a public participation process as part of the review/approval of a RWWFP. HCWD2 has accomplished the following efforts:

- 1. Assembled an Advisory Committee and conducted 12 meetings of the Advisory Committee throughout the plan development. The Advisory Committee is made up of representatives from HCWD2, HCWD1, County Judge-Executive, County Planning and Development, County Engineer, County Environmental Service, City of Elizabethtown, City of Radcliff, City of Vine Grove, and Fort Knox. Meeting materials and minutes have been posted to the HCWD2 website so they may be made available to the public.
- 2. Delivered a presentation to the Hardin County Planning Commission Public Hearing introducing the plan and presenting findings to date. A meeting was held on November 22, 2005. A copy of the presentation made at the meeting is included in Appendix C.
- 3. Made periodic presentations to the HCWD2 board at monthly meetings that are open to the public.
- 4. Published an article in The News-Enterprise on November 27, 2005 introducing the plan to the public. A second article was published in The News-Enterprise on October 30, 2007 summarizing the results of the study. A copy of each of these articles is included in Appendix I.
- 5. Conducted a Public Hearing of the Draft Regional Wastewater Facilities Plan on October 25, 2007 at 6:30 P.M. at the H. B. Fife Courthouse on the square in Elizabethtown, KY. A copy of the Public Notice is included in Appendix B. The public comment period ran for 30 days from the date of first publication on October 11, 2007 to November 12, 2007. Meeting minutes of the public hearing is included in Appendix A.

9.02 CLEARINGHOUSE LETTERS

Letters describing the proposed 0- to 10-year projects were sent to the Kentucky Heritage Council, Kentucky Fish and Wildlife Service, and U.S. Fish and Wildlife Service for review on November 9, 2007. A copy of these letters are included in Appendix J.

APPENDIX A
PUBLIC HEARING MEETING MINUTES

PUBLIC HEARING MEETING MINUTES HARDIN COUNTY REGIONAL WASTEWATER FACILITIES PLAN HARDIN COUNTY WATER DISTRICT NO. 2 OCTOBER 25 2007, 6:30 P.M.

MEETING DATE:	October 25, 2007
LOCATION:	Hardin County Fiscal Courthouse
PURPOSE:	Public Hearing to present the results of the Hardin County Regional Wastewater Facilities Plan
ATTENDEES:	See attached list

Discussion Items

Question and Answer

Q (Public): If Radcliff gave the responsibility of operating and maintaining their municipal wastewater collection system to Hardin County Water District No. 1, could that decrease project costs to the county to hook into the system?

A (Strand): County wastewater would need to be conveyed directly to the Radcliff wastewater treatment plant due to the large number of pump stations in the collection system.

Q (Public): Radcliff has constructed and is constructing new gravity sewers that could help convey county wastewater. Would this potentially help decrease costs?

A (Strand): The 20-year present worth analysis indicates that conveying wastewater to Ft. Knox is probably a better solution due to the large amount of reserve capacity at the wastewater treatment plant. An evaluation should be made prior to any construction project to make sure the recommended plan is still the most cost-effective.

Q (Public): The Ft. Knox Base Realignment and Closure will cause an additional 8,000 to 9,000 people generating wastewater by 2010. Will this create capacity problems at the Ft. Knox wastewater treatment plant?

A (Strand): Fort Knox should still have adequate capacity based on current usage.

Q (Public): Were the prices reflected in the presentation in today's dollars or in projected dollars?

A (Strand): Prices reflected in the presentation were given in today's dollars. Future prices are highly variable on material and labor costs and one could probably plan for about 3 percent inflation per year.



PUBLIC INFORMATION MEETING MINUTES HARDIN COUNTY REGIONAL WASTEWATER FACILITIES PLAN HARDIN COUNTY WATER DISTRICT NO. 2 OCTOBER 25, 2007 6:30 P.M. Page 2

Q (Public): How will the rate structure be addressed?

A (Strand): The rate structure will need to be addressed by the Public Service Commission.

Q (Public): Radcliff has been working aggressively on an Infiltration and Inflow reduction plan to reduce flow to the wastewater treatment plant. Could this allow the Radcliff wastewater treatment plant to potentially accept county wastewater?

A (Strand): That is a possibility.

<u>Comments</u>

Comment (Strand): The Regional Wastewater Facilities Plan is a dynamic plan and is written so that changes can be made and on a watershed-by-watershed basis; this can be done through amendments to the plan.

Comment (Strand): The longer the wait is to start implementing the projects in the plan, the more expensive it will become.

If there are any additions and/or comments, please contact me at 502-583-7020.

Sincerely,

STRAND ASSOCIATES, INC.

Mark Sneve, P.E.



APPENDIX B PUBLIC HEARING NOTICE

For publication in The News-Enterprise 10/11/27 = 10/18/07

Notice of Public Hearing (Pursuant to 401 KAR 5:006 Sections 4 &5, KRS 24 and 40 CFR 25.5 & 6)

Interested citizens of Hardin County are invited to a public hearing sponsored by the Hardin County Water District No. 2. The meeting will start at 6:30 p.m. on Thursday, October 25, 2007 in the H.B. Fife Courthouse, 100 Public Square 3rd Floor, Elizabethtown, KY. An open house will be held at 6:00 p.m.

The Hardin County Water District No. 2, under the authority of the Hardin County Fiscal Court, has prepared a 20-year Regional Wastewater Facilities Plan for areas of Hardin county without municipal wastewater service. The planning area is all of Hardin County with the exception of Fort Knox, the existing planning areas of West Point, Radcliff, Vine Grove and the revised planning area of Elizabethtown. The recommended plan represents the alternatives with the lowest present worth cost, a minimal environmental impact, and the highest capability for implementation. The recommended plan calls for wastewater to be collected from the high growth areas and areas of greatest public health and environmental need within the planning area and conveyed to various municipal facilities for treatment. The draft plan is available for review by any citizen at the Hardin County Water District No. 2 office, 360 Ring Road, Elizabethtown during normal business hours until November 12.

The purpose of the public hearing is to discuss the draft plan and its contents, specifically the alternatives, estimates of project cost, financing sources, user charges, etc. Verbal and written comments will be entertained at the public hearing. Written comments concerning the plan will also be accepted until November 12, 2007. Written comments should be addressed to Hardin County Water District No. 2, 360 Ring Road, Elizabethtown, KY 42701.

APPENDIX C PUBLIC HEARING PRESENTATIONS













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WWTP Name	Туре	Rated Capacity <u>(mgd)</u>	Average Flow (4/02 - 3/03) (mgd)	Percent of Capacity		
Elizabethtown	Municipal	7.2	6.18	86		
Raddliff	Municipal	4.0	2.34	59		
Vine Grove	Municipal	0.714	0.30	41		
West Point	Municipal	0.20	0.11	53		
Ft. Knox	Government	6.0	2.0	33		
11 Smail Package WWTPs						
<u>ж</u>				_		

Future Needs	Future Needs						
 Growth Project 2027 Flow by R 	ed at 2X KSD0 legion	C					
Service Region	2017 Need	2027 Need					
North & Northwest	1.2 mgd	1.9 mgd					
East	0.3 mgd	0.4 mgd					
South & Southwest (1)	2.5 mgd	2.9 mgd					
(1) Includes U	pton & Sonora and 2 r	ngd for industrial tract	N				

Utility	Terminal FM Location	Costs to County	Special Conditions	Volume Charge /1000 gal
FL Knox	Wilson Road gate or Bullion Blvd Gate	Share in cost to upsize lines	Subject to PSC approval	\$2.00
Raddiff	WWTP	New WWTP Headworks	Capacity charge \$1000/cust.	\$ 4.10
Vine Grove	WWTP	Build WWTP Capacity		\$5.00
É-town	Varies by area		Capacity Charge \$1500/Cust, for Convey & \$500/Cust, for WWTP	\$3.35 (soon)
Caveland	Bonnieville PS	Provide Equalization		\$4.54



























































	Average Daily Flow (mgd)		
	By 2017	By 2027	
Ft. Knox ⁽²⁾	0.8	1.5	
Elizabethtown ⁽¹⁾	2.9	3.6	
Caveland ⁽²⁾	0.1	0.1	
TOTAL	3.8	5.2	
(1) Under Expansion (2) Adequate Capacity			

	Capital Cost (\$M)		
	By 2017	By 2027	
lorthern Area	\$19.3	\$10.0	
astern Area	\$5.3	\$5.8	
outhern Area	\$18.5	\$10.7	
pton & Sonora	\$6.2	\$0.0	
TOTAL	\$49.3	\$26.5	
opulation served	about 18,000	about 14,00	



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Completion	
<u>Task</u>	<u>Schedule</u>
Public Hearing	Oct. 25
Public Comment Period Closes	Nov. 12
Submit Facilities Plan to KDOW	Nov. 15
Approval by KDOW	??
<u>.</u>	











- · Overview of Facilities Planning
- · Wastewater Treatment in Hardin County

- Areas of Need
- · Proposed Service Areas
- Alternatives Refinement
- Questions and Answers

What is a Regional Wastewater Facilities Plan (RFP)?

- Comprehensive
- Wastewater Collection and Treatment
- Local Solution
- Defined Planning Area
- · Defined period of time
- Universal Goal = Protect Environment and Human Health by Providing
 Reliable Wastewater Disposal

5



Permitte	d WWTPs	i		
WWTP Name	Туре	Rated Capacity (mgd)	Average Flow (4/02 - 3/03) (mgd)	Percent of Capacity
Elizabethtown	Municipal	7.2	6.18	86
Radcliff	Municipal	4.0	2.34	59
Vine Grove	Municipal	0.714	0.30	41
West Point	Municipal	0.20	0.11	53
FL Knox	Government	6.0	2.0	33
11 Smali Packaga	WWTPs			
				R





















APPENDIX D REGIONAL FACILITIES PLAN PREPARATION CHECKLIST

SRF Guidance No. 3

REGIONAL FACILITIES PLAN PREPARATION CHECKLIST (Page Numbers should be entered and this document submitted with plan)

Name of Facility <u>Hardin County Regional</u> Wastemater Facilities Plan

Section

- I. Introduction
 - A. Summary, Conclusions, and Recommendations (include detailed scope of the proposed project)

II. Project Background

- A. Planning Area (PA) Characteristics
- 1. Delineation of PA (on USGS 7 1/2 minute topo). You may use any mapping system you wish, but at least one USGS topo map must be submitted.

The map of the PA must identify the following where applicable:

- a. The area proposed to be served in the next 20 years broken down into phases of 0-2 years, 3-10 years and 11-20 years. If this phasing just is not suitable, you may propose others.
- b. Existing treatment facilities, package plants, water intakes.
- c. Sludge disposal sites, if applicable.
- d. Existing interceptors, pumping stations and force mains.
- e. Proposed interceptors including pump stations and force mains for the entire planning area.
- 2. Land Use in PA attach current land use map, if existing, with planning area shown on it. If none exist, just state that none exist.

Date 10/10/07

Page No.

1-1

Fig. 2.03-1

Fig. 3.03-1 4 3.03-2

Fig. 3.05-1

NA NA

<u>Figs 7.03-1</u> through 7.03-7

None Exist

Page 1 of 6 DOW-FCB 6-15-01

B. Existing Facilities

, Des tran	cribe the existing municipal sewage sport/treatment/disposal facilities including:	Section 4
1.	The method of wastewater treatment and the physical condition (e.g., sizing or efficiency of components) of facilities, which should include years in service of major components. Discuss how existing WWTP meets reliability standards and shortcomings if existing WWTP does not.	4-4
2.	The method of sludge handling and disposal.	4-4
3.	The design capacity, existing flows, and characteristics of wastes.	4-4
4.	An analysis of average peak, dry, and wet weather flows.	N/A
5.	Discuss infiltration/inflow including calculations of gallons per capita per day. Describe any known I/I problems including any SSES reports. Discuss ongoing program addressing I/I problems. For average gallons per capita per day, use the	4-10
	most recent twelve month average flows. For maximum gallons per capita per day, use the highest 24-hour flow recorded in the last twelve months.	
6.	The location of all bypasses and combined sewer overflows with their frequency, duration, and cause.	4-10
7.	If there are any recurring bypasses due to wet weather, in the system, a Sanitary Sewer Overflow Plan (SSOP) must be included as part of the facility plan. The criteria for an SSOP can be obtained from the Municipal Planning Section of the Division of Water.	<u>4-10</u>
8.	An evaluation of pump station capacities.	NA
9.	A discussion of operation and maintenance including any problems.	N/A

C. Need for the Project

The need for the proposed project should include a discussion of the following:

1. **Compliance Status**

> Describe the status of compliance with the existing KPDES permit.

- a. An identification of any unpermitted discharges.
- b. A copy of the latest permit.
- 2. Orders

Describe any court or enforcement order against the community including a copy of the order.

- 3. Water quality problems. Discuss whether or not streams are listed in 305(b) report as not meeting uses or if any other documentation exist showing stream(s) not meeting uses.
- 4. Future environment without the proposed project.
- 5. Discussion of any septic tank problems or straight pipe discharges. Include actual number of households on septic tanks, number of failing systems, number of straight pipes.
- 6. Discussion of capacity of existing facilities compared to projected growth.

D. Population Data

1. Discuss the existing and projected population in the planning area by phases mentioned in IIA 1.a. Show current and projected populations for each phase.

N/A

NA

3-3

Thronghout

3-6

Sections 4 and 6 Section 6
E. Environmental Setting

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1.	Describe the water quality of the streams and lakes in the planning area.	3-3
2.	Submit wasteload allocation (WLA) for each proposed new site or expansion/upgrade of existing site.	<u>Append</u> ix B
. 3.	Discuss existence or non-existence of wetlands in the planning area and show their location on a map in conjunction with the discharge point and any proposed pipes.	3-6
4.	Provide map showing the 100 year flood- plain in relation to the PA.	<u>Fig 3.04-1</u>
5.	Discuss the topography of the PA and its effect on sewage treatment/collection.	3-1
6.	Discuss the geology and groundwater of the PA and its' effect on sewage treatment/collection.	3-1
7.	Discuss the soils in the PA and their relation to on-site sewage disposal.	3-2
Analysis of A	lternatives	
1.	Discuss the "No Action" alternative.	Section 7
2.	Discuss the possibility of regionalization.	Section 7
З.	Discuss design criteria used to evaluate alternatives. Complete Unit Process Design Criteria and Design Flows and Concentrations forms.	Section 7
4.	For treatment processes, discuss at least three alternatives. Include schematic showing the number of units/tanks in each process for each alternative.	NA
5.	For collection systems, discuss at least two	Section 7

alternatives.

Ш.

6. For the 0-2 year phase, i.e., current project, provide a 20 year present worth analysis. Also, provide a non-monetary evaluation of the alternatives considering implementability, environmental impact, engineering evaluation, public support and regionalization for subsequent phases. simply provide cost estimates.

Selected Alternatives

- 1. Provide a schematic flow diagram showing all major process features.
- 2. Summarize the basis of design including detention times, overflow rates, process loadings, initial and design flows and other aspects of the preliminary basis of design.
- 3. For collection systems, show length and size of all pipes and for pump stations show horsepower, head, and GPM capacity.
- 4. If earthen basins are proposed, provide schematic and cross section showing dimensions and side slopes.
- IV. Implementability of the Project
 - Α. Legal authority of the applicant,
 - Β. Concurrence by all involved entities. All cities, counties, sanitation districts or other legally formed entities that are wholly or partially within the planning area must concur with the project. Copies of resolutions or contracts should be included as part of the proposal.
 - C. User Costs
 - 1. Provide a discussion of the current and projected user costs.
 - 2. Provide a discussion of projected sources of funding. If more than one funding package is discussed, provide projected user rates for each.

Section 7

Section 7 Section 7

Section 7

N/A

Appendix B

Section B Section B

Page 5 of 6 DOW-FCB 6-15-01

V. Public Participation

- A. Provide a copy of the public hearing transcript. This hearing must cover the description and effects of all alternatives, selected alternatives, proposed user cost and proposed method of financing.
- B. Provide a copy of the public hearing notice. The notice must be advertised in the paper of largest circulation for the area and be advertised 7-21 days in advance of the hearing date.
- C. Provide copies of any written comments.

VI. National Environmental Policy Act

- A. The Division of Water sends all projects through the State Clearinghouse. It is not necessary for the applicant to send the project through the Clearinghouse. However, if you suspect the need for an archeological or vegetative survey, you may choose to send it through the Clearinghouse in the early stages of your planning.
- VII. P.E. Stamp
 - A. The facilities plan and all loose items, such as unbounded drawings, must bear the stamp and signature of a licensed professional engineer of the Commonwealth of Kentucky.

WLC/hlm 6-15-01

Note: Latest revisions from previous Checklist are italicized.

<u>Appendi</u> X

Appendix I

<u>N/A</u> N/A

Page 6 of 6 DOW-FCB 6-15-01

APPENDIX E CORRESPONDENCE AND WASTELOAD ALLOCATION COUNCIL EDNA BALE BERGER ANTHONY J. BISHOP MARTY E. FULKERSON RONALD B. THOMAS TIM C. WALKER WILLIAM G. WOOD



200 West Dixle Avenue P. O. Box 550 Elizabethtown, KY 42702 (270) 765-6121 Fax: (270) 737-5362 Web Site: www.etownky.org

CITY OF ELIZABETHTOWN DAVID L. WILLMOTH, JR., MAYOR

February 20, 2006

Mark Sneve Strand Associates, Inc. 325 West Main Street Suite 710 Louisville, KY 40202

RE: Hardin County Regional Wastewater Planning Study

Dear Mark:

The City of Elizabethtown has reviewed the proposed county areas for service by the Elizabethtown Wastewater Treatment Facility. The method we used to evaluate the potential flows to the existing system is explained in the attachments.

Please note that this evaluation is very conceptual. Actual planning for any connection to the City's system would require detailed engineering. Also, it does not include an analysis of any capital or treatment costs associated with the treatment plant. Such conditions are yet to be examined.

Finally, this information has not been reviewed by the City Council. Any potential service to the county area will require approval by the Council.

Sincerely,

Charles Bryant, P.E. Executive Assistant

CB/ko

Evaluation Method

- 1. Identify drainage basins and related existing sewer outfalls.
- 2. Calculate capacity restrictions of outfall line.
- 3. Categorize areas to be served based upon zoning/flow potential and service priority.
 - a. Existing City limits
 - b. Future potential City limits
 - c. Outside existing or potential City limits but within 201 planning area
 - d. Outside 201 area, no access available
 - e. Outside 201 area, access to WWTP needed
- 4. Compare potential flows with outfall capacity or availability.

Service Priority Flow Flow Capacity s) Future Limits or Planning Area Future Limits or Planning Area Future Limits or Planning Area Not Applicab Future Limits or Planning Area Future Limits or Planning Area Not Applicab Future Limits or Planning Area Future Limits or Planning Area Not Applicab real Future Limits or Planning Area Not Applicab real Future Limits or Planning Area Not Applicab Coustide Planning Area Outside Planning Area Not Applicab Acad) Outside Planning Area Not Applicab Road) County Service within Planning Area Not Applicab Road) County Service within Planning Area None Outside Planning Area None None
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COUNCIL EDNA BALE BERGER ANTHONY J. BISHOP MARTY E. FULKERSON RONALD B. THOMAS TIM C. WALKER WILLIAM G. WOOD



200 West Dixle Avenue P. O. Box 550 Elizabethiown, KY 42702 (270) 765-6121 Fax: (270) 737-5362 Web Site: www.ctownky.org

CITY OF ELIZABETHTOWN DAVID L. WILLMOTH, JR., MAYOR

April 18, 2006

Mark Sneve Strand Associates, Inc. 325 West Main Street Suite 710 Louisville, KY 40202

E E 2006 AND ASSOCIA

RE: Hardin County Regional Wastewater Planning Study

Dear Mark:

I have reviewed with the Mayor and Council the request for information regarding collection and treatment of sanitary wastes from county areas by the City of Elizabethtown. The following items are proposed by the City as conditions for the referenced study.

- 1. The 201 Planning Area(s) should be reserved for the City (or cities). This will provide for a reasonable expansion of the City system in the foreseeable future and will assist the City in planning for annexation.
- 2. There should be no capital cost to the City except as explained in Item 4.
- 3. The treatment cost is proposed to be the City's uniform rate, which currently is \$2.40/1000 gallons. This rate is expected to increase to at least \$3.20/1000 gallons within 5 years. Yearly adjustment after that?
- 4. Capacity fees for the treatment works and any collection system utilized would be charged. The estimated treatment works fee is \$500. This is based upon a \$2.00/gallon net facility worth times 250 GPD average customer. The estimated collection system fee is \$1,500. This estimate is based upon a cost per acre for outfall line construction. These fees might be converted to a monthly charge for some period of time. (10, 20 years?)

We hope this information adequately addresses your needs for the study.

Sincerely,

Charles Bryant, P/E. Executive Assistant

VINE GROVE WASTEWATER TREATMENT PLANT

May 4, 2006

Mark Sneve Strand Associates, Inc. 325 West Main Street Suite 710 Louisville, KY 40202

RE: Hardin County Regional Wastewater Planning Study

Dear Mark:

The City of Vine Grove currently has a large amount of new developments taking place within the city. We project the Wastewater Treatment Plant's daily average flow to be at or above 60% of the Plant's designed capacity by 2008. We have many new developments that are being proposed in the near future. With this in mind, the City of Vine Grove could not accept any county wastewater at this time without a plant expansion. We believe the cost for an expansion would need to be recovered by the county and not the residents who live within the city. Another possibility is the County could pay the up front cost for the capacity they would use for county wastewater. It is hard to quote a price to treat the county wastewater due to the fact we would need a plant expansion.

We are in the process of updating our 201 Facilities Plan. It should be completed this year. We will include the county planning areas in our Facilities Plan that could be served with sewer and possibly treated by our Wastewater Treatment Plant. We know that any sewer treated by our plant would need to be pumped to our plant with a force main. The cost of pumping the wastewater to our plant would have to be paid for by the county.

If we have a plant expansion due to the extra growth in our City and we have the needed capacity to treat county wastewater. The price to treat county wastewater would be \$ 5.00 per 1,000 gallons. This price is assuming that no new sewer rate increase is used to pay for the plant's expansion.



Sincerely,

Gary Minter Mayor

300 WEST MAIN STREET • VINE GROVE, KENTUCKY • 40175 PHONE: 270-877-2500 • FAX: 270-877-7629 E-MAIL: wastewater@vgcityhall.org

Hardin County Water District No. 1

Serving Radcliff and Hardin County for Over 50 Years



1400 Rogersville Road Radcliff, KY. 40160

December 29, 2005

Mark A. Sneve, P.E. Strand Associates, Inc. Waterfront Plaza Suite 710 325 West Main St. Louisville, KY 40202

RE: Hardin County Regional Wastewater Planning - Information Request

Dear Mark;

Please find included the information you requested in the letter dated November 15, 2005. We are pleased to assist in any way possible and look forward to working with you and the other members of the advisory committee on this project.

Below you will find the information requested and the needed upgrades to handle the additional flows. Please keep in mind that these are estimates based on the information we have at this time. As you may or may not know, there are many changes forecasted in the coming months and years at Ft. Knox due to the Base Realignment And Closure (BRAC). Also, you will notice in the estimates that we do not expect a county sewer utility to bear all the cost of upgrading the needed facilities, as we will also benefit from these upgrades. We think the treatment plant has adequate capacity to handle the additional flows as projected. However, the main lines will need to be up-sized. The tables below show the two options for receiving flows and the associated cost estimates for up-sizing to handle the additional flow. Again, with the future BRAC projects these estimates are subject to change.

Option 1, Wilson Road Gate:

Size of Line (existing)	Size of Line (after upgrade)	Estimated Quantities	Total Cost for Up-sizing	Cost to District No. 1	Cost to County Sewer Utility
15"	18"	9,173 lf	\$1,192,490	\$1,009,030	\$183,460

Note: As these lines are VCP and are due to be replaced, only the cost of up-sizing is in the County Sewer Utility's cost estimates.

Option 2, Bullion Blvd. Gate:

Size of Line (existing)	Size of Line (after upgrade)	(1)Estimated Quantities	Total Cost for Up-sizing	Cost to District No. 1	(2)Cost to County Sewer Utility
12"	18"	2,173 lf	\$282,490	\$195,570	\$86,920

Note 1: Estimated quantity is 4,673 lf to be replaced minus 2,500 lf expected to be replaced by near future BRAC Action project.

Note 2: As in option 1, the District will pay to replace the existing sized line and the County Sewer Utility bears only the cost of up-sizing.

As for the cost to treat the wastewater, the price is based on today's best estimate and is subject to change in the future. The cost would be \$2.00 per one-thousand gallons. Just a reminder, as with all of our rates, this rate would also be subject to Public Service Commission (PSC) approval.

Hope this is useful. Please call or e-mail if you have any questions or comments.

Sincerely,

Bretto Pyler

Brett Pyles, Operations Manager

cc; Jim Bruce, General Manager Jeff Greer, Project Manager file



P.O. Drawer 519 411 W. Lincoln Trail Blvd. Radcliff, KY 40159-0519 270-351-4714 www.radcliff.org

Mark A. Sneve, P.E. Strand Associates, INC Waterfront Plaza 325 West Main Street Louisville, Kentucky 40202

Re: Hardin County Regional Wastewater Planning - Information Request

Dear Mr. Sneve:

I apologize for the time delay in responding to your request. After reviewing your request along with the City of Radcliff collection system and treatment facility, I have listed below the impacts and projected capital improvements for bringing county wastewater to our system. As for cost of capital improvements, we request your firm to calculate such cost and the county will be responsible for such cost.

- Due to our collection system layout and number of lift stations, we recommend any county wastewater be transported straight to the head works of the Treatment Plant. With that in mind, in order to accommodate the flows you have provided improvements will have to be done at our Plant's pretreatment area: Flow monitoring station and odor control system, bar screen and grit chamber improvements to handle the extra anticipated flow.
- Billing will be based on wholesale rate of actual gallons treated at plant. (Amount taken from flow monitoring station)
- Costs for Treatment only; \$ 4.10/1000gals
- Cost per hookup outside City Limits is \$1,000.00 dollars, as stated in ordinance.
- Costs amounts are subject to change at the discretion of the City Council.

Sincerely,

Sheila C. Enyart Mayor





Moving Government, Business & Community forward.

Caveland

Ma	rk	Sneve -	FW:	Caveland	- Hardin	County	community	service	questions
----	----	---------	-----	----------	----------	--------	-----------	---------	-----------

From:	"Sam McIllwain" <smcillwain@wmsengineers.com></smcillwain@wmsengineers.com>
To:	"'Mark Sneve''' <mark.sneve@strand.com></mark.sneve@strand.com>
Date:	5/5/2006 12:21 PM
Subject:	FW: Caveland - Hardin County community service questions
	<david@ceawater.com></david@ceawater.com>

Mark

As you may know, the Town of Bonnieville has two (2) projects that are or will soon be under construction. One of these projects is a collector sewer system and the second project is a sewage transmission project that will convey collected sewage to a connection point to CEA conveyance force main system previoulsy constructed to service the I-65 Rest Areas north of Horse Cave. Once completed, these Bonnieville facilities will be operated and maintained by CEA. Sewer customers of the Bonnieville sewer system will pay a regular system wide CEA sewer bill, which is based on a rate of \$4.54 per 1,000 gallons. CEA's minimum bill is based on 2,000 gallons or \$9.08.

It is my understanding that the Bonnieville's two (2) projects were totally funded by grants and, therefore, there was no local share to be funded by rate payers. Had there have been a local share, a supplement agreement between CEA and Bonnieville would have been required. Under that supplemental agreement, one option would have been for CEA to collect a surcharge amount to fund debt payments for the local share. Those surcharged fees would have been paid to Bonnieville by CEA so that Bonnieville could meet their debt payments. While there are a number of other arrangements that could be used, the basic concept is that the CEA does not want to be obligated for any indebtedness for the Bonnieville sewer. As it turned out, there was no local indebtedness so that was not an issue for the Bonnieville projects.

Relative to your project, CEA completed an amendment to their Regional Facilities Plan for the Horse Cave Wastewater Treatment Plant in November of 2002. That amended plan contained provisions to serve Bonnieville and Upton, but not for the Sonora area. The concept developed in the amended facilities plan called for a manifold force main from Upton to the Horse Cave WWTP. However, the engineers for the Bonnieville projects modified that concept when they installed an intermediate pump station downstream of the Bonnieville Pump Station, thus interrupting the manifold concept.

The capacities of the Bonnieville and the Bonnieville intermediate pump station are 300 gpm each. The estimated 20 year peak flow from Bonnieville, is about 120 gpm leaving about 180 gpm in capacity for the Upton and Sonora Area. Because the manifold concept was changed, the Upton and Sonora Areas will have to be served by the Bonnieville pump station, thus requiring a flow equalization basin to be located at the first Bonnieville Pump Station in order to handle flows from Upton and Sonora. The Bonnieville Pump Station is located north of Campground Road in Bonnieville near the south bank of Bacon Creek. In addition to accommodating suppressing the 300 gpm flow rate from the Upton Pump Station, the flow equalization basin will need to be covered so septic odors can be contained and treated.

Therefore, in response to the questions of your letter, we offer the following responses.

- 1. Location where force main or gravity sewers would have to be installed for each service area so to not overload you collection system. See the previous paragraph.
- 2. Any capital costs required to be paid by these new customers as a result of their connection into your system. These costs may result from modifications the City may be required to do to accept their discharge. Please break these costs out by service area. My understanding of CEA position is the project to serve the Upton and Sonora area could be handled similar to the Bonnieville project. In other words, the facilities needed to collect and transport sewage to the Bonnieville pumping station (including the flow equalization and odor containment basin) will be constructed by the Upton and Sonora entity. CEA would then operate those facilities similar to their operating and maintaining the Bonnieville sewers and pump stations.
- 3. The costs to be paid for wastewater conveyance and treatment by your POTW. Typically these cost are reported on a per 1,000 gallons basis and many include customer charges or other charges.

Again going to the Bonnieville model, the charge would be \$4.54 per 1,000 gallons. On a customer basis, there would also be a minimum charge of \$9.08 for sewer uses of 2,000 gallons per month or less. Uses over 2,000 gallons per month would be \$9.08 plus \$4.54 per 1,000 gallons or fraction thereof. If there are local debts to be covered by sewer rates, CEA could impose a surcharge that would be paid back to the entities for payment of their indebtedness.

If you have any questions or comments, please give me a call at (615) 366-6088 or e-mail me. Sam



front Plaza 710 Vest Main Street ille, KY 40202 i: 502-583-7020 02-583-7026

) Locations

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strand.com

November 10, 2005

David J. Peterson, CEO/General Manager Caveland Environmental Authority, Inc. P.O. Box 463 Cave City, KY 42127

Re: Hardin County Regional Wastewater Planning - Information Request

Dear Mr. Peterson:

Strand Associates, Inc. is working with Hardin County Water District No. 2 to complete a comprehensive regional wastewater plan for Hardin County. We have developed possible alternatives for the study and request input from the Caveland Environmental Authority regarding the impacts and costs of bringing county wastewater to your collection system for transportation and treatment. Specifically, the plan is considering the following areas and flows (peak hourly and average daily) that may be served by your POTW:

Service Area	By 2	By 2015		
	Average	Peak	Average	Peak
	Daily	Hourly	Daily	Hourly
	Flow	flow	Flow	flow
	(gpd)	(gpm)	(gpd)	(gpm)
Dorsey Run (Sonora)	58,000	200	67,000	200
Sandy Creek (Upton)	34,000	100	38,000	100

We have included a figure showing the location of these service areas and potential pump station locations.

We are requesting the following information be provided by the City:

- 1. Location where forcemains or gravity sewers would have to be installed to for each service area so as to not overload your collection system.
- 2. Any capital costs required to be paid by these new customers as a result of their connection into your system. These costs may result from modifications the City may be required to do to accept their discharge. Please break these costs out by service area.
- 3. The costs to be paid for wastewater conveyance and treatment by your POTW. Typically these costs are reported on a per 1000 gallons basis and may include customer charges or other charges.



November 14, 2005

Ronald Yates, Water/Sewer Superintendent City of Vine Grove 300 West Main Street Vine Grove, Kentucky 40175

Re: Hardin County Regional Wastewater Planning - Information Request

Dear Mr. Yates:

Strand Associates, Inc. is working with Hardin County Water District No. 2 to complete a comprehensive regional wastewater plan for Hardin County. We have developed possible alternatives for the study and request input from the City of Vine Grove regarding the impacts and costs of bringing county wastewater to your collection system for transportation and treatment. Specifically, the plan is considering the following areas and flows (peak hourly and average daily) that may be served by your POTW:

Service Area	By 2	By 2015		By 2025	
	Average	Peak	Average	Peak	
	Daily	Hourly	Daily	Hourly	
	Flow	flow	Flow	flow	
	(gpd)	(gpm)	(gpd)	(gpm)	
Upper Otter Creek (Boone Rd. Area)	206,000	1,100	304,000	(2)	
Pawley Creek (Lavista Estate & Rineyville)	265,000	(1)	346,000	(2)	
Brushy Fork (Burns-Deckard School Rd.)	314,000	750	427,000	1,000	
Lower Otter Creek			135,000	2,000	
Flippin Creek			106,000	280	
Upper Pawley Creek			171,000	(2)	

(1) Part of Upper Otter Creek Pump Station

(2) Part of Lower Otter Creek Pump Station

We have included figures showing the location of these service areas and potential pump station locations. Based on the location of these stations, several of them may either pump in a common forcemain or be double pumped.

We are requesting the following information be provided by the City:

- 1. Location where forcemains or gravity sewers would have to be installed to for each service area so as to not overload your collection system.
- 2. Any capital costs required to be paid by these new customers as a result of their connection into your system. These costs may result from modifications the City

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Ronald Yates, Water/Sewer Superintendent City of Vine Grove Page 2 November 14, 2005

may be required to do to accept their discharge. Please break these costs out by service area.

3. The costs to be paid for wastewater conveyance and treatment by your POTW. Typically these costs are reported on a per 1000 gallons basis and may include customer charges or other charges.

We are available to review this request if you should have any questions. Please reply at your earliest opportunity as this information will be required to complete the alternatives evaluation in the County Facilities Plan. Thank you for your assistance.

Sincerely,

STRAND ASSOCIATES, INC.

Mark A. Sneve, P.E.

Attachment: Figures

cc: Dan Dorlack, HCWD2

November 15, 2005

Mr. Brett Pyles, Operations Manager Hardin County Water District No. 1 1400 Rogersville Road Radcliff, Kentucky 40160

Re: Hardin County Regional Wastewater Planning - Information Request

Dear Mr. Pyles:

Strand Associates, Inc. is working with Hardin County Water District No. 2 to complete a comprehensive regional wastewater plan for Hardin County. We have developed possible alternatives for the study and request input from the Fort Knox Wastewater Facilities regarding the impacts and costs of bringing county wastewater to your collection system for transportation and treatment. Specifically, the plan is considering the following areas and flows (peak hourly and average daily) that may be served by your facility:

Service Area	By 2015		By 2025	
	Average	Peak	Average	Peak
	Daily	Hourly	Daily	Hourly
	Flow	flow	Flow	flow
	(gpd)	(gpm)	(gpd)	(gpm)
Upper Otter Creek (Boone Rd. Area)	206,000	1,100	304,000	1,400
Pawley Creek (Lavista Estate & Rineyville)	265,000	(1)	346,000	(1)
Brushy Fork (Burns-Deckard School Rd.)	314,000	750	427,000	1,000
Mill Creek			167,000	420
Cedar Creek			50,000	140

(1) Part of Upper Otter Creek Pump Station

We have included figures showing the location of these service areas and potential pump station locations. Based on the location of these stations, several of them may either pump in a common forcemain or be double pumped.

We are requesting the following information be provided by the City:

- 1. Location where forcemains or gravity sewers would have to be installed to for each service area so as to not overload your collection system.
- 2. Any capital costs required to be paid by these new customers as a result of their connection into your system. These costs may result from modifications the

Mr. Brett Pyles, Operations Manager Hardin County Water District No. 1 Page 2 November 15, 2005

Utility may be required to do to accept their discharge. Please break these costs out by service area.

3. The costs to be paid for wastewater conveyance and treatment by the Fort Knox facility. Typically these costs are reported on a per 1000 gallons basis and may include customer charges or other charges.

We are available to review this request if you should have any questions. Please reply at your earliest opportunity as this information will be required to complete the alternatives evaluation in the County Facilities Plan. Thank you for your assistance.

Sincerely,

STRAND ASSOCIATES, INC.

Mark A. Sneve, P.E.

Attachment: Figures

cc: Dan Dorlack, HCWD2

November 16, 2005

Mr. Charlie Bryant, Executive Assistant City of Elizabethtown 200 W. Dixie P.O. Box 550 Elizabethtown, Kentucky 42702

Re: Hardin County Regional Wastewater Planning - Information Request

Dear Mr. Bryant:

Strand Associates, Inc. is working with Hardin County Water District No. 2 to complete a comprehensive regional wastewater plan for Hardin County. We have developed possible alternatives for the study and request input from the City of Elizabethtown regarding the impacts and costs of bringing county wastewater to your collection system for transportation and treatment. Specifically, the plan is considering the following areas and flows (peak hourly and average daily) that may be served by your POTW:

Service Area	D 0015				
Service Area	By 2	2015	By 2	By 2025	
	Average	Peak	Average	Peak	
	Daily	Hourly	Daily	Hourly	
	Flow	flow	Flow	flow	
Linner Sherry Creat (G. 11)	(gpd)	(gpm)	(gpd)	(gpm)	
Mill Creek (Smithersville)	182,000	460	341,000	800	
Mill Creek Branch (Aireview Estate)	231,000	650	268,000	650	
Buffalo Creek (Bardstown Rd. Area)	162,000	410	195,000	500	
Upper Younger Creek (Springfield Road Area)	116,000	300	158,000	400	
Middle Creek Branch (Thoroughbred Estate)	57,000	200	67,000	200	
East Rhudes Creek (Oxmoor Village &	255,000	620	332,000	(1)	
Hodgenville)			· ·		
North Upper Nolin River (Gilead Church -	2,386,000	4,300	2,480,000	4 700	
Glendale Rd.)			, , , , , , , , , , , , , , , , , , , ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Rose Run (Glendale – North Glendale)	75,000	200	106.000		
West Rhudes Creek (Cecilia)	113,000	300	131,000	$\left[\begin{array}{c} (1) \\ (1) \end{array} \right]$	
Dorsey Run (Sonora)	58,000	300	67 000		
Sandy Creek (Upton)	34,000	(2)	38,000	(2)	
Valley Creek (Industrial Area)	594.000	1 300	1 2/3 000	2 500	
Billy Creek		1,500	240,000	2,300	
Upper West Rhudes Creek			240,000		
Lower Valley Creek			39,000	-(1)	
Nolin River				(4)	
Cox Run			$-\frac{48,000}{28,000}$		
Upper Nolin River			22,000	(3)	
Jackson Branch			16,000	4700	
			83,000	(3)	

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Mr. Charlie Bryant, Executive Assistant City of Elizabethtown Page 2 November 16, 2005

Upper Valley Creek	 	158,000	400
Clear Creek	 	169,000	430
Upper Buffalo Creek	 	92,000	250
Upper Freeman Creek	 	66,000	180
Cedar Creek	 	50,000	140

(1) Part of Lower Valley Creek Pump Station

- (2) Part of Dorsey Run Pump Station
- (3) Part of Upper Nolin Pump Station
- (4) Part of Nolin River Pump Station

We have included figures showing the location of these service areas and potential pump station locations. Based on the location of these stations, several of them may either pump in a common forcemain or be double pumped.

We are requesting the following information be provided by the City:

- 1. Location where forcemains or gravity sewers would have to be installed to for each service area so as to not overload your collection system.
- 2. Any capital costs required to be paid by these new customers as a result of their connection into your system. These costs may result from modifications the City may be required to do to accept their discharge. Please break these costs out by service area.
- 3. The costs to be paid for wastewater conveyance and treatment by your POTW. Typically these costs are reported on a per 1000 gallons basis and may include customer charges or other charges.

We are available to review this request if you should have any questions. Please reply at your earliest opportunity as this information will be required to complete the alternatives evaluation in the County Facilities Plan. Thank you for your assistance.

Sincerely,

STRAND ASSOCIATES, INC.

Mark A. Sneve, P.E.

Attachment: Figures

cc: Dan Dorlack, HCWD2

November 14, 2005

Julia Thurman, Wastewater Manager City of Radcliff 411 West Lincoln Trail Blvd. P.O. Drawer 519 Radcliff, Kentucky 40160

Re: Hardin County Regional Wastewater Planning - Information Request

Dear Ms. Thurman:

Strand Associates, Inc. is working with Hardin County Water District No. 2 to complete a comprehensive regional wastewater plan for Hardin County. We have developed possible alternatives for the study and request input from the City of Radcliff regarding the impacts and costs of bringing county wastewater to your collection system for transportation and treatment. Specifically, the plan is considering the following areas and flows (peak hourly and average daily) that may be served by your POTW:

Service Area	By 2	015	By 2025	
	Average	Peak	Average	Peak
	Daily	Hourly	Daily	Hourly
	Flow	flow	Flow	flow
	(gpd)	(gpm)	(gpd)	(gpm)
Upper Shaw Creek (Smithersville)	182,000	460	341,000	800
Upper Otter Creek (Boone Rd. Area)	206,000	1,100	304,000	(2)
Pawley Creek (Lavista Estate & Rineyville)	265,000	(1)	346,000	(2)
Brushy Fork (Burns-Deckard School Rd.)	314,000	750	427,000	1,000
Mill Creek Branch (Aireview Estate)	231,000	650	268,000	(3)
Mill Creek			167,000	1,000
Lower Otter Creek			135,000	2,000
Flippin Creek (moved from Rural)			106,000	280
Upper Pawley Creek			171,000	(2)
Billy Creek			240,000	600
Upper West Rhudes Creek			89,000	240
(1) Dout of Llanon Otton Carola Davas Statis	•		· · · · ·	

(1) Part of Upper Otter Creek Pump Station

(2) Part of Lower Otter Creek Pump Station

(3) Part of Mill Creek Pump Station

Julia Thurman, Wastewater Manager City of Radcliff Page 2 November 10, 2005

We have included figures showing the location of these service areas and potential pump station locations. Based on the location of these stations, several of them may either pump in a common forcemain or be double pumped.

We are requesting the following information be provided by the City:

- 1. Location where forcemains or gravity sewers would have to be installed to for each service area so as to not overload your collection system.
- 2. Any capital costs required to be paid by these new customers as a result of their connection into your system. These costs may result from modifications the City may be required to do to accept their discharge. Please break these costs out by service area.
- 3. The costs to be paid for wastewater conveyance and treatment by your POTW. Typically these costs are reported on a per 1000 gallons basis and may include customer charges or other charges.

We are available to review this request if you should have any questions. Please reply at your earliest opportunity as this information will be required to complete the alternatives evaluation in the County Facilities Plan. Thank you for your assistance.

Sincerely,

STRAND ASSOCIATES, INC.

Mark A. Sneve, P.E.

Attachment: Figure

cc: Dan Dorlack, HCWD2

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Typical Info Request Letter

March 11, 2005

Mr. Charlie Bryant, Executive Assistant City of Elizabethtown 200 W. Dixie P.O. Box 550 Elizabethtown, Kentucky 42702

Re: Hardin County Regional Wastewater Planning List of Information Requested

Dear Mr. Bryant:

Strand Associates, Inc. has been retained by Hardin County Water District No. 2 to complete a comprehensive regional wastewater plan for Hardin County. We anticipate the plan to consider use of your existing infrastructure. In anticipation of this, we hereby request the information listed below. Strand Associates will be happy to visit your office and assist you in gathering this information.

- 1. Copies of monthly DMRs from January 2002 to present,
- 2. Copies of other plant operation data not reported on DMRs from January 2002 to present,
- 3. Copies of current KPDES permit and any agreed orders currently in force or under development,
- 4. Copies of financial audits for the last 2 years, debt service schedule, and wastewater O&M cost breakdown (last 2 years),
- 5. Copy of present sewer use ordinance,
- 6. Copies of construction plans and specs for major wastewater pumping stations and the City WWTP (prepared by others),
- 7. Existing land use zoning map,
- 8. Areas of known or anticipated expansion of the sewer service area, with associated zoning,
- 9. Copies of present sewer service rate schedules, customer use group counts (including residential, commercial, institutional, and industrial users),
- 10. Location of unsewered areas within the existing sewer service area,
- 11. Copies of any previous wastewater planning documents (prepared by others),
- 12. Location and number of all known failing septic tanks and straight pipe discharges within the existing planning area,
- 13. Information on all known bypasses and overflows in the collection system including location and dates of bypasses and overflows, causes and duration of bypasses and overflows,

Mr. Charlie Bryant, Executive Assistant City of Elizabethtown Page 2 March 11, 2005

- 14. List of certified wastewater operators, their classification, license number, and years of experience,
- 15. Number of staff used for current operation and maintenance for the treatment plant and collection system,
- 16. Industrial discharge information (name, location, quantity of discharge, waste strength 2 years of information), copies of industrial user permits,
- 17. List of operation or maintenance concerns for collection system components (sewers, interceptors, pumping stations, and force mains),
- 18. List of operation or maintenance concerns for wastewater treatment plant components,
- 19. Number of years each major pump station and the WWTP has been in service and the year(s) of any renovations.
- 20. Water use records for billing your sewer customers (2 years worth, sorted by user class, if possible),
- 21. Sludge/biosolids disposal information including tons removed the last three years, location of disposal, and copies of any permits associated with disposal,
- 22. Infiltration and inflow information including past studies/reports,
- 23. Current collection system map(s),
- 24. Copies of most recent construction drawings for WWTP (record drawings or asbuilts), and
- 25. Copies of typical WWTP influent and effluent daily flow charts for dry weather day and wet weather day.

Thank you for your assistance. When possible, we prefer to receive electronic files for this data (CAD/GIS files for drawing/mapping data, Excel/Word files for the tabular data).

Strand Associates (with HCWD#2) personnel would like to make arrangements for a tour of your facilities in the next three weeks. We would be happy to assist in gathering this data at that time. We look forward to working with you as we discuss plans for wastewater treatment in Hardin County. If have any questions, please feel free to call give me a call.

Sincerely,

STRAND ASSOCIATES, INC.

Mark A. Sneve, P.E.



ERNIE FLETCHER GOVERNOR

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

DEPARTMENT FOR ENVIRONMENTAL PROTECTION

TERESA J. HILL SECRETARY

JAN 22 2007

STRAND ASSOCIATES, INC.

LOUISVELE, KY

DIVISION OF WATER 14 REILLY ROAD FRANKFORT, KENTUCKY 40601-1190 www.kentucky.gov

January 18, 2007

Mark A. Sneve, P.E. Strand Associates, Incorporated Waterfront Plaza Suite 710 325 West Main Street Louisville, Kentucky 40202

> Re: Preliminary Limits / Wastewater Facilities Plan Hardin County Water District No. 2 Hardin County, Kentucky

E

Dear Mr. Sneve:

This is in response to your September 29, 2005 letter requesting wasteload allocations (WLAs) for potential new wastewater treatment plants (WWTPs) in Hardin County. The WLA information will be utilized in preparation of a Regional Wastewater Facilities Plan for the subject water district. Per your correspondence, three potential sites are being investigated:

- Nolin River WWTP Proposed discharge is to segment 03026, at approximately mile point 93.1 of the Nolin River. Design capacities being considered are for a 3.5 mgd initial and 10.5 mgd ultimate facility.
- Proposed Younger Creek WWTP Proposed discharge is to segment 12034, at approximately mile point 1.2 of Younger Creek. Design capacities being considered are for a 1.0 mgd initial and 3.0 mgd ultimate facility.
- Proposed Otter Creek WWTP Proposed discharge is to segment 08044, at approximately mile point 19.7 of Otter Creek. Design capacities being considered are for a 2.0 mgd initial and 6.0 mgd ultimate facility.

We concur in this proposal with the following provisions:

Applicable effluent limitations for the proposed Nolin River and Otter Creek sites and design capacities are listed below. Please note that since the WWTP locations are approximate locations, no site surveys were conducted. Once specific sites are chosen for further consideration, please let me know so that site surveys can be conducted. Regional Office inspectors generally investigate to determine if a proposed facility is within the floodplain, the proximity of existing houses, the necessity of possible easements, etc.

Nolin River WWTP (approximate mile point 93.1)

Design Flow = 3.5 MGD

	<u>May 1 - Octob</u>	<u>er 31</u>	<u>November 1 - April</u>	30
CBOD ₅	25	mg/l	25 mg	g/1
Total Suspended Solids	30	mg/l	30 mg	g/l
Ammonia Nitrogen	20	mg/l	20 mg	y/l
Dissolved Oxygen	7	mg/l	7 mc	1/1
Total Residual Chlorine	0.011	mg/l	0.011 mc	/l
Reliability Classification =	= Grade 1		-	



Mr. Mark A. Sneve Hardin County Water District No. 2 Page Two

Destau trow - 10.3 Web	Design	Flow	=	10.5	MGD
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	<u>May 1 - October 31</u>	<u>November 1</u> - April 30
CBOD ₅	25 mg/l	25 mg/l
Total Suspended Solids	30 mg/l	30 mg/1
Ammonia Nitrogen	10 mg/l	20 mcr/1
Dissolved Oxygen	7 mg/1	7 mg/1
Total Residual Chlorine	0.011 mg/1	0.011 mg/
Reliability Classification :	= Grade 1	

Otter Creek WWTP (approximate mile point 19.7)

Design Flow = 2.0 MGD or 6.0 MGD

	<u>May 1 – Octob</u>	<u>er 31</u>	November 1 - Apr	il 30
CBOD ₅	25	mg/l	25	 mg/l
Total Suspended Solids	30	mg/l	30	mq/l
Ammonia Nitrogen	4	mg/l	10	ma/l
Dissolved Oxygen	7	mg/l	7	$m\alpha/1$
Total Residual Chlorine	0.011	mg/l	0.011	-∵∍/- mor/1
Reliability Classification	= Grade 1	-		<u>-</u> g/ ±

In addition to the above limitations, the monthly geometric mean and weekly geometric mean values of E. Coli shall be at or below 130 colonies per 100 ml or 240 colonies per 100 ml, respectively, the year around. If a form of chlorine is proposed for wastewater disinfection, then dechlorination will be required by your Kentucky Pollutant Discharge Elimination System (KPDES) permit. Some suitable form of effluent post aeration may also be necessary in order to produce the required dissolved oxygen concentration. Additional effluent limitations and water quality standards are contained in the Division of Water Regulations.

Please note that the proposed Younger Creek site is not considered a viable option for location of a wastewater treatment facility. Wasteload allocation modeling indicates dissolved oxygen violations downstream of the proposed Younger Creek WWTP in the Rolling Fork River. Due to the relatively low flow of the Rolling Fork River, along with the combined effects of discharges from the proposed Younger Creek WWTP, facilities located on Beech Fork, and the Lebanon Junction WWTP, the assimilative capacity of the Rolling Fork River is not sufficient to accommodate the loading from the proposed Younger Creek WWTP.

These preliminary design effluent limitations are valid for one (1) year from the date of this letter, and are subject to change as a result of additional information which may be presented during the public notice phase of the KPDES permitting process. Please note that this letter does not convey authorization or approval to proceed with the construction or operation of the proposed wastewater treatment facilities. Construction and KPDES permit applications must be submitted to request such authorization. Nor does this letter ensure the issuance of either permit. During the review processes of these permits the Division of Water will further evaluate the viability of the project.

On a personal note, please accept my apology for any inconvenience caused due to delays in providing this response. The backlog of preliminary WLA requests increased temporarily due to the WLA Coordinator position being vacant for several months. In addition, it has been necessary for the KPDES Branch to implement a permit backlog reduction initiative, which has required affected staff to reprioritize job duties, further impacting the backlog. However, a concerted effort is being made to reduce the backlog of preliminary WLA requests to facilitate a more timely response for future requests.

Mr. Mark A. Sneve Hardin County Water District No. 2 Page Three

Should you have any questions regarding this letter, please contact me at (502) 564-2225, extension 465 or e-mail at Courtney.Seitz@ky.gov.

Sincerely,

(autrug Seitz Courtney Seitz, WLA Coordinator KPDES Branch Division of Water

CS:

Ċ: Facilities Construction Branch Louisville Regional Office Division of Water Files

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APPENDIX F POPULATION PROJECTIONS AND ALTERNATIVES EVALUATION FOR ELIZABETHTOWN WATERSHEDS

INTRODUCTION

During the development of this facilities plan, population projections were developed and alternatives were evaluated for 31 watersheds in Hardin County, KY. The City of Elizabethtown, KY updated and expanded their planning area during 2007 which included 10 of these watersheds. This section illustrates the population data alternatives evaluation for those and watersheds adopted by the city of Elizabethtown's updated planning area.

POPULATION DATA

Table 1 lists the Year 2003 population data for watersheds adopted by the city of Elizabethtown's planning area and indicates in which service area in the HCWD2 planning area they were considered.

Table 2 summarizes the projected 2017 and 2027 population data for the adopted watersheds. In the case of the Valley Creek Industrial Area, an equivalent population was developed to estimate anticipated industrial flow.

Northern Service Area	2003 Population
<u>0-10 year</u>	
Upper Shaw Creek (Smithersville)	541
<u>10-20 year</u>	
Upper Freeman Creek	453
Southern Service Area	
<u>0-10 year</u>	
East Rhudes Creek (Oxmoor Village & Hodgenville)	1944
Middle Creek Branch (Thoroughbred Estates)	485
West Rhudes Creek (Cecilia)	992
<u>10-20 year</u>	
Billy Creek	1298
Eastern Service Area	
<u>0-10 year</u>	
Buffalo Creek (Bardstown Rd Area)	1360
<u>10-20 year</u>	
Upper Valley Creek	1184
Upper Buffalo Creek	588
Valley Creek Service Area	
Valley Creek (New Glendale Road)	394
Valley Creek (Industrial Area)	353

Table 1 Populations of Select Subwatersheds (Year 2003)

Northern Service Area	2017 Population	2027 Population
Upper Shaw Creek (Smithersville)	1,820	3,410
Upper Freeman Creek	N/A	660
Southern Service Area		
East Rhudes Creek (Oxmoor Village & Hodgenville)	2,550	3,320
Middle Creek Branch (Thoroughbred Estates)	570	670
West Rhudes Creek (Cecilia)	1,130	1,310
Billy Creek	N/A	2,400
Eastern Service Area		
Buffalo Creek (Bardstown Rd Area)	1,620	1,950
Upper Valley Creek	N/A	1,580
Upper Buffalo Creek	N/A	920
Valley Creek Service Area		
Valley Creek (New Glendale Road)	670	1,017
Valley Creek (Industrial Area)	5,270	11,410

Table 2 Elizabethtown Planning Area Watershed PopulationProjections

Table 3 illustrates the flows that can be expected at the Elizabethtown WWTP in Year 2017.

Watershed	Eq. Population	Peak Factor	ADF (gpd)	PHF (gpm)
Northern Service Area				
Upper Shaw Creek (Smithersville)	1,820	3.62	182,000	457
Southern Service Area				
East Rhudes Creek (Oxmoor Village & Hodgenville)	2,550	3.50	255,000	620
Middle Creek Branch (Thoroughbred Estates)	570	3.94	57,000	156
West Rhudes Creek (Cecilia)	1,130	3.77	113,000	295
Eastern Service Area				
Buffalo Creek (Bardstown Rd Area)	1,620	3.66	162,000	411
Valley Creek Service Area				
Valley Creek (New Glendale Road)	670	3.91	67,000	182
Valley Creek (Industrial Area)	5,270	3.22	527,000	1,180
Total Average Daily Flow to Elizabethtown WWTP	13,630	2.82	1,363,000	2,669
Table 3 Design Year 2017				

The following table illustrates the flows that can be expected at the Elizabethtown WWTP in Year 2027.

Watershed	Eq. Population	Peak Factor	ADF (apd)	PHF (apm)
Northern Service Area				
Upper Shaw Creek (Smithersville)	3,410	3.39	341,000	804
Upper Freeman Creek	660	3.91	66,000	179
Southern Service Area				
East Rhudes Creek (Oxmoor Village & Hodgenville)	3,320	3.40	332,000	785
Middle Creek Branch (Thoroughbred Estates)	670	3.91	67,000	182
West Rhudes Creek (Cecilia)	1,310	3.72	131,000	339
Billy Creek	2,400	3.52	240,000	587
Eastern Service Area				
Buffalo Creek (Bardstown Rd Area)	1,950	3.59	195,000	487
Upper Valley Creek	1,580	3.66	158,000	402
Upper Buffalo Creek	920	3.82	92,000	244
Valley Creek Service Area				
Valley Creek (New Glendale Road)	1,020	3.79	102,000	269
Valley Creek (Industrial Area)	11,410	2.90	1,141,000	2,296
Additional Average Daily Flow in 2025	15,020	2.78	1,502,000	2,897
Total Average Daily Flow to Elizabethtown WWTP	28,650	2.50	2,865,000	4,968

Table 4 Design Year 2027

The following pages illustrate the alternatives evaluations for the watersheds adopted into the City of Elizabethtown's planning area. The Buffalo Creek, Upper Buffalo Creek, and Upper Valley Creek Watersheds only illustrate the alternative of conveying wastewater to the Elizabethtown collection system. These watersheds were evaluated to convey wastewater to the Younger Creek WWTP (the new proposed east county WWTP), but Kentucky Division of Water will not allow a WWTP to be constructed to discharge into Younger Creek.

TABLE 5

ELIZABETHTOWN ADOPTED WATERSHEDS 2017-UPPER SHAW CREEK WATERSHED

		Conveya	ance and Treatment Alternatives		
	Size	Radcliff	Elizabethtown	Otter	
	(in)	WWTP	WWTP	Creek WWTP	
Population		1820	1820	1820	
Residential Flow (mgd)		0.182	0.182	0.182	
Industrial Flow (mgd)					
Total Flow (mgd)		0.182	0.182	0.182	
Pumping Stations					
Number		2	1	2	
Capacity (gpm)		460	460	460	
		460		460	
Gravity Interceptors (If)					
Clavity interceptors (ii)	8	2 430	2 430	2 430	
	10	3 950	2,450	2,400	
	10	0,000	0,550 0	0,000	
	12	1 070	1 070	1 070	
	15	1,070	1,070	1,070	
Manholes (number)		30	30	30	
Force Main (If)					
(),	8	54,700	3,440	41,870	
	10	0	0	0	
	12	0	0	0	
Total Present Worth					
Operation and Maintenance (20 yr)		Ф Т 405 000	¢ 4 04 4 000	¢c 000 000	
Operation and Maintenance (20 yr)		\$7,185,000 \$5,747,000	\$4,814,000	\$5,682,000	
Salvage		\$5,747,000	\$2,930,000	5,785,000	
Total Present Worth		\$12,932,000	\$7,744,000	\$11,467,000	
Percent Greater Than Most Cost-Effective Alternative		67%	0%	48%	

TABLE 6

ELIZABETHTOWN ADOPTED WATERSHEDS 2027-UPPER SHAW CREEK WATERSHED

	Conveyance and Treatment Alternatives				
	Size	Radcliff	Elizabethtown	Otter	
	(in)	WWTP	WWTP	Creek WWTP	
Population		3410	3410	3410	
Residential Flow (mgd)		0.341	0.341	0.341	
Industrial Flow (mgd)					
Total Flow (mgd)		0.341	0.341	0.341	
Pumping Stations					
Number		2	1	2	
Capacity (gpm)		800	800	800	
		800		800	
Gravity interceptors (ii)	0	0	0	0	
	0 10	0	0	0	
	10	0	0	0	
	12	0	0	0	
	15	0	0	0	
Manholes (number)		0	0	0	
Force Main (If)				_	
	8	0	0	0	
	10	0	0	0	
	12	0	0	0	
Total Present Worth					
Operation and Maintenance (20 yr)		\$1 395 000	\$1 035 000	\$790.000	
Initial Capital Costs		\$663,000	\$404 000	\$597,000	
Salvage		<i>Q</i> QQQQQQQQQQQQQ	<i>Q</i> 10 1,000	<i>Q</i> OOOOOOOOOOOOO	
Total Present Worth		\$2,058,000	\$1,439,000	\$1,387,000	
Percent Greater Than Most Cost-Effective Alternative		48%	4%	0%	

TABLE 7

ELIZABETHTOWN ADOPTED WATERSHEDS 2027-UPPER FREEMAN CREEK WATERSHED

		and Treatment atives	
	Size	Elizabethtown	Otter
	(in)	WWTP	Creek WWTP
Population		660	660
Residential Flow (mgd)		0.066	0.066
Industrial Flow (mgd)			
Total Flow (mgd)		0.066	0.066
Pumping Stations			
Number		1	2
Capacity (gpm)		180	180
			180
Gravity interceptors (II)	o	2 070	2 070
	0 10	3,970	3,970
	10	0	0
	15	0	0
	10	Ū	0
Manholes (number)		16	16
Force Main (If)			
	4	5,770	73,380
	6	0	0
	8	0	0
Total Present Worth			
Operation and Maintenance (20	yr)	\$637,000	\$1,273,000
Initial Capital Costs		\$701,000	\$2,458,000
Salvage			
Total Present Worth		\$1,338,000	\$3,731,000
Percent Greater Than Most		0%	179%
Cost-Effective Alternative		0 /0	11070
ELIZABETHTOWN ADOPTED WATERSHEDS 2017- BUFFALO CREEK WATERSHED

		Conveyance and Treatment Alternatives
-	Size (in)	
Population Residential Flow (mgd)		1620 0.162
Industrial Flow (mgd) Total Flow (mgd) Pumping Stations		0.162
Number Capacity (gpm)		1 400
Gravity Interceptors (If)		
	8	0
	10	7,900
	15	0
Manholes (number)		32
Force Main (If)		
	4	0
	6 8	4,990 0
Total Present Worth		
Operation and Maintenance (20 Initial Capital Costs	yr)	\$4,104,000 \$2,573,000

I otal Present Worth		\$6,677,000
Percent Greater Than Most Cost-Effective Alternative		N/A

ELIZABETHTOWN ADOPTED WATERSHEDS 2027- BUFFALO CREEK WATERSHED

		Conveyance and Treatment Alternatives
	Size	
_	(in)	
Population		1,950
Residential Flow (mgd)		0.195
Industrial Flow (mgd)		0.405
l otal Flow (mgd)		0.195
Pumping Stations		4
		500
Capacity (gpm)		500
Gravity Interceptors (If)		
	8	0
	10	0
	12	U
	15	0
Manholes (number)		0
Force Main (If)		
ζ,	4	0
	6	4,990
	8	0
Total Present Worth		
Operation and Maintenance (20	vr)	\$515.000
Initial Capital Costs	<i>J</i> - <i>J</i>	\$210,000
Salvage		
Total Present Worth		\$725,000
Percent Greater Than Most		N/A
Cost-Effective Alternative		

ELIZABETHTOWN ADOPTED WATERSHEDS 2027- UPPER BUFFALO CREEK WATERSHED

		Conveyance and Treatment Alternatives
S	Size	
((in)	
Population		920
Residential Flow (mgd)		0.092
Industrial Flow (mgd)		
Total Flow (mgd)		0.092
Pumping Stations		
Number		1
Capacity (gpm)		250
Gravity Interceptors (If)		
	8	11,800
	10	0
	12	0
	15	Ŭ
Manholes (number)		47
Force Main (If)		
	6	38,810
	8	0
	10	0
Total Present Worth		
Operation and Maintenance (20 yr)		\$1,040,000
Initial Capital Costs		\$1,345,000
Salvage		
Total Present Worth		\$2,385,000
Percent Greater Than Most Cost-Effective Alternative		N/A

ELIZABETHTOWN ADOPTED WATERSHEDS 2027- UPPER VALLEY CREEK WATERSHED

		Conveyance and Treatment Alternatives
	Size	
_	(in)	
Population		1,580
Residential Flow (mgd)		0.158
Total Flow (mgd)		0 0 158
Pumping Stations		0.150
Number		1
Capacity (gpm)		400
Gravity Interceptors (If)		
	8	32,220
	10	0
	12	0
	15	0
Manholes (number)		129
Force Main (If)		
	8	14,590
	10	0
	12	0
Total Present Worth		
Operation and Maintenance (20	yr)	\$2,049,000
Initial Capital Costs		\$2,960,000
Total Present Worth		\$5,009,000
Percent Greater Than Most		N/A
Cost-Effective Alternative		

ELIZABETHTOWN ADOPTED WATERSHEDS 2017- VALLEY CREEK WATERSHED

		Conveyance and Treatment Alternatives
	Size	
	(in)	_
Population		5,940
Residential Flow (mgd)		0.594
Industrial Flow (mgd)		
Total Flow (mgd)		0.594
Pumping Stations		
		1
Capacity (gpm)		500
Gravity Interceptors (If)	0	
	8	0
	10	0
	12	5 960
	15	5,000
Manholes (number)		23
Force Main (If)		
	8	0
	10	5,860
	12	0
Total Present Worth		
Operation and Maintenance (20	vr)	\$10.143.000
Initial Capital Costs		\$2,513,000
Salvage		. ,,
Total Present Worth		\$12,656,000
Percent Greater Than Most		N/A
Cost-Effective Alternative		

ELIZABETHTOWN ADOPTED WATERSHEDS 2027- VALLEY CREEK WATERSHED

	Size	Conveyance and Treatment Alternatives
-		
Population		12,430
Residential Flow (mgd)		1.243
Industrial Flow (mgd)		
Total Flow (mgd)		1.243
Pumping Stations		
Number		1
Capacity (gpm)		800
Gravity Interceptors (If)		
	8	0
	10	0
	12	0
	15	0
Manholes (number)		0
Force Main (If)		
	8	0
	10	0
	12	0
Total Present Worth		
Operation and Maintenance (20	vr)	\$3.624.000
Initial Capital Costs		\$738,000
Salvage		
Total Present Worth		\$4,362,000
Percent Greater Than Most		N/A
Cost-Effective Alternative		

ELIZABETHTOWN ADOPTED WATERSHEDS 2017- EAST RHUDES CREEK WATERSHED

		Conveyance and Treatment Alternatives		
	Size	Elizabethtown	Nolin	
	(in)	WWTP	River WWTP	
Population		2,550	2,550	
Residential Flow (mgd)		0.255	0.255	
Total Flow (mgd) Pumping Stations		0.255	0.255	
Number		1	1	
Capacity (gpm)		620	620	
Gravity Interceptors (If)				
	8	14,900	14,900	
	10	0	0	
	12	0	0	
	15	0	0	
Manholes (number)		60	60	
Force Main (If)				
	8	0	0	
	10	14,020	35,720	
	12	0	0	
Total Present Worth				
Operation and Maintenance (20 yr)		\$6,870,000	\$6,376,000	
Initial Capital Costs Salvage		\$4,713,000	\$6,367,000	
Total Present Worth		\$11,583,000	\$12,743,000	
Percent Greater Than Most Cost-Effective Alternative		0%	10%	

ELIZABETHTOWN ADOPTED WATERSHEDS 2027- EAST RHUDES CREEK WATERSHED

	Conveyance Alteri		and Treatment natives	
	Size	Elizabethtown	Nolin	
_	(in)	WWTP	River WWTP	
Population		3,320	3,320	
Residential Flow (mgd)		0.332	0.332	
Industrial Flow (mgd)				
Total Flow (mgd)		0.332	0.332	
Pumping Stations		4	4	
		1	1	
Capacity (gpm)		790	790	
Gravity Interceptors (LF)				
	8	0	0	
	10	11,790	11,790	
	12	0	0	
	15	0	0	
			47	
Manholes (number)		47	47	
Force Main (LF)				
· · · ·	8	0	0	
	10	5,930	27,880	
	12	0	0	
Total Present Worth				
Operation and Maintenance (20) yr)	\$1,099,000	\$1,527,000	
Initial Capital Costs	5 /	\$1,380,000	\$2,671,000	
Salvage				
Total Present Worth		\$2,479,000	\$4,198,000	
Percent Greater Than Most		0%	69%	
Cost-Effective Alternative				

ELIZABETHTOWN ADOPTED WATERSHEDS 2017- MIDDLE CREEK BRANCH WATERSHED

		Conveyance and Treatment Alternatives	
	Size	Elizabethtown	Nolin
	(in)	WWTP	River WWTP
Population		570	570
Residential Flow (mgd)		0.057	0.057
Industrial Flow (mgd)			
Total Flow (mgd)		0.057	0.057
Pumping Stations		2	2
Capacity (gpm)		200	200
		200	200
Gravity Interceptors (LF)	8	7 320	7 320
	10	0	0
	12	0	0
	15	0	0
Manholes (number)		29	29
Force Main (LF)			
, , , , , , , , , , , , , , , , , , ,	4	0	0
	6	45,870	60,130
	8	0	0
Total Present Worth			
Operation and Maintenance (20 yr))	\$3,809,000	\$3,888,000
Initial Capital Costs Salvage		\$4,312,000	\$5,154,000
Total Present Worth		\$8,121,000	\$9,042,000
Percent Greater Than Most Cost-Effective Alternative		0%	11%

ELIZABETHTOWN ADOPTED WATERSHEDS 2027- MIDDLE CREEK BRANCH WATERSHED

	Size (in)	Conveyance and Treatment Alternatives	
		Elizabethtown WWTP	Nolin River WWTP
Population		670	670
Residential Flow (mgd) Industrial Flow (mgd)		0.067	0.067
Total Flow (mgd) Pumping Stations		0.067	0.067
Number		0	0
Capacity (gpm)			
Gravity Interceptors (LF)			
	8	0	0
	10	0	0
	12	0	0
•• • • • • • •	15	0	0
Manholes (number)		0	0
Force Main (LF)			
	4	0	0
	6	0	0
	8	0	0
Total Present Worth			
Operation and Maintenance (20 y	r)	\$129,000	\$99,000
Initial Capital Costs Salvage		\$34,000	\$21,000
Total Present Worth		\$163,000	\$120,000
Percent Greater Than Most Cost-Effective Alternative		36%	0%

ELIZABETHTOWN ADOPTED WATERSHEDS 2017- WEST RHUDES CREEK WATERSHED

		Conveyance and Treatment Alternatives		
	Size	Elizabethtown	Nolin	
	(in)	WWTP	River WWTP	
Population		1 130	1 130	
Residential Flow (mad)		0 113	0 113	
Industrial Flow (mgd)		0	0.113	
Total Flow (mgd)		0 113	0 113	
Pumping Stations		0.113	0.113	
Number		1	1	
Capacity (gpm)		300	300	
Capacity (gpm)		500	300	
Gravity Interceptors (If)				
	8	0	0	
	10	0	0	
	12	6,780	6,780	
	15	0	0	
Manholes (number)		27	27	
Force Main (If)				
	6	11,680	25,480	
	8	0	0	
	10	0	0	
Total Present Worth				
Operation and Maintenance (20 yr)	\$3,342,000	\$3,180,000	
Initial Capital Costs		\$2,537,000	\$3,355,000	
Salvage				
Total Present Worth		\$5,879,000	\$6,535,000	
Percent Greater Than Most		0%	11%	

ELIZABETHTOWN ADOPTED WATERSHEDS 2027- WEST RHUDES CREEK WATERSHED

		Conveyance and Treatment Alternatives		
	Size	Elizabethtown	Nolin	
-	(in)	WWTP	River WWTP	
Population		1,310	1,310	
Residential Flow (mgd)		0.131	0.131	
Industrial Flow (mgd)		0	0	
Total Flow (mgd)		0.131	0.131	
Pumping Stations		1	1	
		240	340	
Capacity (gpm)		540	540	
Gravity Interceptors (LF)				
	8	15.930	15.930	
	10	3.250	3.250	
	12	0	0	
	15	8,890	8,890	
Manholes (number)		112	112	
Force Main (LF)				
	6	14,060	21,560	
	8	0	0	
	10	0	0	
Total Present Worth				
Operation and Maintenance (20) yr)	\$1,108,000	\$1,279,000	
Initial Capital Costs		\$2,296,000	\$2,738,000	
Salvage				
Total Present Worth		\$3,404,000	\$4,017,000	
Percent Greater Than Most Cost-Effective Alternative		0%	18%	

ELIZABETHTOWN ADOPTED WATERSHEDS 2027- BILLY CREEK WATERSHED

		Conveyance and Treatn	nent Alternatives
	Size	Elizabethtown	Nolin
	(in)	WWTP	River WWTP
Population		2,400	2,400
Residential Flow (mgd)		0.24	0.24
Industrial Flow (mgd)			
Total Flow (mgd) Pumping Stations		0.24	0.24
Number		1	2
Capacity (gpm)		600	600 600
Gravity Interceptors (LF)			
	8	28,770	28,770
	10	8,690	8,690
	12	0	0
	15	0	0
Manholes (number)		150	150
Force Main (LF)			
	8	6,540	47,380
	10	0	0
	12	0	0
Total Present Worth			
Operation and Maintenance (2	0 yr)	\$2,621,000	\$2,790,000
Initial Capital Costs Salvage		\$3,316,000	\$4,658,000
Total Present Worth		\$5,937,000	\$7,448,000
Percent Greater Than Most Cost-Effective Alternative		0%	25%

APPENDIX G PRESENT WORTH ANALYSIS

INTRODUCTION

The costs of alternatives presented in this facilities plan are based on total present worth. The present worth analysis was used for the purpose of comparing the monetary costs of the alternatives evaluated.

The total present worth of an alternative is the amount of money needed to build, operate, and maintain the system over a 20-year period.

BASIS OF COST ANALYSIS

A. <u>Discount Rate</u>

The discount rate used for all present worth calculations is 7.00%. This is the annual percentage rate at which future sums were discounted on a compounded basis to determine their present value.

B. <u>Construction Costs</u>

Construction cost data was obtained by contacting area contractors and by examining Strand Associates files for other projects. The costs shown include installation of the structures and equipment.

C. <u>Operations and Maintenance Costs</u>

Operations and maintenance costs were computed in several ways. Municipal WWTPs were contacted to estimate the costs new customers would be charged for use of their WWTPs. The O&M costs for the new proposed WWTPs was computed by examining O&M costs for WWTPs of similar capacity. Pumping station and collection system O&M costs were projected by utilizing data from several wastewater treatment municipalities. Administration costs were estimated from data from other Strand Associates project files. Replacement costs were predicted from data from other Strand Associates project files. Debt costs were based on approximate interest rates on Kentucky state loans for water and wastewater construction projects.

D. <u>Professional Services and Contingencies</u>

Professional services including engineering, legal, bond counsel, interest during construction, and contingencies were estimated to be 40 percent of the estimated construction cost.

E. <u>General Conditions</u>

General conditions including a bid bond, performance bond, payment bonds, and insurance costs were estimated to be 8% of the estimated construction costs.

F. <u>Easements, Restoration and EPSC</u>

Easements, pavement and driveway restoration, and erosion and sediment control measures were estimated at 0.5%, 10%, and 1.5%, respectively, of the estimated construction costs for piping. These costs were obtained by looking at data from similar historic projects.

G. <u>Total Present Worth</u>

The procedures and assumptions for calculating total present worth are as follows:

- 1. Alternatives evaluated under Design Year 2015 were assumed to be constructed at year 0. Total present worth was calculated by adding the capital cost plus the present worth of a 20 year annuity of operation and maintenance cost.
- 2. Alternatives evaluated under Design Year 2025 were assumed to be constructed at year 10. Total present worth was calculated by adding the present worth of the capital costs discounted back to year 0, and the present worth of a 10 year annuity of operations and maintenance costs discounted back to year 0.

Hardin County Regional Facilities Plan

togional racilitios rian	
Service Area	Ballin Brushy Fork Creek
Alternative	Vine Grove WWTP 5
Dealgn Year	-2017
Design Population	NSE2:3140

Design Industrial Acros 2,07

Impact to Existing Utility: New force main proposed to be tied into existing WWTP Expand Existing WWTP

ITEM	UNIT COST	UNITS	NUMBER	T	COST
			OF UNITS	<u>۱</u>	
SRAVITY INTERCEPTOR SEWER				+	
8-INC	H \$ 55.0	0 PER LF	60010140	a s	612,700
10-INC	H 5 60.0	007 PERLF	18957603	\$	585,000
12-INC	H \$5.0	X) PER LF	國國國	\$	466,050
15-INC	HLS 70.0	XO) PERLF		<u> </u>	
18-INC	HIS 200 800	0 PER LF		<u>s</u>	
27-100		NI PERLE		\$	
27-11(0)	HUSSER	N PERLE		85	
30-INC	120 0	D PERIE	Las de	4	
33-INCI	130.0	PER LF			
36-INC	- SHERE H140.0	0 PER LF	5.000	Ť	
42-INC	1 \$3553 (160.0	PER LF		\$	
48-INC	180.0	Ø PER LF	In the second	\$	
VANHOLES	\$ 2,500.0	0 EACH	6460 (Zee	\$	280,000
FORCE MAIN	<u> </u>			⊢	
4-INC	13.000.300	0 PERIE	(4) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2	-	
6-INCH	1 \$	0 PER LF	10000000000000000000000000000000000000	1	
8-INCH	1 \$	0 PER LF		Š	
10-INCH	\$ 45.0	D PER LF	322245105	Ś	994,950
12-INCH	50,0	0 PER LF	1000000000	\$	-
14-INCH	S 60.0	0 PERLF	5.82783	\$	
16-INCH	\$ 70.0	0 PERLF		\$	-
18-INCF	S. 80.0	D PER LF	建酸化物	\$	-
24-fNCh	5 3 3 90,00	PER LF		\$	-
PUMP STATION (IE<1500 GPM LISE 150'GPM+100	000)	COM	1000 Provide	_	
PUMP STATION (IF>1500 GPM USE 215" GPM+550	000)	GPM	教育学校の主要な	Ş	212,500
PUMP STATION	BASE CONSTRUCT	GPM	2010/02/02/02/02/02		
	COMPANY OF THE PROPERTY OF		12003030435305		
VASTEWATER TREATMENT PLANT	5.4.00	AVE GPD	SSIMPLE CORE	s	-
				-	-
MPACT TO EXISTING UTILITY					
UPGRADE TO EXISTING COLLECTION SYSTEM		24 2	である。		
EXPAND EXISTING WWTP	S 4 00	AVE GPD	6314:0002	\$	1,256,000
SUBIDIAL BASE COST		-		\$	4,407,200
EASEMENTS	7803007 ··· 11/00/01/00				
RESTORATION (PAVEMENT AND DRIVEWAY)	0.07 0.010	2		<u>\$</u>	22,036
EROSION AND SEDIMENT CONTROL	2012010000159			\$	440,720
GENERAL CONDITIONS	89	6	╬╌╌╌╢	\$	352 576
	And a second second second second second		┼┈╌┤		552,575
SUBTOTAL CONSTRUCTION COST				ŝ	5,288,640
				فتكفأ	
CONTINGENCY AND TECHNICAL SERVICE	40%			\$	2,115,456
TOTAL CAPITAL COST OPINION**				\$	7,404,000
		L			
NNUAL OPERATION& MAINTENANCE		1	<u>г</u>		
WASTEWATER TREATMENT PLANTS	St. 10 10 135 00	1000 GAL	资值4.61D岁	s	573.050
PUMPING STATIONS	\$60.00	GPM	8827.50.335	Š	45,000
FORCE MAINS & INTERCEPTORS	\$0,10	PERLF	鐵501170黨	\$	5,017
ADMINISTRATION	\$0.25	1000 GAL	量的过去10%	\$	28,653
REPLACEMENT	\$0.00	1000 GAL	SIN/A ME		
DEBT-OULECTION SYSTEM (20 YEARS-4%)	0.074	WWTP COST	261101053	S	156,144
TOTAL ANULES IN STOLEM (JU YEAKS4%)	0.058	C.S. COST	35,293,947/	\$	307,049
TOTAL ANNUAL O&M				5	1,114,912
······	ANNUAL				
DTAL PRESENT WORTH	NTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7,00%	20		5 17	,811,000
PRESENT WORTH OF CAPITAL				\$ 7	.404.000
TOTAL 20-YEAR PRESENT WORTH				i 19	215.000

*Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Coffector sewers cost are excluded from this analysis since they are common to all alternatives 40 costs in 3rd quarter 2007 dollars

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Hardin County Regional Facilities Plan

Kofficitiel Lectitope Light	
Service Area	Brushy Fork Creek
Alternative	Fort Knox WWTP
Design Year	2017:88
Design Population	31408285
Design Industrial Acros	10000000

Impact to Existing Utility: Upgrade Existing Collection System

ІТЕМ	UNIT COST	UNITS	NUMBER OF UNITS		COST
SRAVITY INTERCEPTOR SEWER	Sec. 10.256 55:00	PERLE	6446203	ŝ	612,700
	\$60.00	PERLF	第19750章	Š	585,000
12-INCH	\$ 65.00	PERLF	107812038	\$	466,050
15-INCH	\$ 70,00	PER LF		\$	
18-INCH	\$ 1 80.00	PER LF		\$	-
21-INCH	\$ 90.00	PER LF		\$	-
24-INCH	\$100.00	PER LF		\$	-
27-INCH	\$ 110.00	PERLF		5	
30-INCH	\$ 120.00	PERLF		\$	<u> </u>
33-INCH	5 2130.00	PERLE		÷	
36-INCH	\$ 140,00	PERLF		÷	
42-INCH	0.000	PERIE		3	
48-INCH	2 500 00	EACH		Š	280.000
WANHOLES	No.1-21-21-21-21-22-22-22-22-22-22-22-22-22			Ť	
FORCE MAIN					
4-INCH	\$ 30.00	PER LF		\$	-
6-INCH	\$ 35.00	PERLF		\$	-
8-INCH	\$ 40.00	PERLF	金属金属	\$	-
10-INCH	\$ 45.00	PERLF	國國25,570	\$	1,150,650
12-INCH	\$ 50.00	PER LF	20.000	\$	-
14-INCH	S 60.00	PERLF		\$	
16-INCH	\$ 70.00	PER LF		5	
18-INCH	\$ 80,00	PERLF		ş	
24-INCH	\$ 90,00	PERLF	Contraction of the local data	•	
OWNER PETATION (IC 44500 COM LICE 4501 OPM/100		GPM	22975D24	s	212 500
PUMP STATION (IF<1500 GPM USE 150 GPM+100	000)	GPM	100000	<u> </u>	
PUMP STATION (IPPISO GPM 03E 213 GPM 030)	City Contraction	GPM	1000		
	And the set of the set of the set of the set				
WASTEWATER TREATMENT PLANT	\$	AVE GPD		\$	-
IMPACT TO EXISTING UTILITY					
UPGRADE TO COLLECTION SYSTEM		LUMP SUM		\$	185,000
SUBTOTAL BASE COST				\$	3,491,900
EASEMENTS	(). 6.5%			\$	17,460
RESTORATION (PAVEMENT AND DRIVEWAY)	1.26-06 (10%			\$	349,190
EROSION AND SEDIMENT CONTROL	28.50 A. 115%			5	52,379
GENERAL CONDITIONS	1996 - FA 1928 8%			3	279,352
	<u> </u>			-	4 190 280
SUBTOTAL CONSTRUCTION COST				ŕ	4,130,200
CONTRIGENCY AND TECHNICAL SERVICE	258-25 966654096			s	1.676.112
CONTINGERCT AND TECHNICAL SERVICE	130.70.71.210 <u>72707</u> 4			Ť	1,010,112
TOTAL CAPITAL COST OPINION**				\$	5,866,000
	1				
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	Service 200	1000 GAL	\$114,6103	\$	229,220
PUMPING STATIONS	\$60.00	GPM	公第750条 》	\$	45,000
FORCE MAINS & INTERCEPTORS	50.10	PERLF	\$\$63,6301	\$	5,363
ADMINISTRATION	\$0.25	1000 GAL	6994 030S	<u> </u>	28,653
	\$0.00	1000 GAL	STATISTICS AND A COLOR		······
DEBT-COLLECTION SYSTEM (20 VEAPS 42)	0.074	C.S.COST	IS BEENING	5	340 228
	188.07% - 199.02(0)000	0.0.0001		š	648.464
				Ť	
	ANNUAL	· · · · ·			
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7:00%	20		\$	6,870,000
PRESENT WORTH OF CAPITAL		l		s	5,866,000
TOTAL 20-YEAR PRESENT WORTH				\$	12,736,000

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**Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

DESCRIPTION Hardin County Rogional Facilitios Plan Sorvice Area

/ Rogional Facilities Plan	
Service Area	Brushy Fork Creek
Alternative	New Northern WWTP
Design Year	2017
Design Population	23223140
Design Industrial Acres	Contraction of the second s

Impact to Existing Utility: Not Applicable

ITEM	UNIT COST	UNITS	NUMBER OF UNIT:	۲ s	COST
				\pm	
GRAVITY INTERCEPTOR SEWER		1			
8-INCE	1 \$2	0 PER LF	861381A03	第 \$	612,700
10-INCH 12-INCH	1.0.500 (Sale - A		6597.508	<u>8</u> 5	585,000
15-INC	1 5 70.0	0 PERLE	2253405023		466,050
18-INC	SS 80.0	PERLE	Activity of the		
21-INC	S 90.0	D PERLF	00000000	<u>ال</u>	
24-INCH	I Sasa 100.0	D PERLF	No Rest	a s	-
27-INC	i s 110.0	D PERLF		§ \$	•
30-INCF	526.120.0	D PER LF	「おおままます	5 S	-
33-INCH	S 01 - 130.0	D PERLF	建新规模的	¥ \$	-
36-INCH	S 140.0	D PERLF	1000	5 5	-
42-INCH	S 22 25 160.0	DER LF		<u> </u>	
MANHOLES	52 2 600 00	VI FACH	100000000000000000000000000000000000000	15	-
	10 10 10 2000		102681014528	<u>4</u> >	280,000
FORCE MAIN	1		1	╈	
4-/NCH	S	PERLF	NERGE	ts	-
6-INCH	\$ 35:00	PERLF	STATES OF	\$	-
8-INCH	\$ 40.00): PERLF	States of	(S	•
10-INCH	\$ 45.00	PERLF	4832,0006	\$	1,440,000
12-INCH	S	PERLF	HARREN	<u> </u>	-
14-INCH	S 60.00	PERLF	AN AREAS	\$	-
16-INCH	5 70.00	PERLF	CALCULATION AND	\$	
24-INCH	S 00.00	PERLF	SINCE SALES		-
24110.1	14.3.14.200 BUILD	FENER	SHOPPY STORE	1 3	
PUMP STATION (IF<1500 GPM USE 150*GPM+100.	000)	GPM	155275052	5	212 500
PUMP STATION (IF>1500 GPM USE 215*GPM+550,	000)	GPM	21220	Ļ	212,000
PUMP STATION	2011-10-10-10-10-10-10-10-10-10-10-10-10-	GPM	100000	1-	
		1		T	
WASTEWATER TREATMENT PLANT	\$5.00	AVE GPD	#314 0004	5	1,570,000
		<u> </u>			
				∟	
				┣	
SUBTOTAL BASE COST				Ļ	6 465 750
				<u> </u>	3,166,250
EASEMENTS	 HANDAKODAN D:5%			s	25 831
RESTORATION (PAVEMENT AND DRIVEWAY)	10%			š	516 625
EROSION AND SEDIMENT CONTROL	1.5%	· · · · · · · · · · · · · · · · · · ·	1	Š	77,494
GENERAL CONDITIONS	8%			\$	413,300
SUBTOTAL CONSTRUCTION COST				\$	6,199,500
	-				
CONTINGENCY AND TECHNICAL SERVICE	40%			\$	2,479,800
TOTAL CARITAL COST OFINIONS		l			
TOTAL CAPITAL COST OF MICH		i		\$	8,679,000
· · · · · · · · · · · · · · · · · · ·		- ve:			
ANNUAL OPERATION& MAINTENANCE		Г	i i		
WASTEWATER TREATMENT PLANTS	Gale (100	1000 GAL	\$017610¥	\$	114,610
PUMPING STATIONS	\$60.00	GPM	828750 <i>8</i> 85	\$	45,000
FORCE MAINS & INTERCEPTORS	\$0,10	PERLF	2260,060	\$	6,006
ADMINISTRATION	\$0,50	1000 GAL	\$113,6102	\$	57,305
REPLACEMENT	\$0.25	1000 GAL	2113(610)	\$	28,653
DEBT-MINTE (20 TEARS-4%)	0.074	WWTP COST	/2(897)509	\$	195,176
TOTAL ANNUAL CONTONE AND TOTAL ANNUAL CONT		C.S. COST	16:041:491	\$	350,406
TUTAL ANNUAL O&M				\$	797,156
	ANNUAL I		r		
TOTAL PRESENT WORTH	NTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7.00%	Conference 20		s	8,445,000
PRESENT WORTH OF CAPITAL				\$	8,679,000
TOTAL 20-YEAR PRESENT WORTH				\$ 1	7.124.000

**Property Owner will be responsible for cost to connect structure to new sewer 40% conlingency is used to account for current variability in pipe and fuel costs Satvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

\$ 17,124,000

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Hardin County Regional Facilities Plan

y Regional Facilities Plan	
Service Area	Brushy Fork Creek
Alternative	Radcliff WWTP
Design Yoar	24.2017.2017
Design Population	8433131402512
Dosign Industrial Acres	推动的性心法推荐的

Impact to Existing Utility: New force main proposed to be tied into new headworks

New headworks \$1000 Connection Charge per customer

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
				┡	
BINCH BINCH	86622000855-00	PERIE	Section 40 kg	5	612 700
10-INCH	5.000	PERLE	64975013	1 š	585,000
12-INCH	S 65:00	PERLF	A 1200	Š	466,050
15-INCH	S 70.00	PER LF		ŝ	-
18-INCH	\$ 80.00	PER LF	100000000	5	-
21-INCH	\$0000000	PER LF		\$	-
24-INCH	\$ 100.00	PER LF		\$	-
27-INCH	Sec. 110.00	PERLF		\$	-
30-INCH	5 120.00	PERLF		\$	-
33-INCH	\$ 130.00	PERLF	数数数数	\$	•
36-INCH	\$ 140.00	PERLF	S. A.	\$	-
42-INCH	\$ 160.00	PERLF		\$	-
48-INCH	\$ \$180.00	PERLF		\$	-
MANHOLES	\$ 2,500.00	EACH	Engli Ang	\$	280,000
FORCE MAIN				╞	
4-INCH	\$ 30.00	PERLF	SALAN BURN	\$	
6-INCH	\$ 35.00	PER LF	STATES	\$	
8-INCH	\$ 2000000	PER LF		\$	-
10-INCH	\$	PERLF	型22(580里	\$	1,016,100
12-INCH	S	PER LF	STATE OF	\$	-
14-INCH	\$ 60.00	PER LF	Contraction of the	\$	
16-INCH	\$ 70.00	PER LF	2002222	\$	1
18-INCH	\$	PER LF		\$	-
24-INCH	\$ 90.00	PER LF		\$	-
			attinies but		
PUMP STATION (IF<1500 GPM USE 150°GPM+100	,000)	GPM	82.0750.084	\$	212,500
PUMP STATION (IF>1500 GPM USE 215"GPM+550	,000)	GPM	AS ACREASE	-	
POMPSTATION		GPM			
WASTEWATER TREATMENT PLANT	S 400	AVE GPD	1000	5	
IMPACT TO EXISTING UTILITY			,	- ·	
NEW HEADWORKS	\$ 1.00	AVE GPD	\$\$14000k	\$	314,000
				Ļ	2 405 250
SUBTOTAL BASE COST		1		÷	3,466,300
FASEMENTS	38 XF (10.5%)			5	17,432
RESTORATION (PAVEMENT AND DRIVEWAY)	10%	{	· · ·	Š	348 635
EROSION AND SEDIMENT CONTROL	100.000.001.001.5%	<u> </u>		ŝ	52 295
GENERAL CONDITIONS	SEA 199139 8%			š	278,908
	and a second				
SUBTOTAL CONSTRUCTION COST			,	\$	4,183,620
CONTINGENCY AND TECHNICAL SERVICE					1 672 449
IMPACT TO EXISTING UTILITY				•	1 6 / 3 //// 4 1
	Clark, 2750497491 919102 0			\$	1,073,440
CONNECTION CHARGE	\$ 1,000,00	PERCUSTOMER	Sectio4780	5	1,013,448
CONNECTION CHARGE	\$:32:	PER CUSTOMER	2011047 8 0	5	1,047,000
CONNECTION CHARGE TOTAL CAPITAL COST OPINION**	\$33224,000.00	PERCUSTOMER	221104780	5 5 5	1,047,000 6,904,000
CONNECTION CHARGE	\$.527.4,000,00	PER CUSTOMER	881 (04 78 8	\$ \$	1,047,000
CONNECTION CHARGE TOTAL CAPITAL COST OPINION" ANNUAL OPERATION& MAINTENANCE	\$ 5750 4,000,000	PERCUSTOMER	201104780	\$ \$	1,047,000 6,904,000
CONNECTION CHARGE TOTAL CAPITAL COST OPINION" ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS	S 32244,000,003	PER CUSTOMER	\$201104788 \$201104788	\$ \$ \$	1,047,000 6,904,000 469,901
CONNECTION CHARGE TOTAL CAPITAL COST OPINION" ANNUAL OPERATIONS MAINTENANCE WASYEWATER TREATMENT PLANTS PUMPING STATIONS	535224,000,000	PER CUSTOMER	1991104789 19911436103 19975053	\$ \$ \$ \$	1,047,000 6,904,000 469,901 45,000
CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS	S 2 4,000,00	PER CUSTOMER 1000 GAL GPM PER LF	1811104789 1811476103 1817476103 181750535 18506408	s s s s s s	1,047,000 6,904,000 469,901 45,000 5,064
CONNECTION CHARGE TOTAL CAPITAL COST OPINION" ANNUAL OPERATIONS MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION	\$ 1,000,000 \$ 1,000,000 \$ 50,000 \$ 50,0000\$ \$ 50,000\$ \$ 50,000\$ \$ 50,000\$ \$ 50,000\$ \$	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL	104789 104789 104789 104789 104789 104780 104780 104780 104780 104780 104780 104780 104780 104789 1000000000000000000000000000000000000	\$ \$ \$ \$ \$ \$	1,047,000 6,904,000 469,901 45,000 5,064 28,653
CONNECTION CHARGE TOTAL CAPITAL COST OPINION" ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS SINTERCEPTORS ADMINISTRATION REPLACEMENT	\$12,22,4,000,00 \$12,22,4,000,000,000,000,000,000,000,000,0	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL	11104788 11146103 122750531 125056408 12146103 12146103	\$ \$ \$ \$ \$ \$ \$ \$	1,047,000 6,904,000 469,901 459,000 5,064 28,653
CONNECTION CHARGE TOTAL CAPITAL COST OPINION" ANNUAL OPERATIONS MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%)	\$ 4,000,00 \$ 4,000,00 \$ 50,00 \$ 50,000 \$ 50,0000 \$ 50,00000 \$ 50,0000 \$ 50,0000 \$ 50,00000 \$ 50,00000 \$ 50,00000 \$ 50,00000 \$ 50,00000 \$ 50,000000 \$ 50,00000000000000000000000000000000000	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST	1111104789 1111104789 1111104789 1111104789 1111104789 111104789 111104789 111104789 111104789 111104789 1111104789 1111104789 1111104789 11104789 11104789 11104789 11104789 11104789 11104789 11104789 11104789 11104789 11104789 11104789 11104789 11104789 11104789 11104789 11104789 11104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 11104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 111104789 1111000000000000000000000000000000000	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1,047,000 6,904,000 469,901 45,000 5,064 28,653 - 46,014
CONNECTION CHARGE TOTAL CAPITAL COST OPINION" ANNUAL OPERATIONS MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWIT (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%)	\$60.00 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST C.S. COST	1111101789 1111101789 12175050 1217500 1217500 1217500 12175000 1217500 12175000 1217500000000000000000000000000000000000	S S S S S S S S S S S S S S S S S S S	1,673,448 1,047,000 6,904,000 469,901 45,000 5,064 28,653 - 46,014 364,367
CONNECTION CHARGE TOTAL CAPITAL COST OPINION" ANNUAL OPERATIONS MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WUTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL 0&M	\$0000000000000000000000000000000000000	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST C.S. COST	\$2110478 \$3114/6109 \$2275053 \$2506408 \$2114/5109 \$431/4/5109 \$432/500 \$431/4/5109 \$431/4/510 \$431/40 \$431/400 \$401/400 \$4000\$ \$	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1,047,000 6,904,000 469,901 45,000 5,064 28,653 - - 46,014 364,367 958,998
CONNECTION CHARGE TOTAL CAPITAL COST OPINION" ANNUAL OPERATIONS MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WUTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL 0&M	\$ 4,000,00 \$ 4,000,00 \$ 50,00 \$ 50,00 \$ 50,25 \$ 50,2	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL WWTP COST C.S. COST	SELICATOR SELICATOR	S S S S S S S S S S S S S S S S S S S	1,047,000 6,904,000 469,001 45,000 5,064 28,653 46,014 384,367 958,998
CONNECTION CHARGE TOTAL CAPITAL COST OPINION" ANNUAL OPERATIONS MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WUTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL 0&M TOTAL PRESENT WORTH	\$ 4,000,00 \$ 4,000,00 \$ 50,00 \$ 50,000 \$ 50,0000 \$ 50,00000 \$ 50,0000 \$ 50,0000 \$ 50,00000 \$ 50,00000 \$ 50,00000 \$ 50,000000 \$ 50,000000 \$ 50,00000000000000000000000000000000000	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST C.S. COST NO. OF YEARS	SELIO4789 Bi146103 SEZ750555 SEZ05055 SELO6408 S	S S S S S S S S S S S S S S S S S S S	1,047,000 6,904,000 469,901 45,000 5,064 28,653 - - 46,014 364,367 958,998
CONNECTION CHARGE TOTAL CAPITAL COST OPINION" ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WUTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL 0&M TOTAL ANNUAL 0&M	4,000,00 4,000,00 5,0	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL WWTP COST C.S. COST NO. OF YEARS 200	SELIO4789 SELIO4789 SELO4780 SELO4408 SELO4408 SELO4408 SELO4408 SELO4408 SELO4408 SELO4408 SELO4408 SELO4408 SELO4788 SELO4789 S	S S S S S S S S S S S S S S S S S S S	1,047,000 6,904,000 469,901 45,000 5,064 28,653 - - 46,014 384,367 958,998 958,998

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**Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

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Hardin County Regional Facilities Plan

teoBiotien i montrago i inti	
Service Area	Mill Greek Branch Stores
Alternative	Etown Collection System
Design Yoar	2017 2017
Design Population	FASE 2310 282 5
Design Industrial Acres	STREED BOOK

PostAu tott	2.0001.02UJJ292581.8
Design Population	125 2310 ES
gn Industrial Acres	

Impact to Existing Utility: Existing Collection System Existing WWTP

\$1,500 per customer \$500 per customor

ПЕМ	UNIT COST	UNITS	OF UNIT	२ ऽ	COST
GRAVITY INTERCEPTOR SEWER					
8-INC	1 iS. BARRAN AR 55.0	0 PER LF	藏成0209	巅 \$	331,100
1D-INCH	1 \$ 60.0	0 PER LF	和效的	<u>گ</u> ا	448,800
12-INC	\$ 2 65,0	0 PER LF	1 Contracts	8 \$	
15-INC	S 2017 10.70.0	D PERLF	0.00000000	ē s	
18-INC	S 80.0	0 PERLF	SECTOR STREET	5 S	
21-INC	S 200 0000	PERIE	700000000000		
24-INC	S STORADO	PERIE	Service State	e e	
27-INC	52200000000	PERIE	100/00/00/00/00/00		
30-INCI	12526010		2000000000000		
22 INC	0000 1000 1000 0000		- Children and		
35-190	1 STORE TOUL	PER LF	8 10 million	s	-
36-INCF	5.2.140.0	D PERLF	7.5.1	<u>料</u> \$	-
42-INC	S	PER LF		1191	-
48-INCH	\$ 180.00	PER LF		5	-
MANHOLES	\$ 2,500.00	EACH		\$	135,000
			1		
FORCE MAIN					
4-INCH	\$ 30.00	PERLF		\$	-
6-INC	\$ 35.00) PER LF	Section of the	<u>k</u> \$	-
8-INCH	\$ 40.00) PER LF	OR SAME	8 \$	-
10-INCH	\$ 45.00	PERLF	3223 960k	s s	1.078,200
12-INCH	\$ 50.00	PERLF	Sector Sector	t s	
14-INCH	S SS S	PERIE	STOCK CONTRACTOR	1÷	
16.INCH	5	PEDIE	SCHOOL STOR		-
18 18 18	P		State State State	<u> </u>	<u> </u>
	00.00	PERLF		3 5	-
24-INCH	\$ \$ 90.00	PERLF		\$ S	•
	I				
PUMP STATION (IF<1500 GPM USE 150*GPM+100	000)	GPM	建265023	\$	197,500
PUMP STATION (IF>1500 GPM USE 215*GPM+550	000)	GPM	2000	S.	
PUMP STATION	STATISTICS CONTRACTOR	GPM	255260		
		1	1	1	
WASTEWATER TREATMENT PLANT	S	AVE GPD	100000000000000000000000000000000000000	र	
	1997 1997 1997 1997 1997 1997 1997 1997		- Decrementation	<u> </u>	-
SUBTOTAL BASE COST				Ļ	0.400.000
CODICIAE BAGE COST		<u> </u>		<u>, </u>	2,190,690
54084 miles		<u> </u>		L	
EASEMENTS	0.5%	4	i	\$	10,953
RESTORATION (PAVEMENT AND DRIVEWAY)	10%			5	219,060
EROSION AND SEDIMENT CONTROL	260 T 5%			\$	32,859
GENERAL CONDITIONS	Sec. 33.8%			s	175.248
		1		Ľ.	
SUBTOTAL CONSTRUCTION COST		·	·	\$	2,628,720
		T	1	Ť	40201120
CONTINGENCY AND TECHNICAL SERVICE	40%		I	5	1 051 489
MPACT TO EXISTING UTILITY	and a second	l		Ľ	1,001,400
COLLECTION SYSTEM CAPACITY FEE	\$ 1 600 00	PER CUSTONES	770	-	1 405 000
	v 1,500.00	PER CUSTOMER	//0	\$	1,155,000
WWIP CAPACITY FEE	s 500.00	FER CUSTOMER	770	5	385,000
TOTAL CARITAL COST CONTEN		I		Ļ	
TOTAL CAPITAL COST OPINION**				\$	5,220,000
		l			
THE REPORT OF A DATA OF A				····	
WASTEWATED TOFATHENE					
WASTEWATER TREATMENT PLANTS	1997 - 1997	1000 GAL	2841315 15	\$	282,455
WASTEWATER TREATMENT PLANTS PUMPING STATIONS	SSS 8410 \$60.00	1000 GAL GPM	284131515 28865038	s \$	282,455 39,000
WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS	560.00 560.00 500.10	1000 GAL GPM PER LF	28431655 288650288 288736028	5 5 5	282,455 39,000 3,746
WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION	\$60.00 \$0.10 \$0.25	1000 GAL GPM PER LF 1000 GAL	28431615 28465028 28465028 28415155	\$ \$ \$	282,455 39,000 3,746 21.078
WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT S	\$60.00 \$60.00 \$0.10 \$0.25 \$0.25 \$0.25	1000 GAL GPM PER LF 1000 GAL 1000 GAL	2284/315) 22850288 228731608 228731555 228731555	5 5 5 5	282,455 39,000 3,745 21,079
WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%)	\$60.00 \$010 \$025 \$025	1000 GAL GPM PER LF 1000 GAL 1000 GAL		\$ \$ \$	282,455 39,000 3,746 21,079
WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-CULLECTION SYSTEM (20 YEARS-4%)	\$0,00 \$0,10 \$0,25 \$0,25 \$0,25 \$0,25 \$0,27	1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST	204131655 2041550 204151555 2041555 204155 20415555 20415555 20415555 20415555 20415555 20415555 20415555 20415555 20415555 20415555 204155555 204155555 204155555 204100000000000000000000000000000000000	\$ \$ \$	282,455 39,000 3,746 21,078
WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%)	\$60.00 \$60.00 \$0.10 \$0.25 \$0.25 \$0.25 0.074 0.058	1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST C.S. COST	2224131651 222650 2224151555 2221/000	\$ \$ \$ \$	282,455 39,000 3,746 21,079 302,760
WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL O&M	\$0.00 \$0.10 \$0.25 \$0.25 \$0.25 \$0.25 \$0.25 \$0.25 \$0.25	1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST C.S. COST	228413155 22850 22815155 22815155 22815455 22815455 22815455 2291000	\$ \$ \$ \$ \$	282,455 39,000 3,746 21,079 302,760 649,040
WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL O&M	\$0.10 \$0.10 \$0.25 \$0.25 \$0.25 \$0.25 \$0.25 \$0.25 \$0.25	1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST C.S. COST	228413155 2284050 228415155 228115155 22811/A28 22811/A	5 5 5 5 5	282,455 39,000 3,746 21,079 302,760 649,040
WASTEWATER TREATMENT PLANTS PUMPING STATIONS FÖRCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL O&M COTAL PRESENT WORTH	50.00 50.25 50 50 50 50 50 50 50 50 50 50 50 50 50	1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST C.S. COST	234431555 2465038 2073803 2073803 2073803 2073803 2073800 2073800 2073800 2073800 2073800 2073800 2073800000000000000000000000000000000000	5 5 5 5 5	282,455 39,000 3,746 21,079 302,760 649,040
WASTEWATER TREATMENT PLANTS PUMPING STATIONS PORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL O&M TOTAL ANNUAL O&M	S0100 S0100 S0100 S0100 S0125 S015 S015 S015 S015 S015 S015 S015 S01	1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST C.S. COST NO. OF YEARS	2834131651 284650300 282735030 282735030 282735030 28273503 28374503 28374503 28374503 28374503 28374503 2837450 2837450 2837450 2837450 2837450 2837450 2837450 2837450 2837450 2837450 2837450 2837450 2837450 2837450 2837450 2837450 283740 29374000000000000000000000000000000000000	\$ \$ \$ \$	282,455 39,000 3,746 21,079 302,760 649,040
WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPCACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL OSM OTAL PRESENT WORTH PRESENT WORTH OF OSM	\$60.00 \$50.25 \$50.25 \$50.25 \$0.25 \$0.25 \$0.25 \$0.074 \$0.058 \$0.074 \$0.058 \$0.074 \$0.058 \$0.074 \$0.058 \$0.004 \$0.004 \$0.004 \$0.0000 \$0.000 \$0.00000 \$0.00000 \$0.00000 \$0.00000 \$0.0000 \$0.0000 \$	1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST C.S. COST NO. OF YEARS	22834131655 2284050333 2284151552 2284151552 2284145455 2284145455 2284145455 2284145455 228514555 228515555 228515555 228515555 228515555 2285155555 22851555555 228515555555555	\$ \$ \$ \$ \$	282,455 39,000 3,745 21,079 302,760 649,040 6,876,000
WASTEWATER TREATMENT PLANTS PUMPING STATIONS FÖRCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL O&M OTAL PRESENT WORTH PRESENT WORTH PRESENT WORTH OF O&M PRESENT WORTH OF CAPITAL	S60.00 50120 50125 0.074 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.058 0.074 0.058	1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST C.S. COST NO. OF YEARS	2894191695 92065033 920738035 9224151557 9224151557 9224151557 9224151557 9224151557 9224151557 9224151577 922415169 922516 922516 922516 922516 922516 922516 9255516 9255516 9255516 92555555 92555555555555555555555555555	\$ \$ \$ \$ \$ \$	282,455 39,000 3,746 21,079 302,760 649,040 6,876,000 5,220,000

**Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sowers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

Hardin County Regional Facilities Plan

y Regional Facilities Plan Service Area Atternative Design Yoar Design Population Engine Industrial Acres

Impact to Existing Utility: Not Applicable

GRAVITY INTERCEPTOR SEWER Inc. BIACK IS SUSSERVESSO PER LE SUSSE	ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
BHNCH 3425574705500 PER. LF 20080000000000000000000000000000000000	GRAVITY INTERCEPTOR SEWER					
101NCH 53/25/23/23/23/2000. PER L F 93/24/2028 5 110NCH 53/25/23/23/23/2000. PER L F 30/25/23/23/2000. PER L F 30/25/23/23/2000. PER L F 30/25/23/23/2000. PER L F 30/25/23/23/2000. PER L F 30/25/23/2000. PER L F 30/25/2000. PE	B-INCH	\$ 55.00	PER LF	盛田四國	\$	331,100
121NCH STREED (2000) PER LF STREED (2000) STREED (2000) PER LF STREED (2000) STREED (2000) PER LF STREED (2000) STREED (2000) <td>10-INCH</td> <td>\$ 60.00</td> <td>PERLF</td> <td></td> <td>\$</td> <td>448,600</td>	10-INCH	\$ 60.00	PERLF		\$	448,600
161NCH State 3 161NCH State 3 21NNCH State 3	12-INCH	\$ 65.00	PER LF		\$	•
18/NCH 13/NCH 23/NCH 28/NCH 28/NCH<	15-INCH	\$ 51.00	PER LF		\$	-
21-INCH \$ 21-INCH \$ <t< td=""><td>18-INCH</td><td>\$ 80.00</td><td>PER LF</td><td></td><td>47</td><td>•</td></t<>	18-INCH	\$ 80.00	PER LF		47	•
24-INCH Statistication PER LF PER LF PER LF PER LF PER LF PER LF Statistication 33-INCH Statistication PER LF PER LF PER LF Statistication Statistication 33-INCH Statistication PER LF PER LF PER LF PER LF Statistication 42-INCH Statistication PER LF PER LF PER LF PER LF Statistication 43-INCH Statistication PER LF PER LF PER LF PER LF Statistication 44-INCH Statistication PER LF PER LF PER LF PER LF PER LF Statistication 44-INCH Statistication PER LF	21-INCH	\$ 90.00	PER LF		s	-
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30-INCH IS ###85512000 FER LF S##86582 S - 33-INCH IS ##5552148000 FER LF S##86588 S - 42-INCH IS ##5552148000 FER LF S#865888 S - 43-INCH IS ##5552148000 FER LF S#855888 S - 43-INCH IS ##5552148000 FER LF S#855888 S - 64-INCH IS ##5552148000 FER LF S#855888 S - 6-INCH IS ##5552148000 FER LF S#855888 S - 6-INCH IS ##5552148000 FER LF S#855888 S - 6-INCH IS ##5552148000 FER LF S#855888 S - 10-INCH IS ##5552148000 FER LF S#855888 S - 10-INCH IS ##555214800 FER LF S#855888 S - 10-INCH IS ##555000 GPM S#8559888 S - - 10-INCH IS ##555000 GPM	27-INCH	\$ 110.00	PERLF	通貨業業	\$	-
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42-INCH1 33/82/16/0000 PER LF 98/82/82/50000 PER LF 98/82/82/50000 FACH 98/82/82/50000 EACH 98/82/82/50000 EACH 98/82/82/50000 EACH 98/82/82/50000 FACH 98/82/82/50000 FACH 98/82/82/50000 FACH 98/82/82/82/50000 FACH 98/82/82/82/50000 FER LF 98/82/82/82/5000 FACH 98/82/82/82/5000 FER LF 98/82/82/82/82/82/82/82/82/82/82/82/82/82	36-INCH	\$ 140.00	PER LF		\$	-
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TOTAL CAPITAL COST OPINION* \$ 7,320,000 ANNUAL OPERATION& MAINTENANCE		1				
ANNUAL OPERATION& MAINTENANCE ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS Southwasters 33800 1000 GAL \$28433158 \$84,315 PUMPING STATIONS Southwasters 338000 GPM \$85830000 \$78,000 FORCE MAINS & INTERCEPTORS Southwasters 30010 GPM \$85838000 \$6,348 ADMINISTRATION Southwasters 30025 1000 GAL \$8833158 \$42,158 REPLACEMENT Southwasters 30,252 1000 GAL \$8833158 \$21,079 DEBT-WWTP (20 YEARS-4%) Southwasters 30,074 WWTP COST \$1090,0588 \$143,598 DEBT-COLLECTION SYSTEM (30 YEARS-4%) Southwasters 30,078 WWTP COST \$1090,0582 \$346,810 TOTAL ANNUAL 08M \$722,308 \$722,308 \$722,308 \$722,308 TOTAL PRESENT WORTH INTEREST NO. OF YEARS \$200,000 \$7,652,000 PRESENT WORTH OF 06M Southwasters 30,700% \$7,620,000 \$7,620,000 \$7,620,000 PRESENT WORTH OF CAMITAL \$7,620,000 \$7,620,000 \$7,620,000 \$7,620,000	TOTAL CAPITAL COST OPINION				<u> </u>	7,920,000
ANNUAL OPERATION& MAINTENANCE 1000 GAL 224/31521 84,315 WASTEWATER TREATMENT PLANTS 324/31523000 1000 GAL 224/31521 84,315 PUMPING STATIONS 324/31520000 GPM 333/300000 \$70,000 FORCE MAINS & INTERCEPTORS 324/31520000 FPL LF 858/380000 \$6,348 ADMINISTRATION 324/31520000 FPL LF 858/380000 \$6,348 ADMINISTRATION 324/31520000 FPL LF 858/380000 \$6,348 DEBT-WWTP (20 YEARS-4%) 324/3152000000 \$21,079 \$21,079 DEBT-COLLECTION SYSTEM (30 YEARS-4%) 324/3142000000000000000000000000000000000000						
WASTEWATER TREATMENT PLANTS 30000 GAL 28431525 84.315 WASTEWATER TREATMENT PLANTS 30000 GPM 36530000 \$ 70.000 FORCE MAINS & INTERCEPTORS 30000 GPM 36530000 \$ 6,348 ADMINISTRATION 30000 GPM 36530000 \$ 6,348 ADMINISTRATION 30000 GAL 36838000 \$ 6,348 ADMINISTRATION 30000 GAL 36838000 \$ 6,348 ADMINISTRATION 30000 GAL 36838000 \$ 6,348 ADMINISTRATION 300000 GAL 36838158 \$ 242,158 REPLACEMENT 300000 GAL 36838158 \$ 242,158 DEBT-WUTP (20 YEARS-4%) 3000736 WWTP COST 31940538 \$ 143,598 DEBT-COLLECTION SYSTEM (30 YEARS-4%) 3000736 WWTP COST 319405388 \$ 346,610 TOTAL ANNUAL NO.058 C.S. COST 369709382 \$ 346,610 TOTAL ANNUAL NTEREST NO. OF YEARS 722,308 PRESENT WORTH NTEREST NO. OF YEARS 7,652,000 PRESENT WORTH OF COMING \$ 7,820,000 \$	ANNUAL OPERATIONS MUNICIPALIES	1		1		
WAS LEVEN LEX INCENTIONS Segmentations (Stations) Segmentations) Segmentations (Stations) Segmentations) Segmentations (Stations) Segmentations) Segmentations (Stations) Segmentations) Segmentations)<	ANNUAL OPERATIONS MAINTENANCE		1000 011	(NOVINATAL)	e	04.045
PUMPING STATIONS B222 / 25/3500.001 GPM B222 / 25/3500.001 GPM B222 / 25/3500.001 FR LF B223 / 80.002 \$ 6,348 ADMINISTRATION ADMINISTRATION ADMINISTRATION ADMINISTRATION \$ 6,348 \$ 6,348 REPLACEMENT B223 / 80.002 1000 GAL B283 / 80.002 \$ 21.079 DEBT-WWTP (20 YEARS-4%) B223 / 80.004 WWTP COST \$ 1697.09492 \$ 143.598 DEBT-COLLECTION SYSTEM (30 YEARS-4%) B223 / 80.0058 C.S. COST \$ 507.09492 \$ 346.610 TOTAL ANNUAL 08M \$ 722.308 \$ 722.308 \$ 722.308 \$ 722.308 \$ 722.308 PRESENT WORTH INTEREST NO. OF YEARS \$ 7.652.000	WASTEWATER TREATMENT PLANTS	CONTRACTOR OF A	1000 GAL	MEC 101022	3	04,015
Concernance Intervertions August 2000 PERLE Istostandon 5 6,349 ADDMINISTRATION August 2000 GAL BESIZE 5 6,349 REPLACEMENT Intervertions Statute 5000 GAL BESIZE 5 42,153 DEBT-WWTP (20 YEARS-4%) Intervertions Statute Statute 5 143,598 DEBT-COLLECTION SYSTEM (30 YEARS-4%) Intervertions C.S. COST ISSTAL 346,610 TOTAL ANNUAL Intervertion Statute S 722,308 722,308 TOTAL PRESENT WORTH INTEREST NO. OF YEARS S 7,652,000 PRESENT WORTH OF CoSM Intervertion S 7,652,000 S 7,652,000 PRESENT WORTH OF CoSM Intervertion S 7,652,000 S 7,652,000 PRESENT WORTH OF CABITAL S 7,652,000 S 7,652,000	PUMPING STATIONS	00.00		BEERSONALER	\$	10,000
ALMINISTRATION Display State State <thstate< th=""> State State<</thstate<>		10 (Sec. 19)	1000 041	1500,900 S	÷	0,348
International Interna International International<	ADMINISTRATION	S0.50	TOOD GAL	100-131.034	\$	42,156
DEDI-TYWIT (20 TEARS-4%) DEDI-TYWIT (20 TEARS-4%) <thdedi-tywit (20="" tears-4%)<="" th=""> <thdedi-tywi< td=""><td>REPLACEMENT</td><td>anter 5 (19925</td><td>1000 GAL</td><td>260910103</td><td>2</td><td>21,079</td></thdedi-tywi<></thdedi-tywit>	REPLACEMENT	anter 5 (19925	1000 GAL	260910103	2	21,079
DEBT-COLLECTION STSTEM (30 TEARS-4%) XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	DEBT-WWIP (20 YEAKS-4%)	20.074	wwiP cost	115401518	2	143,598
TOTAL ANNUAL 08M \$ 722,308 ANNUAL INTEREST NO. OF YEARS PRESENT WORTH OF 0AM PRESENT WORTH OF CAPITAL TOTAL 20, YEAR BERSENT WORTH \$ 7,852,000 CONTRACT OF CAPITAL CON	DEBT-COLLECTION SYSTEM (30 YEARS-4%)	F.C. 10.058	C.S. COST	10,979,982	5	346,810
ANNUAL INTEREST NO. OF YEARS PRESENT WORTH OF OAM PRESENT WORTH OF CAPITAL TOTAL 20X4EAP BERSENT WORTH TOTAL 20X4EAP BERSENT WORTH	TOTAL ANNUAL O&M				2	722,308
TOTAL PRESENT WORTH OF CABITAL TOTAL PRESENT WORTH OF CABITAL TOTAL 20 TOTA		PANNULAU	1			
PRESENT WORTH \$ 7,652,000 PRESENT WORTH OF CAPITAL \$ 7,652,000 TOTAL 20,VEAP RESENT WORTH \$ 7,620,000		INTEREST	NO. OF YEARS			
PRESENT WORTH OF CAPITAL \$ 7,020,000 TOTAL 30,VEAP BDSSENT WORTH \$ 45,873,000	DRESENT WOPTH OF ORM	100000000000000000000000000000000000000	STATISTICS OF STATISTICS		5	7 652 000
TOTAL 20-VEAR PRESENT WORTH C 45 572 000	PRESENT WORTH OF CAPITAL	New York Contraction of the Party of the Par			S	7,920,000
	TRESENT INSTITUTION OATTINE	-			· •	

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**Property Owner will be responsible for cost to connect structure to new sewer

40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

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MCB 2017 New North. WWTP-D

Hardin County Regional Facilities Plan

Logional Lacinnos Listi	
Service Area	Mill Crook Branch
Alternative	Radcliff WWTP
Design Year	2017
Design Population	2310
Design Industrial Acres	12224/07007222/201

Impact to Existing Utility: Now force main proposed to be tied into new headworks

Now headworks \$1000 Connection Charge per customer

ітем	UNIT COST	UNITS	NUMBER OF UNIT	۲ s	COST
CRAVOV INTERCERTOR SEWER					
GRAVITT INTERCEPTOR SEWER	J CONTRACTOR CON		WWWWWWWWW	₅	
0-INCE 10-INCE	4 \$ 000 000	DEDIE	2510;020,5	<u>8</u> >	331,100
12-3NCF	85.00		SALESSON A	<u>н</u>	448,600
15-INC	1 \$ 70.0		15992-9982	2	
18-INCI	S 80.00	PERLE	NO BROOM		
21-INC	S 90.00	D PERLE	1002000000	2 5	
24-INC	1.\$ 100.00	PER LF	100000000000000000000000000000000000000	ŝ	
27-INC	1 5 110.00) PER LF	STREET.	Š	-
30-INCF	S 120.00	PERLF		8 \$	
33-INCI	\$ 330.00) PER LF	States:	¥ \$	
36-INC	\$ 140.00) PER LF	1000 C	8 S	-
42-INC)	\$ 160.00	PER LF	就能能能够	ŝ	-
48-INCF	\$ 180.00) PER LF	務部署を訪	ŝ	-
MANHOLES	\$ 2,500.00	EACH	派配54福6	8 \$	135,000
FOR AF NAME			<u> </u>		
PUKUE MAIN	Initial States of the		5	<u>_</u> _	
4-INCh	30.00	PERLF	203228	15	·
6-INCF	35.00	PERLF		15	
8-INCF		ERLF	STATES OF	15	
12 INCL	40.00	N PERLE	SX3030402	8 3	1,662,300
	State 00.00	DEDIC	12.40.9988284		
14-ING	S 20 00	PEALP	TO TRACK AND		
18-INC	\$10.00 \$10.00		CARGE CONTRACTOR		
24.INCH	S	PERLE	COLOR POSSION	12	-
24400	100.000.000.000	FENCE	955482254332X	2 3	
PUMP STATION (IE<1500 GPM USE 150*GPM+100	000)	GPM	KW/RED WW		107 500
PUMP STATION (IE>1500 GPM LISE 215"GPM+550	000)	GPM	BALLAND AND AND AND AND AND AND AND AND AND		197,500
PUMP STATION	See Function	GPM	AND SCHOOL SET	÷	
	Lotos a anoson de s	Griff	10001000000000000	╇	
WASTEWATER TREATMENT PLANT	\$ 400	AVE GPD	1320396466884		
•			AND ADD ADD ADD ADD ADD ADD ADD ADD ADD	ľ	
NEW HEADWORKS	STATE 100	AVE GPD	\$23 F000	s	231 000
				Ť	201,000
SUBTOTAL BASE COST				\$	3,005,700
			T	Ť	
EASEMENTS	0.5%		1	s	15.029
RESTORATION (PAVEMENT AND DRIVEWAY)	10%			Ś	300.570
EROSION AND SEDIMENT CONTROL	1.5%			ŝ	45,086
GENERAL CONDITIONS	8%			\$	240,456
			1	F	
SUBTOTAL CONSTRUCTION COST				\$	3,606,840
CONTINGENCY AND TECHNICAL SERVICE	40%			\$	1,442,736
IMPACT TO EXISTING UTILITY					
CONNECTION CHARGE	\$ 1,000.00	PER CUSTOMER	770	\$	770,000
TOTAL CAPITAL COST OPINION**				\$	5,820,000
		· · · · · · · · · · · · · · · · · · ·			
ANNUAL OPERATIONS MAINTENANCE]
WASTEWATER IREATMENT PLANTS	2002/00/25/05/05/05	1000 GAL	建843315在	\$	345,692
FUMPING STATIONS	\$60.00	GPM	器系650系统	\$	39,000
	50.10	PERLF	(650)440 x	\$	5,044
REPLACEMENT	50.25	1000 GAL	2015315S	ş	21,079
	50.25	1000 GAL	CONTRACTOR OF		
DEBT-COLLECTION SYSTEM (20 YEADS AM)		WWIP COST	249/62902	5	33,099
TOTAL ADDITES OF LEANS 4781		L'9' CO21	10/0/2//40	\$	311,617
TUTAL ANNUAL USM				\$	755,531
	ANNUAL				
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF DAM	7.00%	10:00 C-10:00 20		č	8 004 000
PRESENT WORTH OF CAPITAL	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	1. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.		5	5 820 000
TOTAL 20-YEAR PRESENT WORTH				š	13 824 000

**Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

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\$ 13,824,000

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DESCRIPTION

Hardin County Regional Facilities Plan

Service Area	Pawley Crock 8	Upper Otter Creek
Altornative	Vine G	OVE WWTP
Dosign Year	2017	
Dosign Population	47:10	
Design Industrial Acres	0	

Impact to Existing Utility: Now force main proposed to be tied into existing WWTP

Expand Existing WWTP

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
GRAVITY INTERCEPTOR SEWER		DEDUC	101100100000	_	
B-INCH	\$ 55.00		1001656U8	\$	966,900
10-INCH	\$	BEDIC	250/2/025	~	302,200
12-INCH	S		REALT ALCONNER	÷	522 200
18-INCH	\$ 200 200 80 00	PERIE	COLUCY COLUMN	s	522,200
21-INCH	\$ 90.00	PERLF	STATISTICS IN CONTRACT	s	
24-INCH	S 100.00	PER LF	CONTRACTOR OF	s	
27-INCH	\$ 110.00	PER LF		\$	-
30-INCH	\$ 120.00	PER LF	A REAL	\$	-
33-INCH	\$ 130,00	PER LF	豊富なな	\$	-
36-INCH	S 140.00	PER LF		\$	-
42-INCH	5 160.00	PER LF		\$	-
48-INCH	\$ 180.00	PER LF		\$	-
MANHOLES	\$ 2.500.00	EACH	862150,082	Ş	375,000
CODOC MUNI					
	S 100-101 10 90:00	PERIE	000000000000	÷	
4-INCH 6_INCH	S	PERIF	MARCHARDS	s	
- S-INCH	\$ 40.00	PERLF	CHARLEN DAY	ŝ	
10-INCH	\$ 45.00	PERLF	2217302	s	977.850
12-INCH	\$ 50.00	PER LF	States and	\$	-
14-INCH	\$ 60.00	PER LF		\$	-
16-INCH	\$ 70.00	PER LF	10000	\$	-
18-INCH	\$ (PER LF	10000	\$	-
24-INCH	\$ 90,00	PER LF	新設設備構	\$	-
PUMP STATION (IF<1500 GPM USE 150*GPM+100.	.000)	GPM	級約約00歲	\$	265,000
PUMP STATION (IF>1500 GPM USE 215°GPM+550,	000}	GPM		\$	<u> </u>
PUMP STATION	a success	GPM		<u>\$</u>	
MACYEMATED TOCATHENT BLANT	e:::::::::::::::::::::::::::::::::::::	AVE CRD	MC62040.0.02%		
TRATER TREATMENT FEAT		AVE OF D	TEXTER SERVICE	3	
IMPACT TO EXISTING UTILITY	CONTRACTOR CONT		ACCENTION CONTRACTOR		
UPGRADE TO EXISTING COLLECTION SYSTEM	2000 CC		-		
EXPAND EXISTING WWTP	\$ 4.00	AVE GPD	\$471000%	\$	1,884,000
SUBTOTAL BASE COST				\$	5,755,100
EASEMENTS	0.5%			\$	28,776
RESTORATION (PAVEMENT AND DRIVEWAY)	2006年2月2000年2000年2000年2000年2010年2010年2010年20			\$	575,510
EROSION AND SEDIMENT CONTROL	1.5%		<u> </u>	\$	86,327
GENERAL CONDITIONS	8% S			\$	460,408
SUBTOTAL CONSTRUCTION COST				ş	6,906,120
				~	0 700 440
CONTINGENCY AND TECHNICAL SERVICE				3	2,762,448
TOTAL CARITAL COST ORINION**		.	L!	÷	9 669 000
		1		. .	5,005,000
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	Sec. 500	1000 GAL	G171(915)	\$	859,575
PUMPING STATIONS	\$60.00	GPM	(通信)(00)题	\$	66,000
FORCE MAINS & INTERCEPTORS	\$0.10	PERLF	3459370 豪	\$	5,917
ADMINISTRATION	SO.25 S.C.2	1000 GAL	94719152	\$	42,979
REPLACEMENT	\$0.00	1000 GAL	2010 AND A		
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	131185 261	\$	234,229
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	·注意的 0.058 生活的	C.S. COST	28;503)739	\$	377,217
TOTAL ANNUAL O&M				\$	1,585,917
	ANNUAL		I I		
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			1
PRESENT WORTH OF O&M	7.00%	20		\$	16,801,000
PRESENT WORTH OF CAPITAL				\$	9,669,000
TOTAL 20-YEAR PRESENT WORTH				\$	26,470,000

**Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

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Hardin County Regional Facilities Plan

y Kegional Pacilides Plan	
Service Area	KPawley Creek & Upper Otter Creek
Altornativo	Thort Knox WWTP
Design Year	20176.05
Design Population	98632471019861年
Dosign Industrial Acros	283-2032

Impact to Existing Utility: Upgrade Existing Collection System

ІТЕМ	UNIT COST	UNITS	NUMBER OF UNITS		COST
GRAVITY INTERCEPTOR SEWER				╋	
8-INC	SS 550	PERLE	\$92177580%	s	966 900
10-INCF	\$0.00	D PERLF	2008337.045	s s	502,200
12-INCH	\$ 65.00	PERLF	2040302	ŝ	261.950
15-INCH	S) PERLF	22/24602	\$	522,200
18-INCH	\$ 80.00	PER LF	ST 557 557	ŝ	
21-INC+	90.00	PER LF	100-contract	\$	-
24-INC	\$) PER LF		\$	-
27-INCH	\$ 110.00	PERLF	1883 B	\$	•
30-INCH	\$ 120,00) PERLF	影響後國語	\$	-
33-INCH	\$ 130.00) PERLF	200 A 200	\$	•
38-INCH	\$ \$340.00): PERLF	1206404205	\$	-
42-INC	\$ 160.00	PERLF	包括加速度	<u>s</u>	<u> </u>
48-INC	\$ 180.00	PERLF		\$	-
MANHOLES	S	EACH	18-2021 EO 828	5	375,000
FORCE MAIN				┟┈	
4-INCH	S	PERLE	STATISTICS.	5	
6-!NCH	\$ 35.00	PERIF	STORAGE STORAGE	È	
8-INCH	S 40.00	PERLF	CONTRACTOR OF	s	
10-INCH	\$145.00	PERLE	1889Bagons	ŝ	1 634 850
12-INCH	S 50.00	PERLE	100000000000	Š	
14-INCH	S 60.00	PERLF	120500000	š	
16-INCH	\$ 70.00	PERLF	1000000000	İs	
18-INCH	\$ 80'00	PERLF	IS CONTRACTOR	Ś	-
24-INCH	\$ 90.00	PERLF	STREET, ST	s	
				Ľ	
PUMP STATION (IF<1500 GPM USE 150*GPM+100	000)	GPM	建油和00度	\$	265,000
PUMP STATION (IF>1500 GPM USE 215"GPM+550	.000)	GPM	逾出100款	\$	265,000
PUMP STATION	Research and a second second	GPM	20.28.20	\$	-
				<u> </u>	
WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD	02020065	Ş	-
IMPACT TO EXISTING UTILITY					
UPGRADE TO COLLECTION SYSTEM		LUMP SUM		\$	90,000
				Ļ	
SOBIOTAL BASE COST		1		ş	4,883,100
EACENENTO	AND	1		_	
EASEMENTS RECTORATION/RAVENENT AND DRAFEWAYD	22 10 Steer 10.07			ş	24,416
EBOSION AND SEDIMENT CONTROL	227-1200-121UX	2 		s	488,310
GENERAL CONDITIONS	1.07			2	/3,24/
GENERAL CONDITIONS	Source States and the second			\$	390,648
SUBTOTAL CONSTRUCTION COST				e	5 959 720
				-	3,033,120
CONTINGENCY AND TECHNICAL SERVICE	40%	· · · · · · · · · · · · · · · · · · ·		s	2 343 888
					2,040,000
TOTAL CAPITAL COST OPINION**				\$	8,204,000
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	1406652i009285	1000 GAL	统 171/915家	\$	343,830
PUMPING STATIONS	\$60.00	GPM	\$\$22200	\$	132,000
FUNCE MAINS & INTERCEPTORS	\$9,10	PERLF	是733770至	\$	7,377
ADMINIS I RAHON DEDLACENERT	\$0,25	1000 GAL	建17 119,15全	\$	42,979
	50.00	1000 GAL	BANADA		
DEBT-COLLECTION SYSTEM (30 YEARS AND	0.074	WWIP COST	COSTANIA CONTRACT		177 0.5-
TOTAL ANNUAL COM	ass. U.U58 870 \$7	U.S. COS1	10;204;000)	5	475,832
TOTAL ANNUAL O&M				\$	1,002,018
	ANNUAL				
TOTAL PRESENT WORTH	NTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7.00%	20		\$	10.615.000
PRESENT WORTH OF CAPITAL				S	8,204,000
TOTAL 20-YEAR PRESENT WORTH				\$	18,819,000

**Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

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Hardin County Regional Facilities Plan

/ Regional Facilities Plan	
Service Area	Pawley Creek & Upper Otter Greek
Alternative	New Northorn WWTP
Design Year	NARA 2017 2015
Design Population	E385247105722
Dosign Industrial Acres	e de la Orientidad

Impact to Existing Utility: Not Applicable

ГТЕМ	UNIT COST	UNITS	NUMBER OF UNITS		COST
CRAVITY INTERCEPTOR SEWER				<u> </u>	
SIGGITT INTERGET TO/CSENER	0.0000000000000000000000000000000000000	PERIE	ale on service	e	966 000
10-INCH	S CONSERVATION OF	PERIE	BER 49/00/09	š	502 200
124NCF	S 33 85 00	PERLE	200400000000000000000000000000000000000	1	261 950
15-INCH	525270.00	PERLE	220100	5	522 200
18-INCH	5.222.280.00	PERLE	Series and	s	012,200
21-INCH	5.0020809000	PERIE	ESTIMATION OF	s	
24-INCH	(\$3535-55100.00	PERLE		s	
27-INCH	S 110.00	PERLE	5.55	Ś	-
30-INCF	S 120.00	PERLF	-	Š	
33-INCH	S 430.00	PERLE		ŝ	-
36-INCH	S 140.00	PERLF	COLUMN STOR	s	-
42-INCF	\$ction 160.00	PERLF	51.5	s	-
48-INCH	\$ 180.00	PERLF	50 ST	\$	-
MANHOLES	\$ 2,500.00	EACH	20031201228	\$	375,000
			I		
FORCE MAIN			1	1	
4-iNCH	\$ 30.00	PER LF	220 C	\$	•
6-INCH	\$ 35.00	PER LF	1000 (Carlos Carlos C	\$	-
8-INCH	S 40.00	PER LF	100000	\$	-
10-INCH	\$ 20 245.00	PER LF	NO ISSUE	\$	521,550
12-INCH	\$	PERLF	Standard	s	•
14-INCH	S 1:00.00	PER LF	10000000000	Ś	-
16-INCH	S	PER LF	12241202002	\$	
18-INCH	\$	PERLF	100 200 200	\$	-
24-INCH	\$ 90.00	PER LF	Hard Barris	\$	
		1	1		
PUMP STATION (IF<1500 GPM USE 150"GPM+100	,000)	GPM	88.18100.88	\$	265,000
PUMP STATION (IF>1500 GPM USE 215 GPM+550	,000)	GPM	STREES STOR	s	
PUMP STATION	215-1210-22	GPM		\$	- 1
WASTEWATER TREATMENT PLANT	S 5.00	AVE GPD	34740003	\$	2,355,000
SUBTOTAL BASE COST				\$	5,769,800
EASEMENTS	0.5%			\$	28,849
RESTORATION (PAVEMENT AND DRIVEWAY)	Nanja (USA (C10%			\$	576,980
EROSION AND SEDIMENT CONTROL	1.5%			\$	86,547
GENERAL CONDITIONS	8%			\$	461,584
SUBTOTAL CONSTRUCTION COST				\$	6,923,760
		Í	1		
CONTINGENCY AND TECHNICAL SERVICE	254723 NEXT 4D%	1		\$	2,769,504
TOTAL CAPITAL COST OPINION**		· · · · · · · · · · · · · · · · · · ·		\$	9,693,000
ANNUAL OPERATION& MAINTENANCE			1		
WASTEWATER TREATMENT PLANTS	DEPENDENT OF THE OWNER	1000 GAL	117/19153	s	171,915
PUMPING STATIONS	\$60.00	GPM	88121008£	s	66,000
FORCE MAINS & INTERCEPTORS	SS \$0.10 % Sat	PERLF	8749,030%	Š	4.903
ADMINISTRATION	\$0.50	1000 GAL	1817/09153	ŝ	85,958
REPLACEMENT	\$0.25	1000 GAL	9171915*	Ŝ	42.979
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	13,956:297	Ś	292.766
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	05738708	s	332,729
TOTAL ANNUAL ORM				\$	997,249
				-	0011240
	ANNUAL				
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7.00%	20		\$	10,565,000
ODESENT MODTH OF CADITAL				e	0,603,000

TOTAL 20-YEAR PRESENT WORTH

**Property Owner will be responsible for cost to connect structure to new sewer 40% conlingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

\$ 20,258,000

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Hardin County Rogional Facilities Plan

Pawley Creek & Upper Otter Creek	Ϋ́.
Radcliff WWTP	jį
2017	-
4710	
2018-0-3188	
	Pawley Creek & Upper Ottor Creek Radelinf WHTP 2017 3710

Impact to Existing Utility: New force main proposed to be tied into new headworks

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New hoadworks \$1000 Connection Charge per customer

	\$1000 Connectio	on Charge per custom	ər		
ITEM	UNIT COST	UNITS	NUMBER		COST
	I		OF UNITS		
GRAVITY INTERCEPTOR SEWER				1	
8-INCH	\$	PERLF	\$\$1Z;5803	\$	966,900.00
10-INCH	S 60.00) PER LF	Baa3701	\$	502,200.00
12-INCH	\$65.00) PER LF	图43030跳	s	261,950.00
15-INCH	S 70.00	PERLF	建加州印第	\$	522,200.00
18-INC	l \$ 80.00	PERLF	200 B 200	\$	
21-INCH	S 90.00	PERLF	1000000	\$	-
24-INCF	\$ 100.00	PERLF		\$	-
27-INCH	\$ 110:00	PERLF	190000	\$	
30-INCH	S 120.00	PERLF	361400	s	-
33-INCH	S 130.00	PERLF	STATISTICS.	s	
36-INCH	5 140.00	PERLE	30721335339533	ŝ	-
42-INCH	160.00	PERIE	672-62-62	s	
48-INCH	180.00	PERLE		÷	
MANHOLES	5 2 500 00	FACH	1000000 571 8000	è	375 000 00
		Choir	2002100100	l °	3/3,000.00
EORCE MAIN					
	S #251 2000	DEDIC	SCRAPPING.	-	
4-incr	00.00		Concentration of the	13	-
0-11/0	13 30.00		20022082099	1	•
8-INCH	S AUGU (S) AU UU	PERLF	10101022046885	Ş.	-
10-INCH	\$ 45.00	PERLF		Ş	•
12-INCH	\$ 50.00	PER LF	8636107.0 差	\$	1,818,500
14-INCH	\$ 60.00	PER LF	162.54	\$	•
16-INCH	\$ 70.00	, PER LF		\$	-
18-INCH	\$ 80.00	PERLF		\$	-
24-INCH	\$ 90,00	PERLF		\$	-
PUMP STATION (IF<1500 GPM USE 150"GPM+100	,000)	GPM	3311月00月	\$	265,000
PUMP STATION (IF>1500 GPM USE 215"GPM+550.	,000)	GPM	被約300度	\$	265,000
PUMP STATION	\$ 0.40	GPM	Concession of the second	\$	-
WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD	12 Martin	Ş	-
NEW HEADWORKS	\$ 1.00	AVE GPD	31474:0003	\$	471.000
		r .			
SUBTOTAL BASE COST		• • • • • • • • • • • • • • • • • • • •		s	5.447.750
				Ť	
EASEMENTS	2015 CONTRACTOR			č	27 220
RESTORATION (PAVEMENT AND DRIVEWAY)	0.0%			÷	£11,235
EROSION AND SEDIMENT CONTROL	1.50			÷.	344,773
EROSIONARD SEDMENT CONTROL				¢	
CENERAL CONDITIONS	00/		<u> </u>	\$	81,716
GENERAL CONDITIONS	1937 X AG (19 8%			\$ \$	435,820
GENERAL CONDITIONS	635 X X () // 8%			\$	81,716 435,820
GENERAL CONDITIONS	8%			\$ \$ \$	81,716 435,820 6,537,300
GENERAL CONDITIONS	8%			\$ \$ \$	81,716 435,820 6,537,300
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE	8%			\$ \$ \$	81,716 435,820 6,537,300 2,614,920
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY	40%			\$ \$ \$	81,716 435,820 6,537,300 2,614,920
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE	8% 40% \$ 950011,000.00	PER CUSTOMER	1,570	\$ \$ \$ \$	81,715 435,820 6,537,300 2,614,920 1,570,000
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE	\$ 9510011000.00	PER CUSTOMER	1,570	\$ \$ \$ \$	81,715 435,820 6,537,300 2,614,920 1,570,000
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION**	8% 40% \$	PER CUSTOMER	1,570	\$ \$ \$ \$ \$	81,715 435,820 6,537,300 2,614,920 1,570,000 10,722,000
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION**	8% 40% \$ 000.00	PER CUSTOMER	1,570	\$ \$ \$ \$ \$	81,715 435,820 6,537,300 2,614,920 1,570,000 10,722,000
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION**	40%	PER CUSTOMER	1,570	\$ \$ \$ \$ \$	81,715 435,620 6,537,300 2,614,920 1,570,000 10,722,000
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE	3	PER CUSTOMER	1,570	\$ \$ \$ \$	81,715 435,820 6,537,300 2,614,920 1,570,000 10,722,000
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS	\$	PER CUSTOMER	1.570	\$ \$ \$ \$ \$ \$	61,715 435,620 6,537,300 2,614,920 1,570,000 10,722,000 10,722,000
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS	40% \$	PER CUSTOMER	1.570	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	81,715 435,820 6,537,300 2,614,920 1,570,000 10,722,000 10,722,000
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION* ANNUÂL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STĂTIONS FORCE MAINS & INTERCEPTORS	8% 40% \$	PER CUSTOMER 1000 GAL GPM PER LF	1.570	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	81,715 435,620 6,537,300 2,614,920 1,570,000 10,722,000 10,722,000 704,852 132,000 7 381
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION	\$	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL	1,570 1,570 1,570 1,570 1,570	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	61,715 435,620 6,537,300 2,614,920 1,570,000 10,722,000 10,722,000 704,852 132,000 7,381 42,970
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT	\$	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL	1.570 1.570 535410165 74222008 N2736102 5372162157 8372162157	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	81,715 435,620 6,537,300 1,570,000 10,722,000 10,722,000 704,852 132,000 7,381 42,979
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS POUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-45)	8% 40% \$	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL	1,570 1,570	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	81,715 435,620 6,537,300 2,614,920 1,570,000 10,722,000 10,722,000 7,04,852 132,000 7,381 42,979 69,500
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEET-COLLECTION SYSTEM (30 YEARS-4%)	\$	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL C S COST	1,570 1,570 1,570 1,570 1,570 1,570 1,570 1,570 1,570 1,570 1,570 1,570 1,570 1,570 1,570 1,570 1,570 1,570	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	81,715 435,620 6,537,300 2,614,920 10,722,000 10,722,000 10,722,000 704,852 132,000 7,381 42,979 68,598 624,977
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-COLLECTION SYSTEM (30 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%)	8% 40% \$ 21,000.00 \$ 2010 \$ 20	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL 1000 GAL	1.570 1.570 1.570 1.570 1.570 1.570 1.570 1.570 1.570 1.570 1.570 1.570 1.570 1.570 1.570 1.570 1.570 1.570 1.570	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	81,715 435,620 6,537,300 1,570,000 10,722,000 10,722,000 704,852 132,000 7,381 42,979 58,598 621,876
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWIP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL Q&M	8% 40% 5 5 1,000.00 5 5 5 6 0 00 5 5 6 00 5 6 00 5 6 00 5 6 00 5 6 00 5 6 00 5 7 6 00 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL 1000 GAL	1,570 1,570	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	81,715 435,620 6,537,300 1,570,000 10,722,000 10,722,000 10,722,000 704,852 132,000 7,381 42,979 68,598 621,676 1,577,685
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PORCE MAINS & INTERCEPTORS ADMINISTRATION REFLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL Q&M	\$ 21,000.00 \$ 21,000.00 \$ 20,00 \$ 20,000 \$ 20,0000 \$ 20,00000 \$ 20,0000 \$ 20,000000 \$ 20,00000	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL C.S. COST	1,570 1,570	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	81,715 435,620 6,537,300 2,614,920 10,722,000 10,722,000 704,852 132,000 7,381 42,979 68,598 621,876 1,577,685
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUÁL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REFLACEMENT DEBT-WWITP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUÁL O&M TOTAL ANNUÁL O&M	\$	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL C.S. COST	1,570 1,570	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	81,715 435,820 6,537,300 2,614,920 1,570,000 10,722,000 10,722,000 704,852 132,000 7,381 42,979 68,598 621,876 1,577,685
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REFLACEMENT DEBT-WWITP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL Q&M TOTAL PRESENT WORTH PRESENT WORTH	30000000000000000000000000000000000000	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL C.S. COST NO. OF YEARS	1.570 1.570 53.54.00.05 54.2420.00 54.243.00 54.243.05 55.2420.00 55.2420.00 50.24200.00 50.24200.00 50.24200.00 50.24200.00 50.24200.00 50.24200.00 50.24200.00 50.2400.00 50.2400.00 50.2400.00 50.2400.00 50.2400.00 50.2400.00 50.2400.00 50.2400.00 50.2400.00 50.2400.00 50.2400.00 50.2400.00 50.2400.00000000000000000000000000000000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	81,715 435,820 6,537,300 1,570,000 10,722,000 10,722,000 7,04,852 132,000 7,381 42,979 68,598 621,876 1,577,685
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS POLMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWIP (20 YEARS-4%) DEBT-WWIP (20 YEARS-4%) TOTAL ANNUAL O&M TOTAL PRESENT WORTH PRESENT WORTH OF O&M DEBT-WWORTH OF O&M DEB	40% \$ 0,000 \$ 0,000 \$ 0,000 \$ 0,000 \$ 0,000 \$ 0,000 \$ 0,005 \$ 0,005	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL C.S. COST NO. OF YEARS	1.570 1.570 1.570 1.570 1.570 1.577 1.577 1.577 1.577 1.577 1.577 1.577 1.577 1.577 1.577 1.577 1.577 1.570	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	81,715 435,820 6,537,300 2,614,920 1,570,000 10,722,000 704,852 132,000 7,381 42,979 68,598 621,876 1,577,695
GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL O&M PRESENT WORTH OF CAPITAL TOTAL PRESENT WORTH OF CAPITAL TOTAL AND ADD PRESENT WORTH OF CAPITAL TOTAL AND ADD PRESENT WORTH OF CAPITAL TOTAL AND ADD ADD PRESENT WORTH OF CAPITAL TOTAL AND ADD PRESENT WORTH OF CAPITAL TOTAL PRESENT WORTH OF CAPITAL TOTAL ADD PRESEN	40% \$	PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL C.S. COST NO. OF YEARS 20	1,570 1,570	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	81,715 435,820 6,537,300 2,614,920 1,570,000 10,722,000 704,852 132,000 7,381 42,979 68,598 621,876 1,577,685 16,714,000 10,722,000

**Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

Hardin County Regional Facilities Plan

Regional Facilities Plan	
Service Area	Brushy Fork Creek
Altornative	Vine Grove WWTP
Dosign Year	2027
Design Population	· 100-24270 · 12-27
Dosign Industrial Acres	Reveal O Reserves

Impact to Existing Utility: New force main proposed to be tiod into existing WWTP Expand Existing WWTP

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
GRAVITY INTERCEPTOR SEWER				<u> </u>	
8-INCH	\$	PER LF	CONTRACTOR OF STREET,	Ľ.	
10-INCH	5 60.00		California California	1÷	-
12-INCH	00.00		100000000000000000000000000000000000000	<u><u></u></u>	
15-INCH	SI		STATES AND A STATES	ŀ÷	
18-INCH	S 00.00		000000000000000000000000000000000000000	÷	-
21-INCH	9 100 00		EFREND SPECIA	l	
24PINCH	C	DEDIE	123 129 120 120 120	t÷-	
20 NCH	S (100 00	PEDIE	AND 25340 (2022)	ŧě	_
33-INCH	\$	PERIF	100000000000000000000000000000000000000	š	
35-INCH	\$ 140.00	PERLE	3339510000000	š	
42-INCH	State 160.00	PERLE	10000000000	š	
48-INCH	\$ 180.00	PERIE	10100000000	Š	
MANNOLES	5 2 500 00	FACH	PROPONES:	š	-
MEAN ROLLS			001005000550	۱Ť-	
FORCE MAIN		1	1		
4-INCH	\$1.00	PERLF	SHERE	\$	
6-INCH	\$ 35.00	PER LF	10000000000	ŝ	
8-INCH	\$ 40.00	PER LF	133426.367	ŝ	-
10-INCH	\$ 45.00	PERLF	2018-03-02-07	\$	- 1
12-INCH	\$ 50.00	PERLF	Market	\$	- 1
14-INCH	\$ 60.00	PER LF	500 States 1995	\$	-
16-INCH	\$ 70.00	PER UF	1024622230	\$	•
18-INCH	\$ 80.00	PERLF	ACCESSED.	\$	-
24-INCH	\$ 90.00	PERLF	20227555	\$	-
PUMP STATION (IF<1500 GPM USE 150'GPM+100.0	00)	GPM	1032250 20	\$	137,500
PUMP STATION (IF>1500 GPM USE 215*GPM+550.0	00)	GPM	Section Section		
PUMP STATION	and the second second	GPM	AND DO TO DO		
WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD	With Mark	\$	•
IMPACT TO EXISTING UTILITY					
UPGRADE TO EXISTING COLLECTION SYSTEM					
EXPAND EXISTING WWTP	\$ 4,00	AVE GPD	部出3,000 至	\$	452,000
SUBTOTAL BASE COST				\$	589,500
			1		
EASEMENTS	N/021 H-20.5%			s	2,948
RESTORATION (PAVEMENT AND DRIVEWAY)	10%			\$	58,950
EROSION AND SEDIMENT CONTROL	1.5%			\$	8,843
GENERAL CONDITIONS	832 S 1 S 8%			\$	47,160
SUBTOTAL CONSTRUCTION COST				\$	707,400
		l .			
CONTINGENCY AND TECHNICAL SERVICE	o.s. 40%			\$	282,960
TOTAL CAPITAL COST OPINION***				\$	990,000
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	005500	1000 GAL	3412453	\$	208,225
PUMPING STATIONS	Stree==\$60.00	GPM	至此250 法法	\$	15,000
FORCE MAINS & INTERCEPTORS	50,10	PERLF	BARDO REAL	Ş	•
ADMINISTRATION	\$0.25	1000 GAL	2412455	\$	10,311
REPLACEMENT	23 50.00	1000 GAL	STATIONAL STATE	\$	·
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	8759,0842	\$	56,172
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	\$230,916	\$	13,393
TOTAL ANNUAL O&M				\$	301,102
	ANNUAL				
	INTEREST	INC. OF ICANS			

TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS		
PRESENT WORTH OF O&M	7.00%	99.66.00 A A A A A A A A A A A A A A A A A A	\$	1,075,000
PRESENT WORTH OF CAPITAL			\$	503,000
TOTAL 20-YEAR PRESENT WORTH			\$	1,578,000

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency Is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

DESCRIPTION Hardin County Regional Facilities Plan

r Regional Facultios Plan	
Service Area	Brushy Fork Creek
Alternativo	E Fort Knox WWTP
Design Year	STAR 2027
Design Population	4270 3 3 5
Design Industrial Acres	0.000

Impact to Existing Utility: Upgrade Existing Collection System

ITEM	UNIT COST	UNITS	OF UNITS		COST
SRAVITY INTERCEPTOR SEWER			+	╉┯╍	
8-INC	135500 CO#55100	DER LE	104200 CONTRACTOR	5	
	5 60.00	PERLE		Š	
12-INC	I S	PERLF		Š	
16-INCI	S	PERLF	Contraction of the	1	
18-INCI	\$ 80.00	PERLE	S-100	15	
21-INC8	S	PERIF	520003520	Š	
24-INCE	S 100.00	PERLE	264004MA	Ť	
27-INCE	Shares and 10.00	PERLE	US-SOLADE	ŀ	
30-INC	State 120.00	PERLE	104202023	Ť	
33-INC	15.000	PERIE	1203305254	Ť	
38-INC	S	PFRIF	STATE OF STREET	İš	
42-INC	0.0	PERIE	100000000000000000000000000000000000000	łš	
48-INCH	State Contan on	PERIE	202200000000	ł÷	
MANHOLES	350000		0255005220	ł	
	Contraction of the second second	o Dion	Contraction of the state	1.	
FORCE MAIN			4		
x-16004	S	PEDIE	THE PROPERTY.	•	
¢ING			PT2PC/SC/285507	l÷.	<u>-</u>
BINCH	18	DEDIE	HOP DOS DOG DO	l÷-	-
84NUF	9.00	PERC	Sold States of States	<u>P</u>	•
	\$2.10 A 20.00	PERLE	15000000000	<u> </u>	•
12-INCF	1 3	PERLF	1000000	15	-
14-INCF	\$	PERLF	100000000000000000000000000000000000000	\$	-
16-INCI	5 70.00	PER LF	的影響器	\$	-
18-INCH	\$ 80.00	PER LF	的影響的	Ş	-
24-INCH	\$ 90,00	PER LF	の日本の	\$	-
PUMP STATION (IF<1500 GPM USE 150°GPM+100,	300}	GPM	3325025	\$	137,500
PUMP STATION (IF>1500 GPM USE 215*GPM+550,	000)	GPM	1000		
PUMP STATION	BRC E. B	GPM	SHARE SHOW		
		1		_	
WASTEWATER TREATMENT PLANT	S. 4.00	AVE GPD	STREET, ST	\$	•
				-	
MPACT TO EXISTING UTILITY	1		· · ·		
UPGRADE TO COLLECTION SYSTEM	f				
	1				
	· · ·				
SUBTOTAL BASE COST				•	437 500
	1		r	<u>~</u>	137,300
	CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A	<u> </u>		_	
EASEMENTS	0.07			\$	688
RESTORATION (PAVEMENT AND DRIVEWAY)	的现在分词 法不法有 的复数	· · · · · · · · · · · · · · · · · · ·		\$	13,750
EROSION AND SEDIMENT CONTROL	1.5%			\$	2,063
GENERAL CONDITIONS	24 ABY 58 (42 8%			Ş	11,000
SUBTOTAL CONSTRUCTION COST				\$	165,000
CONTINGENCY AND TECHNICAL SERVICE	0000 A 2 9 40%			\$	66,000
TOTAL CAPITAL COST OPINION***				\$	231,000
			1	-	
	•••••	•			
NNUAL OPERATION& MAINTENANCE	i	1	T		
WASTEWATER TREATMENT PLANTS	and the second second	1000 GAI	STATE AND	\$	82 400
PUMPING STATIONS	Sector Sector	GPM	8096250 344	÷	15 000
FORCE MAINS & INTERCEPTORS	1007-101-10-50140	PERIE	ACCOUNT OF THE OWNER	č	10,000
ADMINISTRATION	The Cost of the State of the St	1000 CAL	NAMORE SAMAGE	ç	20.022
REPLACEMENT		1000 GAL	2014/11/4/2014	÷	20,023
	QUUO	1000 GAL	SEEDVARMS.	\$	-
	0.074	WWIP COST	CONVASE.	\$	-
DEDI-OULEUTION STOLEM (30 TEAKS-4%)	0.058	C.S. COST	2237,0002	Ş	13,398
TOTAL ANNUAL 08M				\$	131,511
	····				
	ANNUAL				
UTAL PRESENT WORTH	INVERES	NU. OF YEARS		_	
PRESENT WORTH OF O&M	7,00%	2410		\$	470,000
PRESENT WORTH OF CARITAN				•	447 000

TOTAL 20-YEAR PRESENT WORTH

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

567,000

\$

Hardin County Regional Facilities Plan

Regional Facilities Plan	
Service Area	Brushy Fork Creek
Alternative	New Northern WWTP
Design Year	深端系和 2027 在第三部
Design Population	4270
Design Industrial Acros	134956E0242588

Impact to Existing Utility: Not Applicable

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лем	UNIT COST	UNITS	NUMBER OF UNITS		COST
		<u> </u>	<u> </u>	⊢	
GRAVITT INTERCEPTOR SEVER	3892062785078 55700 2	DEBIE	SCARES OF	5	
10-INCH	\$ 200 200 200 200	PERIE		Š	<u> </u>
12-INCH	S	PERLE	Active and a second	Š	
15-INCH	ST 120500 70'00	PERLE	distance in the second	s	· .
18-INCH	\$ 80.00	PERLF	650 W. C. C. C.	Ś	-
21-INCH	5000000	PERLF	SCHOOL STREET	s	-
24-INCH	\$ 100.00	PERLF		Ś	-
27-INCH	S-110.00	PERLF		Ś	-
30-1NCH	\$ 120.00	PERLF		ŝ	-
33-INCH	S 130.00	PERLF	CONSIDER.	5	-
36-INCH	\$ 140.00	PERLF	NICESSION IN	\$	-
42-INCH	S 0 38 160.00	PERLF	In the second second	\$	-
48-INCH	S	PERLF	STATISTICS.	\$	-
MANHOLES	\$ 2,500,00	EACH	19020380	\$	•
FORCE MAIN					
4-INCH	\$ 30.00	PER LF		\$	-
6-INCH	\$ 35.00	PER LF	网络网络	\$	-
8-INCH	\$ 40.00	PER LF	-	\$	-
10-INCH	\$	PER LF	Concession:	\$	-
12-INCH	\$ 50:00	PER LF		\$	•
14-INCH	\$ 60.00	PER LF	Section 199	\$	-
16-INCH	\$ 70.00	PER LF	STREET, SOL	\$	-
18-INCH	\$ 60,00	PER LF		\$	-
24-INCH	\$ 90.00	PER LF	1000000	\$	•
·····		1			
PUMP STATION (IF<1500 GPM USE 150'GPM+100,0	000)	GPM	彩表250 萬里	\$	137,500
PUMP STATION (IF>1500 GPM USE 215"GPM+550,0	000)	GPM	CONTRACTOR OF		
PUMP STATION	机包闭 把 网络 公司 化	GPM	西西日期代的		
WASTEWATER TREATMENT PLANT	\$ <u>.</u>	AVE GPD	1991 1993 1994 1994	\$	282,500
SUBTOTAL BASE COST				\$	420,000
EASEMENTS	0.5%			\$	2,100
RESTORATION (PAVEMENT AND DRIVEWAY)	SS-0799-9410%			\$	42,000
EROSION AND SEDIMENT CONTROL	达至132657511.5%			\$	6,300
GENERAL CONDITIONS	8%			\$	33,600
SUBTOTAL CONSTRUCTION COST				\$	504,000
CONTINGENCY AND TECHNICAL SERVICE	40%			\$	201,600
		[
TOTAL CAPITAL COST OPINION***				\$	706,000
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	270 C	1000 GAL	除利益 4	Ş	41,245
PUMPING STATIONS	\$60.00	GPM	· # 250 部 ·	\$	15,000
FORCE MAINS & INTERCEPTORS	\$0,10	PER LF	建設成の設置を	\$	-
ADMINISTRATION	\$0,50	1000 GAL	融4加245座	\$	20,623
REPLACEMENT	\$0.25	1000 GAL	翻 按 45 26	\$	10,311
DEBT-WWTP (20 YEARS-4%)	1.0.074	WWTP COST	國743095	\$	35,140
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	(0.058)	C.S. COST	是2019月1月	\$	13,406
TOTAL ANNUAL O&M				\$	135,725
· · · · · · · · · · · · · · · · · · ·					
	ANNUAL				
TOTAL PRESENT WORTH	INTEREST	NU. OF YEARS			

TOTAL PRESENT WORTH	INTEREST	NU. OF YEARS		
PRESENT WORTH OF OAM	7.00%	N	\$	485,000
PRESENT WORTH OF CAPITAL			\$	359,000
TOTAL 20-YEAR PRESENT WORTH			\$	844,000

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector severs cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

Hardin County Regional Facilities Plan

Service Area	Brushy Fork Creek
Alternative	RadcillfWWTP
Design Year	2027
Design Population	4270
Design Industrial Acres	0

Impact to Existing Utility: New force main proposed to be tied into new headworks

New headworks \$1000 Connection Charge per customer

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
GRAVITY INTERCEPTOR SEWER		<u> </u>			
8-ING	1.5	0 PER LF		<u> </u>	•
10-INCH	1.5			ş (Ş	
15.100	19 1000		10000000	<u> </u>	-
13-INC	10.0		AND DESCRIPTION	<u> </u>	
21-11/0	10.0		SPACES AND ADDRESS	1	
21-INCF	100.000			8 3	-
27-110	13.55388-410.0		ALL CONTRACTOR	•	-
30-INCH	1200	O PERIE	100000000000000000000000000000000000000	÷	
33-INCH	1.5		Sector Sector		
36-INC	1 \$ 140.0		102 00 00 00 00	4 -	
42-INCH	11S		000000000000000000000000000000000000000	e v	
48.INCH	180.0		1220207/02744	i e	
MANHOLES	15 2 500 0	EACH	Steep 1 200	ł	-
	1.4.4.91.91.91.91.01.01.01.01	<u>. 5401</u>	1.280200-04120-04	<u> </u> ~	
FORCE MAIN				⊢	
4-INCH	s common	PERIF	740500000000000		
6-INCH	S	PERIE	ACCOUNTS OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER	ŧ	
8-INCH	S		destination of	1°	-
10-INCH	S 45 W	PERLE	THE REAL PROPERTY OF	t	-
12-INCH	S) PERIF	202000000	ŀ-	<u> </u>
14-INCH	S S BO O	PERIF	ALC: NO DE LA COMPANY	H	
16-INCH	5 70 0		100000000000000000000000000000000000000	÷	
18-INCH	S S S S S S S S S S S S S S S S S S S	PERIE	3/20/54/20/444	÷	
24-INCH	\$ 90.00	PERIE	201-201-201-201-201-201-201-201-201-201-	÷	
			The second second second second second second second second second second second second second second second se	۴-	-
PUMP STATION (IF<1500 GPM USE 150*GPM+100.0	2001	GPM	326250354	÷.	137 500
PUMP STATION (IF>1500 GPM USE 215"GPM+550.0	200)	PEAK GPD	500000000000000000000000000000000000000	F*	131,300
PUMP STATION	803023555555555	PEAK GPD	010000000000		
			2200000000000		
WASTEWATER TREATMENT PLANT	S 56-50-254 00	AVE GPD	HIGHNON SHOW	5	
			10,3103,003,024	÷	
IMPACT TO EXISTING UTILITY				_	
NEW HEADWORKS	\$	AVE GPD	18913 000 H	s	113 000
			A REAL PROPERTY AND INCOME	ř.	
SUBTOTAL BASE COST	.			5	250 500
		1	1	<u> </u>	7001000
EASEMENTS	28.8 N A CO 59			\$	1 253
RESTORATION (PAVEMENT AND DRIVEWAY)	104		1	÷	25.050
EROSION AND SEDIMENT CONTROL	5%			ŝ	3 758
GENERAL CONDITIONS	8%			\$	20.040
				•	20,040
SUBTOTAL CONSTRUCTION COST			· · · · · · · · · · · · · · · · · · ·	e	300 600
		1	1	*	300,000
CONTINGENCY AND TECHNICAL SERVICE	N. A. S. C. M.		f	÷	120 240
MPACT TO EXISTING UTILITY			<u> </u>	*	120,240
CONNECTION CHARGE	\$322331 000'00	PER CLISTOMER	2000077836		377.000
		- art ood romart	2015/2010/2010/2010	4	3/1,000
TOTAL CAPITAL COST OPINION***		1	·	÷	799 000
	· · ·	T		*	130,000
INNUAL OPERATION& MAINTENANCE			,		
WASTEWATER TREATMENT PLANTS		1000 GAL	88/4920AB93	e	160 105
PUMPING STATIONS	SEO M	GPM	COLOR DATE OF THE PARTY OF THE	Ś	
FORCE MAINS & INTERCEPTORS	SD 40	PERIF	2000000000000	\$	
ADMINISTRATION	\$0'50	1000 GAL	19941974552	7 5	20.622
REPLACEMENT	SO 00	1000 GAI	SHORN AND	÷	20,023
DEBT-WWTP (20 YEARS-4%)	0 074	WWTP COST	100 070 070 PM	ŝ	78 879
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	5.074 5.0750 058	C S COST	State of the second sec	,	25,400
TOTAL ANNUAL ORM		0.0.0001	NUCTION LINE 458	*	20,403
TO THE ARROAD DAM				Ŷ	241,//1
	ANNUAL		1		
UTAL PRESENT WORTH	ANNUAL INTEREST	NO. OF YEARS			1
PRESENT WORTH PRESENT WORTH OF OBM	ANNUAL INTEREST	NO. OF YEARS		\$	863,000
PRESENT WORTH PRESENT WORTH OF OBM PRESENT WORTH OF CAPITAL	ANNUAL INTEREST	NO. OF YEARS		\$ \$	863,000

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

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Hardin County Regional Facilities Plan

Service Area	Flippin Creek
Alternative	Vine Grove WWT
Design Year	2027 State
Design Population	1060
Dosign Industrial Acres	Sec. 201

Impact to Existing Utility: New force main proposed to be tied into existing WWTP Expand Existing WWTP

SRAVITY INTERCEPTOR SEWER	ІТЕМ	UNIT COST	UNITS	NUMBER OF UNITS		COST
SRAMTY INTERCEPTION SERVER B-INCH (\$1000000000000000000000000000000000000						
0.11C, 1.0.100, 200, 200, 200, 200, 200, 200, 200,	SRAVITY INTERCEPTOR SEWER	56-2010/03/2010 666-200 0	DEQUE	1977 (0) 7 (n) 201	-	1 022 450
Dirth Dirth <thdirth< th=""> Dirth <thd< td=""><td>8-INCH</td><td>20</td><td>PERLP</td><td>DECOMPTON</td><td>ې د</td><td>1,033,430</td></thd<></thdirth<>	8-INCH	20	PERLP	DECOMPTON	ې د	1,033,430
15.NCC 5.NCC 95.0000 PERLE 2000000 5 12.HCR 5.NCC 5.NCC 2000000 PERLE 2000000 5 2.HCR 5.NCC	12-INCH	5 65.00	PERLE	Section of the sectio	Š	
10-INCH Serversion PER LF Serversion Serversion <td>15-INCH</td> <td>S 70.00</td> <td>PERLF</td> <td></td> <td>Š</td> <td>-</td>	15-INCH	S 70.00	PERLF		Š	-
21-INCH IST::::::::::::::::::::::::::::::::::::	18-INCH	\$ 80.00	PERLF		\$	
24-INCH (\$):////incertain (\$)://incertain (\$)://incerta	21-INCH	IS	PERLF	66890689	\$	-
27-INCH 35/00000 PER LF 200-0000 S -	24-INCH	\$ 100.00	PERLF	的建筑	\$	•
30.INCH 3 33.INCH 3 <t< td=""><td>27-INCH</td><td>\$ 110.00</td><td>PERLF</td><td>数部の数</td><td>\$</td><td>-</td></t<>	27-INCH	\$ 110.00	PERLF	数部の数	\$	-
33-INCH 83/24/3130.00 PER LF SERVERS 5 33-INCH 83/24/3160.00 PER LF SERVERS 5 42-INCH 33/24/3160.00 PER LF SERVERS 5 48-INCH 33/24/3160.00 PER LF SERVERSES 5 48-INCH 33/24/3160.00 PER LF SERVERSES 5 6-INCH 33/24/3160.00 PER LF SERVERSES 5 - - - - - - - - - - - - - - - - - - - - - - - - - - -	30-INCH	\$ 120.00	PERLF		\$	
36-INCH 36-INCH <t< td=""><td>33-INCH</td><td>\$ 130.00</td><td>PERLF</td><td></td><td>15</td><td></td></t<>	33-INCH	\$ 130.00	PERLF		15	
42-INCH 12-INCH 12-INCH <t< td=""><td>36-INCH</td><td>\$ 140.00 160.00</td><td></td><td>AUGUST AUGUST</td><td>\$</td><td></td></t<>	36-INCH	\$ 140.00 160.00		AUGUST AUGUST	\$	
VALUATION VALUATION <t< td=""><td>42-INCH</td><td>\$ 180.00</td><td>PERIF</td><td>100000000000000000000000000000000000000</td><td>5</td><td><u>.</u></td></t<>	42-INCH	\$ 180.00	PERIF	100000000000000000000000000000000000000	5	<u>.</u>
Concernment Alinch Science Science	MANHOLES	\$ 2,500.00	EACH	2007.5000	ŝ	187.500
FORCE MAIN 4-INCH 3-30.00 PER LF 340528882 5 -6-INCH -3-30.00 PER LF 340288882 5 - -10-INCH -3-30.00 PER LF 342888882 5 - -10-INCH -3-30.00 PER LF 342888882 5 - -10-INCH -3-30.00 PER LF 342888882 5 - -14-INCH -3-30.00 PER LF 342888882 5 - -16-INCH -3-30.00 PER LF 342888882 5 - -24-INCH -3-30.00 PER LF 342888882 5 - -24-INCH -3-30.00 PER LF 342888882 - - 9UMP STATION (IF-1500 GPM USE 150°CPM+100.000) GPM 342898882 - - 9UMP STATION (IF-1500 GPM USE 150°CPM+100.000) GPM 343988888 - - 9UMP STATION (IF-1500 GPM USE 150°CPM+100.000) GPM 343988988 - - 9UMP STATION (IF-1500 GPM USE 150°CPM+100.0000) GPM <td></td> <td></td> <td></td> <td></td> <td>۲Ť-</td> <td></td>					۲Ť-	
41/NCH 335.00 PER.LF 395268828 S 6-INCH 355.00 PER.LF 395268828 S - 10-INCH 355.00 PER.LF 39536828 S - 12-INCH 355.00 PER.LF 39536828 S - 12-INCH 355.00 PER.LF 39536828 S - 14-INCH 355.00 PER.LF 39536828 S - 18-INCH 355.00 PER.LF 39536828 S - 18-INCH 355.00 PER.LF 39536828 S - 24-INCH 355.00 PER.LF 39536828 S - 24-INCH 355.00 GPM 852692828 S - 24-INCH <	FORCE MAIN					
6-INCH 55/00/2012 PER.LF 98/2/99/38 \$ 443.100 8-INCH 5 10-INCH 5 2 - 10-INCH 5 5 - 12-INCH 5 - 12-INCH 5 5000 PER.LF 88/28/99/38 \$ - 14-INCH 5 5 - 14-INCH 5 - - 14-INCH 5 5 - 16-INCH 5 - - 14-INCH 5 6000 PER.LF 88/28/99/28 \$ - 14-INCH 5 6000 PER.LF 88/28/99/28 \$ - 24-INCH 5 7 82/28/99/28 \$ - - 90/04P STATION (IF-1500 GPM USE 150'CPM+100.000) GPM 88/28/99/28 \$ - - 7/204 STATION (IF-1500 GPM USE 150'CPM+50.000) GPM 88/28/99/28 \$ - - 7/204 STATION (IF-1500 GPM USE 150'CPM+50.000) GPM 88/28/99/28 \$	4-INCH	\$ 30.00	PERLF		\$	
8-INCH is Second State PER LF Rest State S 10-INCH is Social State PER LF Rest State S - 112-INCH is Social State PER LF Rest State S - 114-INCH is Social State PER LF Rest State S - 116-INCH is Social State S - </td <td>6-INCH</td> <td>\$ 35.00</td> <td>PERLF</td> <td>3812(660);</td> <td>\$</td> <td>443,100</td>	6-INCH	\$ 35.00	PERLF	3812(660);	\$	443,100
10-INCH [\$5::::::::::::::::::::::::::::::::::::	8-INCH	\$ 40.00	PERLF		\$	-
12-INCH [\$2::::::::::::::::::::::::::::::::::::	10-INCH	\$ 45.00	PERLE		\$	•
14-INCH [\$::::::::::::::::::::::::::::::::::::	12-INCH	\$ 50.00	PERLF		\$	
IDE-INC PLS IDE INC PLS <thide inc="" pls<="" th=""> <thide inc="" pls<="" th=""></thide></thide>	14-INCH	Ş		ATTACAS AND A DECISION OF A	÷-	
Instruct Autoch Status Statu	16-INCH	S 70,00,	PERLP	Sector Sector Sector	3 4	
LINE LINE <thline< th=""> LINE LINE <thl< td=""><td>24-10/24</td><td>S 00.00</td><td>PERIF</td><td>8000000000</td><td>÷</td><td></td></thl<></thline<>	24-10/24	S 00.00	PERIF	8000000000	÷	
PUMP STATION (IF-1500 GPM USE 150'GPM+100,000) GPM State State PUMP STATION (IF-1500 GPM USE 215'GPM+550,000) GPM GPM State Control GPM State Control Control GPM State Control Contro Control Control				101220030000	÷	_
DUMP STATION (IF>1500 GPM USE 215'GPM+550,000) GPM SESSERT PUMP STATION GPM RESISTENCE WASTEWATER TREATMENT PLANT \$4,00 AVE GPD RESISTENCE MPACT YO EXISTING UTILITY UPGRADE TO EXISTING COLLECTION SYSTEM RESISTENCE RESISTENCE UPGRADE TO EXISTING COLLECTION SYSTEM RESISTENCE RESISTENCE RESISTENCE SUBTOTAL BASE COST \$2,230,050 \$11,150 RESTORATION (PAVEMENT AND DRIVEWAY) 10% \$223,005 EASEMENTS 85% \$33,451 GENERAL CONDITIONS 85% \$33,451 GENERAL CONDITIONS 85% \$178,404 SUBTOTAL CONSTRUCTION COST \$2,676,060 CONTINGENCY AND TECHNICAL SERVICE 40% \$1,070,424 TOTAL CAPITAL COST OPINION** \$3,746,000 NUUAL OPERATION& MAINTENANCE \$40% \$1,070,424 TOTAL CAPITAL COST OPINION** \$3,746,000 PUMPING STATIONS \$60,000 GPM \$32,860,028 \$193,450 PUMATER TREATMENT PLANTS \$60,000 GPM \$32,746,000 \$33,745	PUMP STATION (IF<1500 GPM USE 150"GPM+100.	.000)	GPM	5328022	\$	142,000
PUMP STATION GPM WASTEWATER TREATMENT PLANT \$ WASTEWATER TREATMENT PLANT \$ WASTEWATER TREATMENT PLANT \$ WASTEWATER TREATMENT PLANT \$ WPACT YO EXISTING UTILITY Impact YO EXISTING UTILITY UPGRADE TO EXISTING COLLECTION SYSTEM Impact YO EXISTING COLLECTION SYSTEM SUBTOTAL BASE COST \$ SUBTOTAL BASE COST \$ EASEMENTS 0.5% EROSION AND SEDIMENT CONTROL 1.5% GENERAL CONDITIONS 3.3.451 GENERAL CONDITIONS 5 SUBTOTAL CONSTRUCTION COST \$ CONTINGENCY AND TECHNICAL SERVICE 40% TOTAL CAPITAL COST OPINION** \$ VASTEWATER TREATMENT PLANTS \$ WASTEWATER TREATMENT PLANTS \$ WASTEWATER TREATMENT PLANTS \$ VASTEWATER TREATMENT PLANTS \$ SUBTOTAL COST OPINION** \$ VASTEWATER TREATMENT PLANTS \$ SUBTOTAL CAPITAL COST OPINION** \$ SUBTORAL CONSTRUCTION \$ VASTEWATER TREATMENT PLANTS \$ SUBTORAL CONSTRUCTION	PUMP STATION (IF>1500 GPM USE 215"GPM+550,	.000)	GPM			
WASTEWATER TREATMENT PLANT \$ 4.00 AVE GPD \$223825255 \$. MPACT YO EXISTING UTILITY UPGRADE TO EXISTING COLLECTION SYSTEM \$ <td>PUMP STATION</td> <td>835 A. A. A.</td> <td>GPM</td> <td>和法律和法</td> <td></td> <td></td>	PUMP STATION	835 A. A. A.	GPM	和法律和法		
WASTEWATER TREATMENT PLANT \$ 4.00 AVE GPD WASTEWATER TREATMENT PLANT \$ MPACT TO EXISTING UTILITY Image: constraints of the second seco						
MPACT TO EXISTING UTILITY S33233355 UPGRADE TO EXISTING COLLECTION SYSTEM S33233355 EXPAND EXISTING WWTP \$ 4100 SUBTOTAL BASE COST \$ 2,230,050 EASEMENTS \$ 2,230,050 EASEMENTS \$ 2,230,050 RESTORATION (PAVEMENT AND DRIVEWAY) 10% \$ 223,005 EROSION AND SEDIMENT CONTROL 1.5% \$ 33,451 GENERAL CONDITIONS \$ 376,000 SUBTOTAL CONSTRUCTION COST \$ 2,676,060 CONTINGENCY AND TECHNICAL SERVICE 40% SUBTOTAL COST OPINION** \$ 3,746,000 ANNUAL OPERATION& MAINTENANCE \$ 1,070,424 TOTAL CAPITAL COST OPINION** \$ 3,746,000 ANNUAL OPERATION& MAINTENANCE \$ 1,070,424 WASTEWATER TREATMENT PLANTS \$ 3,746,000 FORCE MAINS & INTERCEPTORS \$ 3,746,000 DE	WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD	验2866 %	Ş	
MPACT TO EXISTING UTILITY Image: Constraint of the constraint						
UPGRADE TO EXISTING COLLECTION SYSTEM State State EXPAND EXISTING COLLECTION SYSTEM AVE GPD BIDB:00028 \$ 424,000 SUBTOTAL BASE COST \$ 2,230,050 \$ 2,230,050 \$ 2,230,050 EASEMENTS SUBTOTAL BASE COST \$ 2,230,050 \$ 2,230,050 EASEMENTS SUBTOTAL BASE COST \$ 2,230,050 \$ 2,230,050 EASEMENTS SUBTOTAL CONTROL 1.5% \$ 2,230,050 EROSION AND SEDIMENT CONTROL 1.5% \$ 3,34,51 GENERAL CONDITIONS S% \$ 178,404 SUBTOTAL CONSTRUCTION COST \$ 2,676,060 \$ 1,070,424 CONTINGENCY AND TECHNICAL SERVICE 440% \$ 1,070,424 TOTAL CAPITAL COST OPINION** \$ 3,746,000 \$ 3,746,000 ANNUAL OPERATION& MAINTENANCE \$ 3,746,000 \$ 1,070,424 WASTEWATER TREATMENT PLANTS \$ 3,746,000 \$ 1,070,424 SUBPORT TORS \$ 3,746,000 \$ 3,746,000 \$ 3,746,000 FORCE MAINS & INTERCEPTORS \$ 3,746,000 \$ 3,746,000 \$ 3,746,000 FORCE MAINS & INTERCEPTORS \$ 3,010 PER LF	IMPACT TO EXISTING UTILITY					
EXPAND EXISTING WWTP \$ Ave GPD REDECOURT \$ 424,000 SUBTOTAL BASE COST \$ 2,230,050 EASEMENTS 0.5% \$ 11,150 RESTORATION (PAVEMENT AND DRIVEWAY) 10% \$ 223,005 EROSION AND SEDIMENT CONTROL 1.5% \$ 33,451 GENERAL CONDITIONS 58% \$ 178,404 SUBTOTAL CONSTRUCTION COST \$ 2,676,060 CONTINGENCY AND TECHNICAL SERVICE 440% \$ 1,070,424 CONTINGENCY AND TECHNICAL SERVICE 440% \$ 1,070,424 SUBTOTAL CONSTRUCTION COST \$ 3,746,000 \$ TOTAL CAPITAL COST OPINION* \$ 3,746,000 \$ ANNUAL OPERATION& MAINTENANCE \$ 3,746,000 \$ FORCE MAINS & INTERCEPTORS \$ \$ 3,746,000 \$ FORCE MAINS & INTERCEPTORS \$ \$ 3,746,000 \$ \$ FORCE MAINS & INTERCEPTORS \$ \$ \$ \$ 3,746,000 \$ FORCE MAINS & I	UPGRADE TO EXISTING COLLECTION SYSTEM	E-24 Mar State Contact			_	10 4 000
SUBTOTAL BASE COST \$ 2,230,050 EASEMENTS 0.5% \$ 11,150 RESTORATION (PAVEMENT AND DRIVEWAY) 0.6% \$ 223,0051 RENOSION AND SEDIMENT CONTROL 1.5% \$ 33,451 GENERAL CONDITIONS 5% \$ 178,404 SUBTOTAL CONSTRUCTION COST \$ 2,676,060 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,070,424 TOTAL CAPITAL COST OPINION** \$ 3,746,000 ANNUAL OPERATION& MAINTENANCE \$ 3,746,000 WASTEWATER TREATMENT PLANTS \$ 3,746,000 FORCE MAINS & INTERCEPTORS \$ 30,000 FORCE MAINS & INTERCEPTORS \$ 30,000 FORCE MAINS & INTERCEPTORS \$ 30,000 FEPLACEMENT \$ 30,000 DEBT-WWTP (20 YEARS-4%) \$ 0,0074 DEBT-WWTP (20 YEARS-4%) \$ 0,0074 TOTAL ANNUAL OM \$ 451,731 TOTAL ANNUAL OM \$ 451,731 DEBT-WWTP (20 YEARS-4%) \$ 1,613,000 DEBT-WWTP (20 YEARS-4%) \$ 1,613,000 DEBT-WWTP (20 YEARS-4%) \$ 3,145 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 1,613,000 <td>EXPAND EXISTING WWTP</td> <td>.\$</td> <td>AVE GPD</td> <td>13100.0004</td> <td>3</td> <td>424,000</td>	EXPAND EXISTING WWTP	.\$	AVE GPD	13100.0004	3	424,000
SUBTOTAL BASE COST EASEMENTS EASEMENTS EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) 10% EROSION AND SEDIMENT CONTROL 1.5% EROSION AND SEDIMENT CONTROL 1.5% SUBTOTAL CONSTRUCTION COST \$ 33,451 GENERAL CONDITIONS 58% SUBTOTAL CONSTRUCTION COST \$ 2,676,060 CONTINGENCY AND TECHNICAL SERVICE 40% TOTAL CAPITAL COST OPINION** \$ 3,746,000 VASTEWATER TREATMENT PLANTS \$ 3,746,000 PUMPING STATIONS \$ 60000 FORCE MAINS & INTERCEPTORS \$ 30,10 PER LF \$ 8328/0308 \$ 9,673 REPLACEMENT \$ 30,000 GPM \$ 3,245 DEBT-WOTP (20 YEARS-4%) \$ 00,074 \$ 3,245 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 00,074 \$ 3,245 TOTAL ANNUAL 06M \$ 451,731 TOTAL ANNUAL 06M \$ 451,731 TOTAL ANNUAL 06M \$ 1,613,000 PRESENT WORTH \$ 3,517,000					÷	2 230 050
EASEMENTS 0.5% \$ 11,150 RESTORATION (PAVEMENT AND DRIVEWAY) 10% \$ 223,005 EROSION AND SEDIMENT CONTROL 1.5% \$ 33,451 GENERAL CONDITIONS 5% \$ 178,404 SUBTOTAL CONSTRUCTION COST \$ 2,676,060 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,070,424 TOTAL CAPITAL COST OPINION** \$ 3,746,000 WASTEWATER TREATMENT PLANTS \$ 3746,000 PUMPING STATIONS \$ 0000 GAL PUMPING STATIONS \$ 0000 GPM PUMPING STATIONS \$ 0000 GAL PUMPING STATION \$ 0000 GAL PUMPING STATION \$ 0000 GAL PUMPING STATION \$ 0000 GAL DEBT-WWTP (20 YEARS-4%) \$ 0000 GAL DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 00	SUBTOTAL BASE COST				-	T12301030
RESTORATION (PAVEMENT AND DRIVEWAY) 10% \$ 223,005 EROSION AND SEDIMENT CONTROL 1.5% \$ 33,451 GENERAL CONDITIONS	EASEMENTS	48020000000000005%		· · · ·	s	11,150
EROSION AND SEDIMENT CONTROL 1.5% \$ 33,451 GENERAL CONDITIONS 5% \$ 178,404 SUBTOTAL CONSTRUCTION COST \$ 2,676,060 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,070,424 TOTAL CAPITAL COST OPINION** \$ 3,746,000 ANNUAL OPERATION& MAINTENANCE 1000 GAL 2006/8008 WASTEWATER TREATMENT PLANTS \$ 3,746,000 1000 GAL 2006/8008 \$ 193,450 FORCE MAINS & INTERCEPTORS \$ 5000 1000 GAL 2008/8008 \$ 193,450 FORCE MAINS & INTERCEPTORS \$ 5000 1000 GAL 2008/8008 \$ 3,145 DEBT-WWTP (20 YEARS-4%) \$ 5000 1000 GAL 2008/8008 \$ 9,673 DEBT-WWTP (20 YEARS-4%) \$ 5000 1000 GAL 2008/8008 \$ 9,673 DEBT-WWTP (20 YEARS-4%) \$ 5000 1000 GAL 2008/8008 \$ 9,673 DEBT-WWTP (20 YEARS-4%) \$ 5000 1000 GAL 2008/8008 \$ 9,673 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 50,007 WWTP COST \$ 30,2702 \$ 52,705 DEBT-COLLECTION SYSTEM (30 YEARS-4%) <	RESTORATION (PAVEMENT AND DRIVEWAY)	10%			\$	223,005
GENERAL CONDITIONS 3% \$ 178,404 SUBTOTAL CONSTRUCTION COST \$ 2,676,060 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,070,424 TOTAL CAPITAL COST OPINION** \$ 3,746,000 ANNUAL OPERATION& MAINTENANCE \$ 3,746,000 WASTEWATER TREATMENT PLANTS \$ 3,746,000 PUMPING STATIONS \$ 0000 GPM SUBSTATIONS \$ 16,800 FORCE MAINS & INTERCEPTORS \$ 0000 GPM DEBT-WUTP (20 YEARS-4%) \$ 0000 GPM DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 00056 C.S. COST TOTAL ANNUAL OLA \$ 451,731 TOTAL ANNUAL OLA \$ 1,613,000 PRESENT WORTH OF OSM 7.00% TOTAL 20/YEAR PRESENT WORTH H \$ 3,517,000	EROSION AND SEDIMENT CONTROL	1.5%			\$	33,451
SUBTOTAL CONSTRUCTION COST \$ 2,676,060 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,070,424 TOTAL CAPITAL COST OPINION** \$ 3,746,000 ANNUAL OPERATION& MAINTENANCE	GENERAL CONDITIONS	8%			\$	178,404
SUBTOTAL CONSTRUCTION COST \$ 2,676,660 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,070,424 TOTAL CAPITAL COST OPINION** \$ 3,746,000 ANNUAL OPERATION& MAINTENANCE \$ 3,746,000 WASTEWATER TREATMENT PLANTS \$ 3,746,000 PUMPING STATIONS \$ 193,450 PUMPING STATIONS \$ 3000 GPM PUMPING STATIONS \$ 3000 GPM FORCE MAINS & INTERCEPTORS \$ 3010 PPE LF BEBT-WUTP (20 YEARS-4%) \$ 3010 PPE LF DEBT-WUTP (20 YEARS-4%) \$ 3000 GAL DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 30000 GR TOTAL ANNUAL O&M \$ 451,731 TOTAL ANNUAL O&M \$ 451,731 PRESENT WORTH \$ 1,613,000 PRESENT WORTH OF O&M \$ 1,613,000 PRESENT WORTH OF CAPITAL \$ 1,613,000						
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CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,070,424 TOTAL CAPITAL COST OPINION** \$ 3,746,000 ANNUAL OPERATION& MAINTENANCE						
TOTAL CAPITAL COST OPINION** \$ 3,746,000 ANNUAL OPERATIONS MAINTENANCE	CONTINGENCY AND TECHNICAL SERVICE	40%			s	1,070,424
TOTAL CAPITAL COST OPINION** \$ 3,746,000 ANNUAL OPERATION& MAINTENANCE					_	
ANNUAL OPERATION& MAINTENANCE Image: Constraint of the second secon	TOTAL CAPITAL COST OPINION**				5	3,746,000
ANNUAL OPERATION& MAINTENANCE						
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PUMPING STATIONS Control of the second	WASTEWATER TREATMENT PLANTS	STATE OF STATE	1000 GAL	8338 R9N	\$	193.450
FORCE MAINS & INTERCEPTORS 30.10 PER LF BISTREDIC 31.45 ADMINISTRATION 30.25 1000 GAL 65939503 \$ 9,673 REPLACEMENT 30.00 1000 GAL 65939503 \$ 9,673 DEBT-WUTP (20 YEARS-4%) 30.074 WWTP COST 52,705 DEBT-COLLECTION SYSTEM (30 YEARS-4%) 30.074 WWTP COST 57,705 DEBT-COLLECTION SYSTEM (30 YEARS-4%) 30.001 10030672 \$ 57,705 TOTAL ANNUAL O&M \$ 451,731 FOTAL PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF 06M 7,00% 100 \$ 1,613,000 PRESENT WORTH OF CAPITAL \$ 3,517,000 \$ 1,613,000	PUMPING STATIONS	\$60.00	GPM	\$\$\$280.00C	ŝ	16.800
ADMINISTRATION 50:25 1000 GAL 50:35 9,673 REPLACEMENT 3000 GAL 30	FORCE MAINS & INTERCEPTORS	\$0.10	PER LF	£1317450£	\$	3,145
REPLACEMENT \$0:00 1000 GAL 7530 M358 DEBT-WWTP (20 YEARS-4%) WWTP COST \$7422233 \$ \$ 52,705 DEBT-COLLECTION \$YSYEM (30 YEARS-4%) WWTP COST \$7422233 \$ \$ 175,859 TOTAL ANNUAL 0&M \$ 451,731 FOTAL PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF 0&M \$ 1,613,000 \$ 1,613,000 PRESENT WORTH OF CAPITAL \$ 1,904,000 \$ 1,904,000 TOTAL 2-YEAR PRESENT WORTH \$ 3,517,000 \$ 3,517,000	ADMINISTRATION	\$0.25	1000 GAL	\$\$\$8%090%	\$	9,673
DEBT-WWTP (20 YEARS-4%) WWTP COST WM22288 \$ 52,705 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 0058 C.S. COST \$ 00332628 \$ 176,959 TOTAL ANNUAL 08M \$ 451,731 FOTAL PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF 06M \$ 1,613,000 \$ 1,613,000 PRESENT WORTH OF CAPITAL \$ 1,904,000 \$ 1,904,000 TOTAL 2^VEAR PRESENT WORTH \$ 3,517,000 \$ 1,904,000	REPLACEMENT	\$0.00	1000 GAL	MANALS		
DEBT-COLLECTION SYSTEM (30 YEARS 4%) 1000000000000000000000000000000000000	DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	742 228	\$	52,705
TOTAL ANNUAL 0&M \$ 451,731 IOTAL PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF 06M 10 \$ 1,613,000 PRESENT WORTH OF CAPITAL \$ 1,604,000 \$ 1,613,000 TOTAL 20-YEAR PRESENT WORTH \$ 3,517,000	DE8T-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	13 033 7672	\$	175,959
Interest NO. OF YEARS PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF 06M 7.00% 10 \$ 1,613,000 PRESENT WORTH OF CAPITAL \$ 1,004,000 \$ 1,004,000 TOTAL 20-YEAR PRESENT WORTH \$ 3,517,000	TOTAL ANNUAL O&M				\$	451,731
INTRUGAL INTEREST NO. OF YEARS PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF OBM 7.00% 10 \$ 1,613,000 PRESENT WORTH OF CAPITAL \$ 1,604,000 \$ 1,604,000 TOTAL 20-YEAR PRESENT WORTH \$ 3,517,000				,		
PRESENT WORTH OF OAM 7.00% 10 \$ 1,613,000 PRESENT WORTH OF CAPITAL \$ 1,004,000 \$ 1,004,000 TOTAL 20-YEAR PRESENT WORTH \$ 3,517,000	TOTAL DESCENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF CAPITAL \$ 1,904,000 TOTAL 20-YEAR PRESENT WORTH \$ 3,517,000	PRESENT WORTH OF ORM	5350 TO 7 100%	2010 Control C		s	1,613,000
TOTAL 20-YEAR PRESENT WORTH \$ 3,517,000	PRESENT WORTH OF CAPITAL		an ear transformation with		\$	1,904,000
	TOTAL 20-YEAR PRESENT WORTH			· · · ·	\$	3,517,000

*Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

Hardin County Regional Facilities Plan

/ Regional Facilities Plan	
Service Area	State Flippin Crook
Altornative	New Northern WWTP
Design Year	202765
Design Population	300 × 1060 × 1060
Design Industrial Acros	1980 (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (

Impact to Existing Utility: Not Applicable

GRAVITY INTERCEPTOR SEWER 4 4 55000 PERLF 550000 PERLF 5500000000000000000000000000000000000	ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COŞT
SPENTIT INTERCEPTUR SEVEN 					1	
000000 000000 PERLP REX 2000000 PERLP 1200000 1200000 PERLP REX 20000000 PERLP REX 20000000 1300000 PERLP REX 20000000 PERLP REX 200000000 PERLP REX 200000000 PERLP REX 2000000000000000000000000000000000000	GRAVITY INTERCEPTOR SEWER	CONTRACTOR	N OCOLE	Later Control of March		1 033 450 4
12-INCH SERVICESCOP FER.LF 20000000 S 16-INCH SERVICESCOP 2000000 PER.LF 20000000 S 1 16-INCH SERVICESCOP 2000000 PER.LF 20000000 PER.LF 20000000 S 1 21-INCH SERVICESCOP 21-INCH SERVICESCOP 2000000 PER.LF 2000000 PER.LF 2000000 PER.LF 2000000 PER.LF 2000000 PER.LF 20000000 PER.LF 2000000 PER.LF 20000000 PER.LF 2000000000 PER.LF 2000000000000000000000000000000000000		60.00	PERLE	0000000000		1,035,450
15-INCH (\$1500) PER.LF Southers 5 18-INCH (\$1500) PER.LF Southers 5 24-INCH (\$1500) PER.LF Southers 5 24-INCH (\$1500) PER.LF Southers 5 24-INCH (\$1500) PER.LF Southers 5 33-INCH (\$1500) PER.LF Southers 5 33-INCH (\$1500) PER.LF Southers 5 33-INCH (\$1500) DER.LF Southers 5 33-INCH (\$1500) DER.LF Southers 5 33-INCH (\$1500) Southers 5 Southers 5 33-INCH (\$1500) Southers 5 Southers 5 33-INCH (\$1500) Southers 5 Southers 5 44-INCH (\$1500) Southers 5 Southers 5 6-INCH (\$1500) PER.LF Southers 5 10-INCH (\$1500) <td< td=""><td>12-INCF</td><td>\$ 65.00</td><td>PERLF</td><td></td><td>s s</td><td></td></td<>	12-INCF	\$ 65.00	PERLF		s s	
14-INCH [\$10002100380000 PER.LF Biologenetics 5 24-INCH [\$10002000 PER.LF Biologenetics 5 27-INCH [\$100020000 PER.LF Biologenetics 5 30-INCH [\$1000000000 PER.LF Biologenetics 5 30-INCH [\$1000000000000000000000000000000000000	15-INCH	/S 70.00	PER LF	No.	ŝ	-
21-INCH [5:5023750.000 PER LF #83688888 5 22-INCH [5:3023750.000 PER LF #83688888 5 33-NCH [5:3023750.000 PER LF #83688888 5 33-NCH [5:3023750.00 PER LF #83688888 5 33-NCH [5:3023750.00 PER LF #83688888 5 34-NCH [5:3023750.00 PER LF #83688888 5 34-NCH [5:3023750.00 PER LF #83688888 5 42-INCH [5:3023750.00 PER LF #83688888 5 42-INCH [5:3022823150.00 PER LF #83688888 5 FORCE MAIN 4-INCH [5:3023750.00 PER LF #83790388 5 44-INCH [5:3023750.00 PER LF #83790388 5 - 10-INCH [5:3023750.00 PER LF #83790388 5 - 10-INCH [5:3023750.00 PER LF #83790388 5 - 10-INCH [5:3023750.000 PER LF #83898888 5 - 10-INCH [5:30267070.00 PER LF #83898888 - -	18-INCI-	S 80.00	PER LF		şs	
24-NCH (\$ 500000000000000000000000000000000000	21-INC	\$ 90.00	PER LF	191201910	\$ \$	-
24-RUC 15 24-RUC 15 24-RUC 15 24-RUC 15 25-RUC 15 <t< td=""><td>24-INCH</td><td>100.00</td><td>PER LF</td><td></td><td>ŝ</td><td><u> </u></td></t<>	24-INCH	100.00	PER LF		ŝ	<u> </u>
33-HICE 33-HICE <t< td=""><td>27-INCH 30-INCH</td><td>14 - 110.04 1 - C</td><td>PERLE</td><td></td><td>1 5</td><td>-</td></t<>	27-INCH 30-INCH	14 - 110.04 1 - C	PERLE		1 5	-
36-INCH (\$1992) 90.00 PER LF 90.000 PER LF 90.00000000000000000000000000000000000	33-INCH	130.00	PERLE	500-2000-2000- 51-00-200-2000-2000-2000-2000-2000-2000-	25	
42-INCH (\$VEX1922/160.00) PER LF \$VEX1922/160.00 PER LF \$VEX1922/160.00 FER LF \$VEX1922/160.00 <td>36-INCH</td> <td>\$ 140.00</td> <td>PERLF</td> <td></td> <td>ŝ</td> <td></td>	36-INCH	\$ 140.00	PERLF		ŝ	
48-INCH (S::::::::::::::::::::::::::::::::::::	42-INCH	\$ 160.00	PERLF	NAMES OF THE OWNER	\$	-
MANHOLES ISER	48-INCH	S	PERLF	感激激发	§	-
FORCE MAIN 4-INCH \$3,00000 PER LF \$88825983 5	MANHOLES	\$ 2,500.00	EACH	至60.5%	1 \$	187,500
ENCLE MAIN 4-INCH 5/202/2013/000 PER LF 8/202/2016 5 - 6-INCH 5/202/2016 0.101 8/10/2016 9/202/2016 5 - 10-INCH 5/202/2017/45.00 PER LF 5/202/2016 5 - 10-INCH 5/201/2017/45.00 PER LF 5/202/2016 5 - 114-INCH 5/202/2017/45.00 PER LF 5/202/2016 5 - 114-INCH 5/202/2017/45.00 PER LF 5/202/2016 5 - 114-INCH 5/202/2016 50.00 PER LF 5/202/2016 5 - 114-INCH 5/202/2016 50.00 GPM 5/202/2016 5 - PUMP STATION (IF-1500 GPM USE 150'GPM+100.000) GPM 5/202/2016 5 142.000 PUMP STATION (IF-1500 GPM USE 150'GPM+100.000) GPM 5/202/2016 5 142.000 SUBTOTAL BASE COST \$ 1,792.450 5 6.962 GENERAL CONDITION (PAVEMENT AND DRIVEWAY) 5 0.59% 5 <td></td> <td>Į</td> <td></td> <td><u> </u></td> <td>┢</td> <td></td>		Į		<u> </u>	┢	
G-INCH G-RADIA Distribution Distribution <thdistribution< th=""> <thdistribution< th=""></thdistribution<></thdistribution<>	FORGE MAIN	15.000	95915	MOTOR STREET,	ł	
B-INCH State State 10-INCH State State State 112-INCH State State State 114-INCH State State State 114-INCH State State State 114-INCH State State State 116-INCH State State State 117 State State State State 117 State State State State State 118 State State State State State State	6-INCH	S 35 00	PERLE	3372 70000		164 500
IO-NICH SCRUMMENTALION PER LF SCRUMMENTAL S 12-INCH SCRUMMENTAL SCRUMMENTAL S -	B-INCH	\$ 40.00	PERLF	5453546320	ŝ	
12-INCH 3377775000 PER LF 83787828 5 14-INCH 33777775775000 PER LF 83787828 5 16-INCH 3377777777777777777777777777777777777	10-INCH	\$ 45.00	PERLF	Hold Sale	\$	
14-INCH (\$) 60.00 PER LF 80828384 S 16-INCH (\$) 70.00 PER LF 80828384 S 18-INCH (\$) 20.00 PER LF 80828384 S 24-INCH (\$) 20.00 PER LF 80828384 S PUMP STATION (IF-1500 GPM USE 150'GPM-100,000) GPM 80828084 S PUMP STATION (IF-1500 GPM USE 215'GPM-550,000) GPM 80828084 S WASTEWATER TREATMENT PLANT \$ 22.50 AVE GPD 800600028 \$ 285,000 WASTEWATER TREATMENT PLANT \$ 1,792,450 \$ 1,792,450 SUBTOTAL BASE COST \$ 1,792,450 \$ \$ 1,792,450 SUBTOTAL BASE COST \$ 1,792,450 \$ \$ 1,792,450 SUBTOTAL BASE COST \$ 1,792,450 \$ \$ 1,792,450 SUBTOTAL CONTROL \$ \$ 1,792,450 \$ \$ 1,792,450 SUBTOTAL CONTROL \$ \$ 1,792,450 \$ \$ 1,792,450 SUBTOTAL CONSTRUCTION COST \$ 2,150,940 \$ 16,800	12-INCH	\$	PER LP	and the second second	\$	•
16-INCH S 270.00 PER LF 2802828387 S - 18-INCH S 24-INCH S 30.00 PER LF 2802828387 S - PUMP STATION (IF<1500 GPM USE 150°GPM+100.00)	14-INCH	\$ 60.00	PERLF		\$	-
18-INCH IS 3024, 380.00 PERLF 38384, 3838 5 24-INCH IS 3024, 380.00 PERLF 38384, 3838 5 PUMP STATION (IF-1560 GPM USE 15°GPM+50,000) GPM 38283, 3838 5 PUMP STATION (IF-1500 GPM USE 215°GPM+50,000) GPM 38283, 3838 5 PUMP STATION (IF-1500 GPM USE 215°GPM+50,000) GPM 38283, 3838 5 WASTEWATER TREATMENT PLANT \$ 200,000,000,000,000,000,000,000,000,000	16-INCH	\$ 70.00	PERLF		\$	
ZHINCH (\$40000) FER.LF State PUMP STATION (IF-1500 GPM USE 150°GPM-100,000) GPM State 142,000 PUMP STATION (IF-1500 GPM USE 215°GPM-550,000) GPM State 142,000 PUMP STATION (IF-1500 GPM USE 215°GPM-550,000) GPM State 142,000 WASTEWATER TREATMENT PLANT \$2000000000000000000000000000000000000	18-INCH	\$ 80.00	PER LF		\$	<u> </u>
PUMP STATION (IF<1500 GPM USE 150°GPM+100,000) GPM URREROWN S 142,000 PUMP STATION (IF<1500 GPM USE 215°GPM+550,000)	24-INCH	1977-9977-9997-00	PERLE	100000000000	•	
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PUMP STATION GPM 2528283 WASTEWATER TREATMENT PLANT \$ AVE GPD \$106,00028 \$ 265,000 WASTEWATER TREATMENT PLANT \$ AVE GPD \$106,00028 \$ 265,000 SUBTOTAL BASE COST \$ 1,792,450 \$ 5 6,962 RESTORATION (PAVEMENT AND DRIVEWAY) \$ \$ 179,245 \$ 26,887 GENERAL CONDITIONS \$ \$ 26,887 \$ 26,887 GENERAL CONDITIONS \$ \$ 26,887 \$ 143,396 SUBTOTAL CONSTRUCTION COST \$ 2,150,840 \$ 143,396 CONTINGENCY AND TECHNICAL SERVICE #00% \$ \$ 860,376 TOTAL CAPITAL COST OPINION** \$ 3,011,000 \$ \$ WASTEWATER TREATMENT PLANTS \$ \$ 860,376 \$ \$ \$ MULL OPERATIONS MAINTENANCE \$ \$ \$ \$ \$ \$ \$ \$ VASTEWATER TREATMENT PLANTS \$	PUMP STATION (IF>1500 GPM USE 215'GPM+550,	,000)	GPM		F	, 12,000
WASTEWATER TREATMENT PLANT \$ AVE GPD \$106:0008 \$ 265,000 SUBTOTAL BASE COST \$ 1,792,450	PUMP STATION	R. G. M. S. A.	GPM	STAR A		
WASTEWATER TREATMENT PLANT \$ AVE GPD \$706:00028 \$ 265,000 SUBTOTAL BASE COST \$ 1,792,450 \$ 1,792,450 EASEMENTS 0.5% \$ \$ 8,962 RESTORATION (PAVEMENT AND DRIVEWAY) \$ \$ 179,245 EROSION AND SEDIMENT CONTROL \$ \$ 179,245 SUBTOTAL CONSTRUCTION COST \$ 2,150,940 CONTINGENCY AND TECHNICAL SERVICE \$ 866,376 CONTINGENCY AND TECHNICAL SERVICE \$ 3,011,000 ANNUAL OPERATIONS MAINTENANCE \$ 3,011,000 ANNUAL OPERATIONS MAINTENANCE \$ 3,011,000 FORCE MAINS & INTERCEPTORS \$ 3,050 ADMINISTRATION \$ \$ 3,690 FORCE MAINS & INTERCEPTORS \$ \$ 3,690 FORCE MAINS & INTERCEPTORS \$ \$ 3,690 FORCE MAINS & INTERCEPTORS \$ \$ 3,673 DEBT-WWTP (20 YEARS-4%) \$ \$ \$ 3,673 DEBT-WWTP (20	· · · · · · · · · · · · · · · · · · ·					
SUBTOTAL BASE COST \$ 1,792,450 EASEMENTS 0.5% \$ 3,8962 RESTORATION (PAVEMENT AND DRIVEWAY) 10% \$ 1772,245 EROSION AND SEDIMENT CONTROL 1.5% \$ 26,887 GENERAL CONDITIONS 10% \$ 143,396 SUBTOTAL CONSTRUCTION COST \$ 2,150,940 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 886,376 TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATIONS MAINTENANCE 40% \$ 3,611,000 WASTEWATER TREATMENT PLANTS 50000 GPM 38249038 \$ 16,800 FORCE MAINS & INTERCEPTORS \$ 50,500 1000 GAL 32349028 \$ 2,349 ADMINISTRATION \$ 50,500 1000 GAL 3536160025 \$ 9,673 DEBT-WUTP (20 YEARS-4%) \$ 30,0174 WVTP COST 3 3,241 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 30,000 GAL 3538160025 \$ 32,941 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 30,000 GAL 3538160025 \$ 32,941 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 30,0074 \$ 32,0550 32,0551 TOTAL ANNUAL OAM \$ 258,6573 \$ 32,941 5 32,941	WASTEWATER TREATMENT PLANT	\$ 2.50	AVE GPD	2106,0003	\$	265,000
SUBTOTAL BASE COST \$ 1,792,450 EASEMENTS EASEMENTS 5 1,792,450 EASEMENTS 5 179,245 5 179,245 EROSION AND SEDIMENT CONTROL 10% \$ 179,245 EROSION AND SEDIMENT CONTROL 5 143,396 \$ 143,396 SUBTOTAL CONSTRUCTION COST \$ 2,150,940 \$ 143,396 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 860,376 TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATIONS MAINTENANCE \$ 30,011,000 WASTEWATER TREATMENT PLANTS \$ 50,000 FORCE MAINS & INTERCEPTORS \$ 50,000 FORCE MAINS & INTERCEPTORS \$ 50,000 ADMINISTRATION \$ 50,000 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 33,013,000 TOTAL ANNUAL OAR \$ 269,617 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 30,074 WUTP COST \$ 228,6190 \$ 3,2491 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 30,074 YOTAL ANNUAL OAR \$ 269,617 TOTAL ANNUAL OAR \$ 269,617 TOTAL ANNUAL OAR \$ 269,617 TOTAL ANNUAL OAR	······				Ļ	
SUBTOTAL BASE COST \$ 1,792,450 EASEMENTS 0.5% \$ 8,962 RESTORATION (PAVEMENT AND DRIVEWAY) 10% \$ 179,245 EROSION AND SEDIMENT CONTROL 1.5% \$ 26,887 GENERAL CONDITIONS 5 143,396 SUBTOTAL CONSTRUCTION COST \$ 2,150,940 CONTINGENCY AND TECHNICAL SERVICE 40% CONTINGENCY AND TECHNICAL SERVICE 40% TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATION& MAINTENANCE 40% WASTEWATER TREATMENT PLANTS 50000 PUMPING STATIONS 50000 PORCE MAINS & INTERCEPTORS 50000 SUBTOTAL CONSTRUCTION 50000 PUMPING STATIONS 50000 PUMPING STATIONS 50000 PUMPING STATIONS 50000 SUBTOTAL CAPITAL COST OPINION** 50000 ADMINISTRATION 50000 SUBTORE MAINS & INTERCEPTORS 50000 PUMPING STATIONS 50000 COST MAINS & INTERCEPTORS 50000 SUBTOTAL CONSTEM (30 YEARS-4%) 50000 DEBT-WWTP (20	Aug				⊢	
SUBTOTAL BASE COST \$ 1,792,450 EASEMENTS 0.5% \$ 8,962 RESTORATION (PAVEMENT AND DRIVEWAY) 3.05% \$ 179,245 EROSION AND SEDIMENT CONTROL 3.5% \$ 26,887 GENERAL CONDITIONS 3.5% \$ 26,887 SUBTOTAL CONSTRUCTION COST \$ 2,150,940 CONTINGENCY AND TECHNICAL SERVICE 3.01,000 CONTINGENCY AND TECHNICAL SERVICE 3.01,000 TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATIONS MAINTENANCE 3.010,000 WASTEWATER TREATMENT PLANTS 3.050,000 FORCE MAINS & INTERCEPTORS 3.050,000 PUMPING STATION \$ 2,349 ADMINISTRATION \$ 50,000 CEBT-WVTP (20 YEARS 4%) \$ 20,074 WWTP COST \$ 268,617 TOTAL ANNUAL D&M \$ 268,617						
SUBTOTAL BASE COST \$ 1,792,450 EASEMENTS 0.5% \$ 8,962 RESTORATION (PAVEMENT AND DRIVEWAY) 10% \$ 179,245 EROSION AND SEDIMENT CONTROL 15% \$ 20,887 GENERAL CONDITIONS \$ 179,245 \$ 20,887 GENERAL CONDITIONS \$ 21,50,940 \$ 143,396 SUBTOTAL CONSTRUCTION COST \$ 2,150,940 CONTINGENCY AND TECHNICAL SERVICE \$ 40,376 TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATIONS MAINTENANCE \$ 3,011,000 WASTEWATER TREATMENT PLANTS \$ 38,690 PUMPING STATIONS \$ 50,000 GENERATION \$ 30,010 GENERATION \$ 30,050 FORCE MAINS & INTERCEPTORS \$ 38,690 PUMPING STATION \$ 30,050 FORCE MAINS & INTERCEPTORS \$ 38,690 SEPLACEMENT \$ 30,610 PEDET-WWTP (20 YEARS-4%) \$ 30,610 DEBT-WWTP (20 YEARS-4%) \$ 30,613 TOTAL ANNUAL O&M \$ 268,617 TOTAL ANNUAL O&M \$ 268,617 TOTAL ANNUAL O&M \$ 559,						
EASEMENTS 0.5% \$ 8,962 RESTORATION (PAVEMENT AND DRIVEWAY) 10% \$ 179,245 EROSION AND SEDIMENT CONTROL 1.5% \$ 26,887 GENERAL CONDITIONS 1.5% \$ 26,887 GENERAL CONDITIONS 5 143,396 SUBTOTAL CONSTRUCTION COST \$ 2,150,940 CONTINGENCY AND TECHNICAL SERVICE \$ 30,011,000 TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATIONS MAINTENANCE \$ 30,01000 GAL WASTEWATER TREATMENT PLANTS \$ 500,000 GPM LP PUMPING STATION \$ 500,000 GPM LP PORCE MAINS & INTERCEPTORS \$ 500,000 GAL ADMINISTRATION \$ \$ 500,000 GAL REPLACEMENT \$ 30,673 DEBT-WWTP (20 YEARS-4%) \$ 30,673 DEBT-WWTP (20 YEARS-4%) \$ 30,690 SI 3 3,673 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 30,673 TOTAL ANNUAL O&M \$ 268,690 SI 3 3,673 DEBT-WWTH (20 YEARS-4%) \$ 30,673 DEBT-WWTP (20 YEARS-4%) \$ 30,074 TOTAL ANNUAL O&M \$ 268,619 SI 3,284,911 DEBT-WWTP (20 YEARS-4%) \$ 30,074	SUBTOTAL BASE COST				\$	1,792,450
EASEMENTS 0.5% \$ 0.962 RESTORATION (AVEMENT AND DRIVEWAY) 10% \$ 179,245 EROSION AND SEDIMENT CONTROL 10% \$ 179,245 GENERAL CONDITIONS 5.5% \$ 26,887 GENERAL CONDITIONS 8% \$ 143,396 CONTINGENCY AND TECHNICAL SERVICE \$ 2,150,940 CONTINGENCY AND TECHNICAL SERVICE \$ 3,011,000 TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATIONS MAINTENANCE \$ 3,011,000 WASTEWATER TREATMENT PLANTS \$ 36,000 FORCE MAINS & INTERCEPTORS \$ 50,000 FORCE MAINS & INTERCEPTORS \$ 50,000 PUMPING STATION \$ 50,000 REPLACEMENT \$ 50,000 ADMINISTRATION \$ 50,000 COST \$ 2,851600,000 CENTWIP (20 YEARS -4%) \$ 3,017,4000 DEBT-COLLECTION SYSTEM (30 YEARS -4%) \$ 3,023,40028 TOTAL ANNUAL OAM \$ 268,613 TOTAL ANNUAL OAM \$ 268,613 TOTAL ANNUAL OAM \$ 268,6190 TOTAL ANNUAL OAM \$ 268,619 TOTAL ANNUAL OAM						
RESTORATION (PAVEMENT AND DRIVEWAY) 10% \$ 179,245 EROSION AND SEDIMENT CONTROL 1.5% \$ 26,887 GENERAL CONDITIONS \$ 143,396 SUBTOTAL CONSTRUCTION COST \$ 2,150,940 CONTINGENCY AND TECHNICAL SERVICE \$ 2,150,940 CONTINGENCY AND TECHNICAL SERVICE \$ 860,376 TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATIONS MAINTENANCE \$ 3,011,000 WASTEWATER TREATMENT PLANTS \$ 3,010 FORCE MAINS & INTERCEPTORS \$ 50,000 ADMINISTRATION \$ 50,000 CONTINGENCY ID YEARS -4%) \$ 32,941 DEBT-WURP (20 YEARS -4%) \$ 268,617 TOTAL ANNUAL OSM \$ 268,617 TOTAL ANNUAL OSM \$ 268,617 TOTAL ANNUAL OSM \$ 268,617	EASEMENTS	·约·书子兰合语 0.5%			\$	8,962
EROSION AND SEDIMENT CONTROL S. 28,887 GENERAL CONDITIONS \$ 143,396 SUBTOTAL CONSTRUCTION COST \$ 2,150,940 CONTINGENCY AND TECHNICAL SERVICE 40% CONTINGENCY AND TECHNICAL SERVICE 40% TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATION& MAINTENANCE 40% WASTEWATER TREATMENT PLANTS \$ 30,011,000 FORCE MAINS & INTERCEPTORS \$ 50,000 FORCE MAINS & INTERCEPTORS \$ 50,000 ADMINISTRATION \$ 50,000 CEBT-WWTP (20 YEARS -4%) \$ 50,001 DEBT-WWTP (20 YEARS -4%) \$ 50,003 TOTAL ANNUAL D&M \$ 268,617 TOTAL ANNUAL D&M \$ 50,000 PRESENT WORTH OF OAM \$ 0,005 % PRESENT WORTH OF CAPITAL \$ 16,31,000 TOTAL ANNUAL DE CAPITAL \$ 5,50,000 PRESENT WORTH OF CAPITAL \$ 2,400,001	RESTORATION (PAVEMENT AND DRIVEWAY)	10%			\$	179,245
SUBTOTAL CONSTRUCTION COST \$ 2,150,940 SUBTOTAL CONSTRUCTION COST \$ 2,150,940 CONTINGENCY AND TECHNICAL SERVICE \$ 3,0176 TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATIONS MAINTENANCE \$ 3,011,000 WASTEWATER TREATMENT PLANTS \$ 33,690 ± PUMPING STATIONS \$ 36,690 ± PORCE MAINS & INTERCEPTORS \$ 33,690 ± ADMINISTRATION \$ 50,000 GPM ADMINISTRATION \$ 50,050 1000 GAL BEBT-COLLECTION SYSTEM (30 VEARS 4%) \$ 36,690 ± TOTAL ANNUAL DAM \$ 268,617	GENERAL CONDITIONS	1.5%			\$	26,887
SUBTOTAL CONSTRUCTION COST \$ 2,150,940 CONTINGENCY AND TECHNICAL SERVICE \$ 860,376 TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATIONS MAINTENANCE \$ 3,011,000 WASTEWATER TREATMENT PLANTS \$ 336,690 FORCE MAINS SITURTIONS \$ 560,000 FORCE MAINS & INTERCEPTORS \$ 336,690 ADMINISTRATION \$ 560,000 COST \$ 238,690,836 PUMPING STATIONS \$ 560,000 FORCE MAINS & INTERCEPTORS \$ 336,690 ADMINISTRATION \$ 30,500 DEBT-WWTP (20 YEARS-4%) \$ 300,000 COST \$ 328,690,851 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 30,000 TOTAL ANNUAL O&M \$ 268,617 TOTAL ANNUAL O&M \$ 268,619 TOTAL ANNUAL O&M \$ 268,617 PRE	GENERAL CONSTITIONS	000 000 000 000 000			-	143,395
CONTINGENCY AND TECHNICAL SERVICE 40% \$ 860,376 TOTAL CAPITAL COST OPINION** \$ 3,911,000 ANNUAL OPERATIONS MAINTENANCE	SUBTOTAL CONSTRUCTION COST				\$	2,150,940
CONTINGENCY AND TECHNICAL SERVICE 340% \$ 860,376 TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATIONS MAINTENANCE 30000 GAL WASTEWATER TREATMENT PLANTS 30000 GAL PUMPING STATIONS \$ 36,690 FORCE MAINS & INTERCEPTORS \$ 50,000 GPM ADMINISTRATION \$ 50,000 GPM DEBT-WUTP (20 VEARS-4%) \$ 50,000 GPM DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 266,617 TOTAL ANNUAL OAM \$ 266,617 TOTAL ANNUAL OAM \$ 266,617 TOTAL ANNUAL OAM \$ 350,000 PRESENT WORTH OF OAM \$ 350,000 PRESENT WORTH OF CAPITAL \$ 350,000 OTAL 20 YEARS SET WORTH OF CAPITAL \$ 350,000					Ť.	
TOTAL CAPITAL COST OPINION** \$ 3,011,000 ANNUAL OPERATION& MAINTENANCE	CONTINGENCY AND TECHNICAL SERVICE	40%			Ş	860,376
TOTAL CAPITAL COST OPINION** \$ 3,611,000 ANNUAL OPERATION& MAINTENANCE						
ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION SS0:50 1000 GAL SS0:50 ADMINISTRATION SS0:50 1000 GAL SS0:50 1000 GAL SS0:50 1000 GAL SS0:50 1000 GAL SS0:50 DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL 0&M TOTAL ANNUAL 0&M TOTAL ANNUAL 0&M PRESENT WORTH OF 0AM PRESENT WORTH OF CAPITAL NO. OF YEARS 10 \$ 959,000 PRESENT WORTH OF CAPITAL YEARS 100 S 1001 \$ 959,000 PRESENT WORTH OF CAPITAL YEARS 100 S 1,531,000 S 1,531,000	TOTAL CAPITAL COST OPINION*		r · · · · · · · · · · · · · · · · · · ·		\$	3,011,000
ANNUAL OPERATIONS MAINTENANCE 333/2000 WASTEWATER TREATMENT PLANTS 333/2000 PUMPING STATIONS 333/2000 FORCE MAINS & INTERCEPTORS 333/2000 ADMINISTRATION 330/2000 ADMINISTRATION 330/2000 REPLACEMENT 333/2000 DEBT-WWTP (20 YEARS-4%) 30/2000 DEBT-COLLECTION SYSTEM (30 YEARS-4%) 30/2000 TOTAL ANNUAL OAM \$ 268,617 TOTAL ANNUAL OAM \$ 268,617 PRESENT WORTH OF CAPITAL \$ 350,000 COTAL 20YEARS PRESENT WORTH \$ 3,000						
WASTEWATER TREATMENT PLANTS ####################################	ANNUAL OPERATION& MAINTENANCE		<u>г. </u>			
PUMPING STATIONS \$60.00 GPM 252280333 \$16,800 FORCE MAINS & INTERCEPTORS \$50,10 PER LF 252349028 \$2,349 ADMINISTRATION \$50,50 1000 GAL 2533639028 \$2,349 REPLACEMENT \$50,50 1000 GAL 2538639028 \$32,941 DEBT-WWTP (20 YEARS-4%) \$50,0074 WWTP COST 263859053 \$32,941 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$50,0058 C.S. COST 265659472 \$146,819 TOTAL ANNUAL O&M \$268,617 \$32,941 \$32,9617 \$32,9617 TOTAL PRESENT WORTH INTEREST NO. OF YEARS \$32,9617 TOTAL PRESENT WORTH OF 0AM \$32,9617 \$31,000 \$30,000 PRESENT WORTH OF CAPITAL NO. OF YEARS \$359,000 PRESENT WORTH OF CAPITAL \$359,000 \$30,000 \$359,000 ORSENT WORTH OF CAPITAL \$35,000 \$35,000 \$359,000 OTAL 20-YEAR PRESENT WORTH \$32,400,000 \$30,000 \$359,000	WASTEWATER TREATMENT PLANTS	1 100	1000 GAL	2338,69014	\$	38,690
FORCE MAINS & INTERCEPTORS \$\$0,00 PER LF \$\$233(90)28 \$ 2,349 ADMINISTRATION \$\$0,50 1000 GAL \$\$203(90)28 \$ 19,345 REPLACEMENT \$\$0,025 1000 GAL \$\$236(90)28 \$ 9,673 DEBT-WWTP (20 YEARS-4%) \$\$0,074 WUTP COST \$\$4245(553) \$ 32,941 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$\$0,058 C.S. COST \$\$2665(94)22 \$ 146,819 TOTAL ANNUAL D&M \$\$269,617 \$ \$ 269,617 \$ TOTAL PRESENT WORTH INTEREST NO. OF YEARS \$ 959,000 PRESENT WORTH OF 0AM \$ \$ 959,000 \$ \$ 959,000 PRESENT WORTH OF CAPITAL \$ \$ \$ \$ \$ \$ \$ \$ TOTAL 20-YEAR PRESENT WORTH \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	PUMPING STATIONS	\$60.00	GPM	商3280股影	\$	16,800
ADMINISTRATION S0(50) 1000 GAL S0(50)	FORCE MAINS & INTERCEPTORS	\$0.10	PERLF	續23,490度	\$	2,349
International (\$9025) 1000 GAL #538580.51 \$ 9.673 DEBT-WWTP (20 YEARS-4%) 32.941 20.074 WWTP COST #4452(532) \$ 32.941 DEBT-COLLECTION SYSTEM (30 YEARS-4%) 32.941 20.058 C.S. COST #24652(532) \$ 148.819 TOTAL ANNUAL 0&M \$ 268,617 \$ 268,617 TOTAL ANNUAL 0&M \$ 268,617 \$ \$ TOTAL ANNUAL 0&M \$ 268,617 \$ \$ TOTAL PRESENT WORTH INTEREST NO. OF YEARS \$ \$ PRESENT WORTH OF 0AM \$ 959,000 \$ \$ \$ PRESENT WORTH OF CAPITAL \$ \$ \$ \$ \$ \$ TOTAL 2/YEAR PRESENT WORTH \$ \$ \$ \$ \$ \$ \$	ADMINISTRATION	\$0,50	1000 GAL	1838.690 E	\$	19,345
ADDITION SYSTEM (30 YEARS-4%) ADDITION SYSTEM (30 YEARS-4%) ADDITION SYSTEM (30 YEARS-4%) ADDITION SYSTEM (30 YEARS-4%) ADDITION SYSTEM (30 YEARS-4%) ADDITION SYSTEM (30 YEARS-4%) ADDITION SYSTEM (30 YEARS-4%) ADDITION SYSTEM (30 YEARS-4%) ADDITION SYSTEM (30 YEARS-4%) ADDITION SYSTEM (30 YEARS-4%) S 268,617 ADDITION SYSTEM (30 YEARS-4%) S 268,617 ADDITION SYSTEM (30 YEARS-4%) S 268,617 ADDITION SYSTEM (30 YEARS-4%) S 369,010 S 359,000 S 359,00		\$0,25	1000 GAL	4538,690,5	<u>\$</u>	9,673
TOTAL ANNUAL 04M C.S. COST 12000(94)// 5 145,819 TOTAL ANNUAL 04M \$ 268,617 TOTAL PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF 04M \$ 959,000 \$ 959,000 PRESENT WORTH OF CAPITAL \$ 1,531,000 \$ 1,531,000 TOTAL 20-YEAR PRESENT WORTH \$ 2,400,000 \$ 2,400,000	DEBT-COLLECTION SYSTEM (30 YFARS 44)	0.074	CS COST	10050505037	\$	32,941
TOTAL PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF CAPITAL S 1,531,000 TOTAL 20-YEAR PRESENT WORTH C 400 MINISTRATING S 2,400 MINISTRATING S 3,400	TOTAL ANNUAL DAM		0.0.0001	and a second second second second second second second second second second second second second second second	ŝ	268,617
ANNUAL INTEREST NO. OF YEARS PRESENT WORTH OF OAM \$ 959,000 PRESENT WORTH OF CAPITAL \$ 1,531,000 TOTAL 20-YEAR PRESENT WORTH \$ 2,400,000				··· .	Ť	200,017
TOTAL PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF 0AM \$ 959,000 \$ 959,000 PRESENT WORTH OF CAPITAL \$ 1,631,000 \$ 1,631,000 TOTAL 20-YEAR PRESENT WORTH \$ 2,400,000 \$ 2,400,000	· · · · · · · · · · · · · · · · · · ·	ANNUAL				
PRESENT WORTH OF CAPITAL \$ 959,000 OTAL 20-YEAR PRESENT WORTH \$ 1,531,000	TOTAL PRESENT WORTH	INTEREST	NU. OF YEARS			
TOTAL 20-YEAR PRESENT WORTH C 2 490 nm	PRESENT WORTH OF CARITAL	(2011)01513556 7.00%	235 W		<u> </u>	959,000
	TOTAL 20-YEAR PRESENT WORTH		· · · · ·		5	2 490 000

**Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Satvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

Hardin County Regional Facilities Plan

/ Regional Facinuus Flan	
Service Area	MERICENTER POINT Creek States
Alternative	Radeliff WWTP
Design Year	2027-22
Design Population	1060
Dosign Industrial Acres	STATISTICS STATISTICS

1.70 80 Impact to Existing Utility: New force main proposed to be tied into new headworks

New headworks \$1000 Connection Charge per customer

	a roos connector	Contarge per cusco	110	_	
ПЕМ	UNIT COST	UNITS	NUMBER OF UNITS		COST
		<u> </u>		F	
GRAVITY INTERCEPTOR SEWER		DEGUE		-	4 000 450
B-INCH	157.811.1111.00.00	PERLP	130.67.4014	<u>ې</u>	1,033,450
10-INCH	5 S S S S S S S S S S S S S S S S S S S	PERLF		<u>}</u>	
12-INCH	S	PERLF	CONTRACTOR OF A	1÷	
10-INCH	S	PERLF	Biological Street of the	2	
1B-INCH	0.000 SEC.00.00	PERLE	State State State	÷	
21-INCH	19/12/2012/2012/00/00/	OCDIC	Construction of the local sector	3	-
24-INCH	19152975 XE21 VV. VV.		STREET, STREET	÷	
27-INCH 30 INCH	A 2000 - 10.00		ADDRESS OF THE OWNER	-	
30-11/0-11	E 120,00		Sector Annalises	÷	
35-INCH	S 120 120 120 00	PERIE	International State	5	
42-INCH	S 200 000000000000000000000000000000000	PËRIË		ě	
42-NOI	S	PERIE		Ť	
MANHOLES	\$ 2500.00	EACH	19497.6960	ŝ	187.500
		LANT		ŕ	107,000
FORCE MAIN				_	
4-1NCH	\$ 30.00	PER LF	100000000	\$	
6-INCH	5 35.00	PERLF	\$ # 13/230/6	\$	1,513,050
8-INCH	\$ 40.00	PER LF		\$	-
10-INCH	\$5.00	PERLF	建建建設	\$	•
12-INCH	\$-5.445.50.00	PERLF		\$	-
14-INCH	\$ 60.00	PERLF	建設設	\$	•
16-INCH	S 2.0 70.00	PERLF		\$	-
1B-INCH	\$ 39 Mick 80.00	PERLF	等的第三人	\$	-
24-INCH	\$ 90.00	PERLF		\$	-
PUMP STATION (IF<1500 GPM USE 150°GPM+100,	,000)	GPM	282280282	\$	142,000
PUMP STATION (IF>1500 GPM USE 215"GPM+550,	,000)	GPM	880280 第3	\$	142,000
PUMP STATION	建成。 指於於約	GPM	機構構成		
WASTEWATER TREATMENT PLANT	\$ 24.00	AVE GPD	臺灣國際	\$	
IMPACT TO EXISTING UTILITY					
NEW HEADWORKS	\$3.4 State 1.00	AVE GPD	截106(0003	\$	106,000
	L	1		-	3 494 000
SUBIDIAL BASE COST				Ļ	3,124,000
EASEMENTS	246307830270113 6/#6/			÷	16 620
EASEMENTS	0.076			3	10,020
RESTORATION (PAVEMENT AND DRIVEWAT)	Sec. 47.5 (17.4.7.9) U.70			3	312,400
EROSION AND SEDIMENT CONTROL	CO70			\$	40,000
GENERAL CONDITIONS	120.020 (127. 192 .07)			\$	249,920
SUBTOTAL CONSTRUCTION COST				5	3.748.600
				Ċ	
CONTINGENCY AND TECHNICAL SERVICE	40%			s	1,499,520
MPACT TO EXISTING UTILITY					
CONNECTION CHARGE	\$ 1,000,00	PER CUSTOMER	353	\$	353,000
				<u> </u>	
TOTAL CAPITAL COST OPINION**				\$	5,601,000
ANNUAL OPERATIONS MAINTENANCE			· · · · · · · · · · · · · · · · · · ·		
WASTEWATER TREATMENT PLANTS		1000 GAI	ANOR/ROA	s	158 620
PLIMPING STATIONS	CEN DO	GPM	Stranger and an	š	33 600
FORCE MAINS & INTERCEPTORS	C 10	PERIE	3262002038	š	6 207
ADMINISTRATION	2010 ST 26	1000 GAI	22235 690 9	š	9.673
REPLACEMENT	S0.00	1000 GAI	NEW WAY	<u> </u>	0,010
DEBT-WWTP (20 YEARS-4%)	2012 0 074	WWTP COST	619010476	s	14 063
DEBT-COLLECTION SYSTEM (30 YEARS 4%)	10 ALA	C.S. COST	155410/0523	\$	313 935
TOTAL ANNUAL OFFICE	11111111111111111111111111111111111111	0.0.0001	-4,12,01000)	÷	515,000
IUTAL ANNUAL USM		· · · ·			030,00Z
	ANNUAL		···· I		
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7.00%	10		\$	1,914,000
PRESENT WORTH OF CAPITAL				\$	2,847,000
TOTAL 20-YEAR PRESENT WORTH				\$	4,761,000

**Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

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Hardin County Regional Facilities Plan

Service Area	Elippin Creek
Alternativo	Fort Knox WWTP
Design Year	2027 2027
Design Population	1060
Design Industrial Acres	592565390022252585

Impact to Existing Utility: Upgrade Existing Collection System

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ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
			<u> </u>	+	
BINCH	5900000000000000	PERIE	10000000000000000000000000000000000000		1 023 460
10-INCh	S 60.00	PERLE	2200012002	2 5	1,000,400
12-!NCH	\$	PERLF		ŝ	-
15-INC+	\$	PERLF	Notes to the	4 5	-
18-INCH	\$ 80.00	PERLF	10000000	\$	-
21-INCH	\$ 90.00	PER LF		\$	-
24-INCH	\$ 0100.00	PERLF	Besterne	\$	-
27-INCH	5 110.00	PERLF	State of the	5	-
30-INCh	S 120.00	PERLF		15	-
33-INCH	S 28 1 1 30.00	PERLF		<u> </u>	•
30-INCH 42-INCH	18190102001400.00	PERLF	CONTRACTOR OF		
42-ING1	\$ 6000000000000000000000000000000000000	PERLE	NAME AND A CONTRACT OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER OF THE OWNER	1 0	·
MANHOLES	\$ 2,500,00	EACH	68067576	s s	187.500
				Ť	
FORCE MAIN	l	1			
4-INCH	S 30.00	PERLF	99399399	\$	
6-INCH	\$ 35.00	PER LF	资料Z002	s	164,500
8-INCH	40.00	PERLE	100010000000	\$	
	\$ 45.00	PER LF		5	<u> </u>
	S		100000000000	1	
16-INCH	5 70 00	PERLE	States City	1	
18-INCH	\$ 80.00	PERLE	Statistics of the	÷	
24-INCH	\$ 90.00	PERLF	SALANDAR STORY	s	
			1	۴-	
PUMP STATION (IF<1500 GPM USE 150°GPM+100,	,000)	GPM	282280585	\$	142,000
PUMP STATION (IF>1500 GPM USE 215'GPM+550,	.000)	GPM		-	
PUMP STATION		GPM	3799969		
WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD		\$	-
IMPACT TO EXISTING UTU ITY		<u> </u>			
UPGPADE TO EXISTING COLLECTION SYSTEM			· ·		
BI GIVIDE TO EXISTING GOLLEG HON STOTEM		LUMP SUM	100000000000000000000000000000000000000		
	1. 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 19 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -			P-	
SUBTOTAL BASE COST			L	5	1.527.450
		[T	Ť	
EASEMENTS	0.5%]	\$	7,637
RESTORATION (PAVEMENT AND DRIVEWAY)	200 %		1	\$	152,745
EROSION AND SEDIMENT CONTROL	1.5%			\$	22,912
GENERAL CONDITIONS	18. M. A. B. 8%			\$	122,196
		I			
SUBTOTAL CONSTRUCTION COST		r		ş	1,832,940
CONTINCENCY AND TECHNICAL REDVICE	2413-224-224-277-28-24 AD #			_	N00 470
CONTINUEROT AND TECHNICAL SERVICE	-2019 Table 1 A 2019			>	733,176
TOTAL CAPITAL COST OPINION**	L			5	2,566,000
				-	2,300,000
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	的现在分词的第三人称单数	1000 GAL	25818902	\$	77,380
PUMPING STATIONS	\$60.00	GPM	過1280 過数	\$	16,800
	\$0.10	PERLF	約23,490法	<u>\$</u>	2,349
	50.25	1000 GAL	K\$\$\$8;690 <u>12</u>	\$	9,673
DEBT-WWTP (20 YEARS-4%)	90.00	1000 GAL	AND ALES	6	
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.05	CS COST	CONTRACTOR OF	~	148 939
		0.0.0001	DE MUNUUUU	\$	255 020
i vincentitore dun				•	100,000
	ANNUAL		· · · · ·		{
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	o.e	ania (1) a 10 a 10 a 10 a 10 a 10 a 10 a 10 a		\$	911,000
TOTAL 20 YEAD DEEPENT WORTH OF CAPITAL				\$	1,304,000
TOTAL 20-TEAK PRESENT WORTH				ş	2,215,000

**Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

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ON Hardin County Regional Facilities Plan II Creek Branch

Service Area	Store State In Contract
Alternative	Vino Gro
Design Year	2027 2027
Design Population	2080
Design Industrial Acres	

Impact to Existing Utility: New force main proposed to be tied into existing WWTP Expand Existing WWTP

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
OD AN (INVINEER CERTOR SEWER					
GRAVITY INTERCEPTOR SEWER	C. 11 200 200 200 200 200	PEDIE	50500 na0305	-	389.805
10.INCH	5 60.00	PERIF	No. of Concession, Name	ŝ	194 400
12-INCH	S (65.00	PERLF	Electrony and	5	-
15-INCH	\$ 70.00	PERLF	170.400.400	\$	-
18-INCH	\$ 80,00	PER LF		\$	-
21-INCH	\$	PERLF	STATISTICS.	\$	-
24-INCH	\$ 100.00	PER LF		\$	-
27-INCH	\$ 110.00	PERLF		\$	-
30-INCH	\$ 120.00	PER LF	机能能能加速	\$	-
33-INCH	\$130.00	PERLF		\$	•
36-INCH	\$ 140.00	PERLF	Here and the second	ş.	-
42-INCH	\$ 160.00			ş	-
48-INCH	5 100,00		Sector Control	÷	102 600
MANHOLES	STREET STORE	EACH	0200500000	*	102,000
EORCE MAIN					
4-INCH	\$ 30.00	PERLF		ŝ	-
B-INCH	\$ 35.00	PERLF	#RIE-0302	\$	1,611,050
B-INCH	\$ 40.00	PER LF		\$	-
10-INCH	\$ 45.00	PERLF	20000	\$	•
12-INCH	\$ 50.00	PER LF		5	-
14-INCH	\$	PERLF	能能能能	Ş	-
16-INCH	\$ 70.00	PER LF	総合語る	\$	-
18-INCH	\$ 80.00	PER LF		\$	-
24-INCH	\$ 90.00	PER LF		\$	· ·
PUMP STATION (IF<1500 GPM USE 150"GPM+100,0		GPM	200450202	ş	167,500
PUMP STATION (IF>1500 GPM USE 215'GPM+550,0	100) 1	GPM OPM	我因常以此能	ş	265,000
POMP STATION	and a state of the second	GPM		>	
WASTWATER TREATMENT PLANT	\$400.00	AVE GPD	100000000000000000000000000000000000000	-	
	19-19-20 19-19-19-19-19-19-19-19-19-19-19-19-19-1	7412 01 0	200103000448	Ť.	· · · · · · · · · · · · · · · · · · ·
IMPACT TO EXISTING UTILITY					
UPGRADE TO EXISTING COLLECTION SYSTEM			STREET, STR		
EXPAND EXISTING WWTP	\$ 4.00	AVE GPD	223750002	\$	148,000
SUBTOTAL BASE COST				\$	2,878,345
EASEMENTS	0.5%			\$	14,392
RESTORATION (PAVEMENT AND DRIVEWAY)				\$	287,835
EROSION AND SEDIMENT CONTROL	15%			\$	43,175
GENERAL CONDITIONS	1000000008 8%			\$	230,268
	L			<u> </u>	0.454.044
SUBTOTAL CONSTRUCTION COST				<u>~</u>	3,454,014
CONTINGENCY AND TECHNICAL SERVICE	011010000000000000000000000000000000000	<u> </u>		\$	1 381 608
CONTINGENCI AND TECHNICAL SERVICE	212 117 127 Service 1970				1,001,000
TOTAL CAPITAL COST OPINION***				ŝ	4.836.000
		l	· · · · · ·	•	4142-014.00
		•			
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	\$\$\$\$00	1000 GAL	金18505数	\$	67,525
PUMPING STATIONS	\$60.00	GPM	國(1550)的	\$	93,000
FORCE MAINS & INTERCEPTORS	Sec. 50.10	PER LF	\$\$56735935	\$	5,636
ADMINISTRATION	\$0,25	1000 GAL	2035058	\$	3,376
REPLACEMENT	\$0.00	1000 GAL	感的NA 解色		
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	\$248,660.2	\$	18,401
DEST-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	24:587(340)	5	266,066
TOTAL ANNUAL O&M				\$	454,004
	ANNUAL				
TOTAL PRESENT WORTH	INTEREST	NÖ. ÖF YEARS			
PRESENT WORTH OF O&M	7.00%	STAR 10 10		\$	1,621,000
PRESENT WORTH OF CAPITAL				\$	2,458,000
TOTAL 20-YEAR PRESENT WORTH		· · · · · · · · · · · · · · · · · · ·	······	\$	4,079,000

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs In 3rd quarter 2007 dollars
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Hardin County Regional Facilities Plan

Leading and a contract the second	
Service Area	MIII Creek Branch
Alternative	Fort Knox
Design Year	2027
Design Population	2660
Design Industrial Acres	No. of the second second second second second second second second second second second second second second s

Impact to Existing Utility: Upgrade Existing Collection System

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
			1		
GRAVITT INTERCEPTOR SEWER	CONSIGNATION OF FRAME	DEDUE	Salard Science 2007	<u>.</u>	
	00,UL		12 22 V0 902	1	389,895
12-INC	S		504601543602	ŀ	194,400
15-INCH	70.00		070050043005	ŀ	
18-14/04	S		32222233333333333 2010/2022/06/02/3	l÷.	•
21.NCH	S 00.00	DEDIE	2010/02/04/04/04/04/04/04/04/04/04/04/04/04/04/	l	
24-INCH	S 100.00	PERIE	2010256000000	ŧ	-
27-INCH	1 Store 110 0	PERIF	100000000000000000000000000000000000000	ł÷	
30-INCH	5 120.00	PERLF	183868 4531	5	
33-INCH	S 130.00	PERLE	10101505384470	s	
36-INCH	S 140.00	PERLE	36335555	Š	-
42-INCH	\$ 160.00	PER LF	STATES IS	Ś	-
48-INCH	\$ 180.00	PERLF	CONTRACTOR OF	İš-	
MANHOLES	\$ 2,500.00	EACH	25-21-22	\$	102,500
				1	·
FORCE MAIN	1	1			
4-INCH	\$	PER LF	1832201396	\$	-
6-INCH	\$	PER LF	\$41:0103	\$	1,456,350
8-INCH	S 40.00	PER LF	92256363	Ş	-
10-INCH	\$ 45.00	PER LF		\$	
12-INCH	\$	PER LF	的建筑和建立	\$	•
14-1NCH	\$ 60,00	PER LF	なななななな	\$	-
1 6 -INCH	\$ 70.00	PER LF	State and the	\$	-
18-INCH	\$	PER LF	なななななななな	\$	
24-INCH	S	PERLF	水型活動	Ş	
PUMP STATION (IF<1500 GPM USE 150°GPM+100,0	200)	GPM	9 824 50 850	\$	167,500
PUMP STATION (IF>1500 GPM USE 215*GPM+550,0	(00)	GPM	经回到00000	\$	265,000
PUMP STATION	Sector and solar	GPM	新闻的 和	\$	-
WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD	BARANA	\$	
THE CAR MANAGEMENT					
IMPACT TO EXISTING UTILITY					
UPGRADE TO COLLECTION STSTEM		LUMP SUM		\$	185,000
SUBIOIAL BASE COST			7	\$	2,760,645
				-	
EASEMENTS	0.5%		I	\$	13,803
RESTORATION (PAVEMENT AND DRIVEWAY)	10%	<u> </u>		\$	276,065
EROSION AND SEDIMENT CONTROL	1.07c			\$	41,410
GENERAL CONDITIONS	NAL 16 (NEVER 107	·		<u>~</u>	220,852
				<u> </u>	
SUBIDIAL CONSTRUCTION COST		r		÷	3,312,774
CONTINUENCY AND TECHNICAL SERVICE	Set Commence and			-	1005 110
CONTINUENCE AND TECHNICAL SERVICE	2007 VIC 980 CA 4970			\$	1,325,110
TOTAL CARITAL COST ORINION			1		4 533 635
TOTAL CAPITAL COST OPINIOR		I		\$	4,638,000
ANNUAL OPERATIONS MAINTENANCE			i i		
WASTEWATER TREATMENT PLANTS	(BROSS 2) IN SOLUTION	1000 GAL	20105050	s	27.010
PLIMBING STATIONS	560.00	COM COM	WHITE OSX	è.	27,010
FORCE MAINS & INTERCEPTORS	\$0.10	PERIF	1565-150-2095	* *	5 104
ADMINISTRATION	580 6 50 96 50 50	1000 GAL	10013-5052	÷	3 376
REPLACEMENT	\$0.25	1000 GAL	SWENT AND		3,510
DEBT-WWTP (20 YEARS-4%)	0.074 0	WWTP COST	SPENJASS.		
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	100005A 1000	C.S. COST	50.6381000	\$	269.004
	an and a second state of the second	0.0,0001		\$	397 594
COTAL ANNOAL OBM				4	371,364
	ANNUAL		F		
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			1
PRESENT WORTH OF O&M	7.00%	E 1365 6 40	I	\$	1,420.000
PRESENT WORTH OF CAPITAL				\$	2,358,000
TOTAL 20-YEAR PRESENT WORTH				\$	3,778,000

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

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Hardin County Regional Facilities Plan

Imp

Service Area Alternative New Northern WWTP Design Year Design Population 2680 Design Industrial Acres

Not Applicable

act to Existing	Utility:
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NUMBER UNIT COST ITEM UNITS COST OF UNITS GRAVITY INTERCEPTOR SEWER 8-INCH \$5.00 PER LF 369,695 Ka089 PERLF 10-INCH \$300 60.00 32(0) 194,400 12-INCH \$ 65.00 PERLF 15-INCH \$ 70.00 PER LF 0 18-INCH \$ 200 28 80.00 PERIE PERLF 21-INCH \$ 80.00 120.02 24-INCH \$35.860 98100.00 PERLF 27-INCH \$110.00 30-INCH \$120.00 PER LF PER LF à sa 33-INCH IS GEN @9130.00 PERLE S 36-INCH 55254539140.00 PERLE ∂f^{μ} -5 42-INCH \$199100160.00 PERLF 1000 l S 48-INCH \$102012 180.00 PERLF MANHOLES \$ 2,500,00 EACH 102,500 ŝ FORCE MAIN PERLF 4-INCH \$ 30.00 6-INCH \$ 35.00 PERLF 47.750 1,671,250 8-INCH SING 40.00 PERLF 10-INCH \$ 45.00 PERLP 12-INCHUS 50 00 PERLE 1.276 PERLP 14-INCH S 60.00 65266585 S 16-INCH \$ 70.00 PERLF 18-INCH \$ 80.00 PERLF 10 A PERIE 24-INCH \$ 90.00 TO OTHER c PUMP STATION (IF<1500 GPM USE 150*GPM+100,000) GPM 450 10 167.500 PUMP STATION (IF>1500 GPM USE 215' GPM+550,000) GPM 3d2100 265,000 \$ PUMP STATION <u> (</u> **GPM** CAL: SO WASTEWATER TREATMENT PLANT AVE GPD 337 000 92,500 \$ 2.50 s SUBTOTAL BASE COST ŝ 2.683.045 14,415 EASEMENTS 0.5% RESTORATION (PAVEMENT AND DRIVEWAY) 109 288,305 EROSION AND SEDIMENT CONTROL 1.59 43,246 230,644 **GENERAL CONDITIONS** 89 SUBTOTAL CONSTRUCTION COST 3.459.654 s CONTINGENCY AND TECHNICAL SERVICE 40% 1,383,862 TOTAL CAPITAL COST OPINION* 4,844,000 ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS 1000 GAL ACTION IN COMMENT 13,505 213 505 2 PUMPING STATIONS GPM a)\$650世 93,000 \$\$60,00 FORCE MAINS & INTERCEPTORS \$0.10 PERLF 68:0792 5,808 ADMINISTRATION \$0.50 1000 GA1 513,605 6,753 REPLACEMENT 30.25 1000 GA1 **副3,505** 3 376 DEBT-WWTP (20 YEARS-4%) WWTP COST 0.074 SI 55/16 11.501 DEBT-COLLECTION SYSTEM (30 YEARS-4%) 0.058. C.S. COST 271,938 4 688 584 TOTAL ANNUAL O&M 405,880 ANNUA TOTAL PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF O&M 1,449,000 2.7.009

PRESENT WORTH OF CAPITAL TOTAL 20-YEAR PRESENT WORTH

*Property Owner will be responsible for cost to connect structure to new sewer

***Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs

Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives

All costs in 3rd quarter 2007 dollars

2,462,000

3,911,000

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ION Hardin County Regional Facilities Plan Service Area Atternative Design Year Design Population Design Industrial Acres

Impact to Existing Utility: New force main proposed to be tied into new headworks

New headworks

	41444 041110444	in onlarge per coato	1101		
ITEM	UNIT COST	UNITS	NUMBER OF UNITS	Γ	COST
GRAVITY INTERCEPTOR SEWER					
8-INCF	55.00	PER LF	级起2010家	5	389,895
10-INCH	60.00	PERLF	30024030	\$	194,400
12-INC	S 28: 83% (65:00	PERLF		\$	-
15-INC	5 70.00	PER LF		\$	-
18-INC	S 20 20 20 80,00	PER LF	这些实现这	\$	-
21-INCH	\$ 90.00	PERLF		\$	-
24-INCH	5 100.00	PER LF	1000000000	\$	-
27-INCH	\$30,5110.00	PER LF	STREET, STORE	\$	-
30-INCH	\$ 120.00	PERLF		\$	-
33-INCH	\$ 130,00	PER LF	DOGRAMMA	\$	-
36-INC-	\$ 140,00	PERLF	和新教教教	\$	-
42-INC-	\$ 160,00	PERLF		\$	-
48-INCH	\$ 180,00	PERLF		\$	-
MANHOLES	\$2,500.00	EACH	10000010000	\$	102,500
FORCE MAIN	<u></u>				
4-INCH	\$36.00	PERLF	法法法法法法	\$	-
6-INCH	\$ 35.00	PERLF	2686.0807	\$	1,262,800
8-INCH	\$ 40.00	PER LF	STATE OF STATE	Ş	-
10-INCI-	\$ 45.00	PER LF		\$	•
12-INCH	\$	PERLF	Same a	\$	-
14-INCH	S	PER LF	のなどのなどの	\$	-
16-INCH	\$ 22.00	PERLF	のななななな	\$	-
18-INCH	\$ 80,00	PER LF		\$	-
24-INCH	\$ 90,00	PERLF		Ş	-
PUMP STATION (IF<1500 GPM USE 150*GPM+100,0	00)	GPM	修道500部	\$	167,500
PUMP STATION (IF>1500 GPM USE 215*GPM+550,0	200)	GPM	建設1310032 8	\$	-
PUMP STATION		GPM	秋秋秋日月日	\$	-
		ſ			
WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD	機構態	\$	-
			<u> </u>		
IMPACT TO EXISTING UTILITY					
IMPACT TO EXISTING UTILITY NEW HEADWORKS	s	AVE GPD	8537.000#E	\$	74,000
IMPACT TO EXISTING UTILITY NEW HEADWORKS	S	AVE GPD	8537.000.8F	\$	74,000
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST	S	AVE GPD	837.000\$F	\$ \$	74,000
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST	S.#500 2:001	AVE GPD	6337.0005	\$	74,000 2,191,095
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS	S	AVE GPD	8537.0003F	\$ \$	74,000 2,191,095 10,855
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY)	S	AVE GPD		\$ \$ \$ \$	74,000 2,191,095 10,855 219,110
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL	2,00 0,5% 10%	AVE GPD		\$ \$ \$ \$ \$	74,000 2,191,095 10,855 219,110 32,866
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS	S	AVE GPD		\$ \$ \$ \$ \$ \$	74,000 2,191,095 10,855 219,110 32,866 175,288
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS	S	AVE CPD		\$ \$ \$ \$ \$ \$	74,000 2,191,095 10,855 219,110 32,866 175,288
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST	5	AVE CPD		\$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 10,855 219,110 32,866 175,288 2,629,314
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST	15	AVE GPD		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 10,855 219,110 32,866 175,288 2,629,314
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE	5 2,00 0,5% 0,05%0	AVE GPD		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 10,855 219,110 32,866 175,288 2,629,314 1,051,726
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY	5 2,00 0.5% 10% 10%	AVE CPD		\$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,100 32,866 175,288 2,629,314 1,051,726
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE	5	AVE GPD	123	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,110 32,866 175,288 2,629,314 1,051,726 123,000
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE	15	AVE GPD		\$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 10,855 219,110 32,866 175,288 2,629,314 1,051,726 123,000
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OFINION***	5 2,00 0,5% 00% 1,5% 8% 8% 40% 5 3,000,00	AVE GPD	123	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,110 32,866 175,288 2,629,314 1,051,726 123,000 3,804,000
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION***	5 2,00 0.5% 10% 2,115% 8% 8% 8% 8% 8% 8% 8% 8% 8% 8% 8% 8% 8%	AVE GPD	123	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,110 32,866 175,288 2,629,314 1,051,726 123,000 3,804,000
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION***	5	AVE GPD		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 10,855 219,110 32,866 175,289 2,629,314 1,051,726 123,000 3,804,000
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWARY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION***	5	AVE GPD		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,110 32,866 175,288 2,629,314 1,051,725 123,000 3,804,000
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION*** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS	5 2,00 0,5% 00% 00% 10% 10% 10% 10% 10% 00% 00%	AVE GPD	123	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,110 32,866 175,288 2,629,314 1,051,726 123,000 3,804,000 55,371
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION*** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS	5 2,00 0.5% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10	AVE GPD		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 10,9655 219,110 32,866 175,288 2,629,314 1,051,726 123,000 3,804,000 3,804,000
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWARY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION*** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS	5	AVE GPD PER CUSTOMER 1000 GAL GPM PER LF	123 123 32860028 32860028	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,110 32,866 175,288 2,629,314 1,051,726 123,000 3,804,000 3,804,000 55,371 93,000 4,641
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWARY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OFINION TOTAL CAPITAL COST OFINION ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION	5	AVE GPD PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,100 32,868 175,288 2,629,314 1,051,726 123,000 3,804,000 3,804,000 55,371 93,000 4,6641 3,376
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWAY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION=================================	5 2,00 0,5% 1,0% 1,15% 8% 1,000 00 5 5,0000 5,00000000	AVE GPD AVE GPD PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL	123 123 123 123 123 123 123 123 123 123	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,110 32,866 175,288 2,629,314 1,051,726 123,000 3,804,000 3,804,000 55,371 93,000 4,641 3,376
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWARY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION*** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS PORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWYP (20 YEARS-4%)	5	AVE GPD AVE GPD PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST	123 123 123 123 123 123 123 123 123 123	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 10,855 219,110 32,866 175,283 2,629,314 1,051,726 123,000 3,804,000 3,804,000 55,371 93,000 4,641 3,378
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWARY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION*** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WITP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%)	5	AVE GPD AVE GPD PER CUSTOMER PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL WWTP COST C.S. COST		\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,110 32,866 175,288 2,629,314 1,051,725 123,000 3,804,000 3,804,000 555,371 93,000 4,641 3,378 213,181
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWARY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OFINION*** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWYP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%)	5 2,00 0,5% 0,0% 1,5% 8% 8% 40% 5% 5% 5% 5% 5% 5% 5% 5% 5% 5% 5% 5% 5%	AVE GPD AVE GPD PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL WWTP COST C.S. COST	123 123 123 123 123 123 123 123 123 123	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,110 32,866 175,288 2,629,314 1,051,726 123,000 3,804,000 3,804,000 4,641 3,376 213,181 153,011
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWARY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION=================================	5	AVE GPD AVE GPD PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL WWTP COST C.S. COST	123 123 123 123 123 123 123 123 123 123	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 10,855 219,110 32,866 175,289 2,629,314 1,051,726 123,000 3,804,000 3,804,000 3,804,000 4,641 3,378 213,181 153,011
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWARY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION*** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWIP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL OBM	5	AVE GPD AVE GPD PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL 1000 GAL	223 123 123 234 245052 234 245052 234 245052 234 245052 234 245052 234 245052 234 245052 234 245052 245050000000000	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,110 32,566 175,289 2,629,314 1,051,726 123,000 3,804,000 3,804,000 55,371 93,000 4,641 3,376 213,181 153,041
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWARY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION*** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL OBM	5	AVE GPD AVE GPD PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL	8837.00039 123 123 123 8813506555 88755028 887550 875500 875550 875500 875500 875500 8	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,110 32,866 175,288 2,629,314 1,051,725 123,000 3,804,000 3,804,000 555,371 93,000 4,641 3,376 213,181 153,041
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWARY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWIP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-3%) TOTAL ANNUAL OBM TOTAL PRESENT WORTH PRESENT WORTH OF OBM	5 2,00 0,5% 0,10% 5 3,100 5 3,	AVE GPD AVE GPD PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL 1000 GAL WWTP COST C.S. COST NO. OF YEARS	123 123 123 123 123 123 123 123 123 123	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 219,110 32,866 175,288 2,629,314 1,051,726 123,000 3,804,000 3,804,000 4,641 3,378 213,181 153,011
IMPACT TO EXISTING UTILITY NEW HEADWORKS SUBTOTAL BASE COST EASEMENTS RESTORATION (PAVEMENT AND DRIVEWARY) EROSION AND SEDIMENT CONTROL GENERAL CONDITIONS SUBTOTAL CONSTRUCTION COST CONTINGENCY AND TECHNICAL SERVICE IMPACT TO EXISTING UTILITY CONNECTION CHARGE TOTAL CAPITAL COST OPINION*** ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS PUMPING STATIONS FORCE MAINS & INTERCEPTORS ADMINISTRATION REPLACEMENT DEBT-WWIP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL OBM PRESENT WORTH OF OBM PRESENT WORTH OF OBM	5 2 00 05% 10% 10% 15% 15% 15% 15% 15% 15% 15% 15	AVE GPD AVE GPD PER CUSTOMER 1000 GAL GPM PER LF 1000 GAL 1000 GAL	223 7.0003 123 123 23 2483092 23 2483092 23 2483092 23 2483092 23 2483092 23 2483092 23 2483092 23 2483092 23 24 24 24 24 24 24 24 24 24 24 24 24 24	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	74,000 2,191,095 10,855 219,110 32,866 175,288 2,629,314 1,051,726 123,000 3,804,000 3,804,000 3,804,000 4,641 3,378 213,181 153,011 5546,000 1,934,000

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector severs cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

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Hardin County Regional Facilities Plan

Service Are	MIII Creek Branch
Alternativ	Elown WMTP
Design Yea	r 337 2027 8
Design Population	n 禁約 2680 與北京
Design Industrial Acre	a Chief Store O Fisher State

Impact to Existing Utility: Existing Collection System Existing WWTP

\$1,500 per customer \$500 per customer

				_	
ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
CRAVITY INTERCEPTOR SEWER			<u> </u>		
BINCH BINCH	S	PERLF	1967/08966	5	389,895
10-INCH	S 60.00	PER LF	100000	5	194,400
12-INCH	\$ 85.00	PER LF		\$	
15-INCH	\$	PER LF	CONCERCION OF	\$	-
18-INCH	\$ (80.00	PER LF	SCHEMES.	\$	-
21-INCH	\$ 90.00	PER LF	Real and a second	\$	-
24-INCH	5 100.00	PERLF	Source and the	15	-
27-INCH	\$ 110.00	PER LF	國的建設的	\$	-
	\$ 120.00	PERLF	83 No. 10	\$	-
33-INCH	\$ 130.00	PERLF	10.000	15	
36-INCH	\$ 140.00	PERLF	£.2.2	۱ <u>۶</u>	-
42-INCH	5 160.00		Bureaster and	ļş_	
48-INCH	5 160.00			<u></u>	402 600
MANHOLES	3-00-00 m2-000.00	EACH		<u> </u>	102,500
FORCE MAIN				-	
A-INCH	STORES 200 00	PERIE	Rear and a state of the	5	
B-INCH	\$ 85.00	PERIE	120203	Š	
B-INCH	\$ 40.00	PERLF		ŝ	
10-INCH	\$ 45.00	PERLF	STORE OF	5	-
12-INCH	S: 50.00	PER LF	2000	\$	-
14-INCH	\$ 60.00	PER LF	No.	\$	•
1B-INCH	\$ 70.00	PER LF	Section Section	\$	-
18-INCH	\$ 80,00	PER LF	SHOWNER WITH	\$	
24-INCH	\$ 90.00	PER LF	LOUIS CONTRACT	\$	-
PUMP STATION (IF<1500 GPM USE 150"GPM+100,0	000)	GPM	國金50國統	\$	167,500
PUMP STATION (IF>1500 GPM USE 215*GPM+550,0	000)	GPM	and the second	\$	-
PUMP STATION	語言の語識語論語	GPM		\$	-
			[
WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD	10000000	\$	•
				Ļ	
SUBTOTAL BASE COST	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		<u>~-</u>	854,295
					4 024
EASEMENTS	0.07			<u>}</u>	4,271
RESTORATION (PAVEMENT AND DRIVEWAT)				\$	12 944
CENERAL CONDITIONS	BUT AN AN AN AN AN			e e	EP 244
GENERAL CONDITIONS	-107225-2451-027 0 7			*	00,044
SUBTOTAL CONSTRUCTION COST				5	1.025.154
SOBIOTAL CONSTRUCTION COOL	6	r		ř.	1,020,107
CONTINGENCY AND TECHNICAL SERVICE	EN10050-00409			\$	410.062
IMPACT TO EXISTING UTILITY				Ť	
COLLECTION SYSTEM CAPACITY FEE	\$ 1,500.00	PER CUSTOMER	123	Ş	185,000
WWTP CAPACITY FEE	\$	PER CUSTOMER	123	\$	61,667
TOTAL CAPITAL COST OPINION***				\$	1,682,000
ANNUAL OPERATION& MAINTENANCE				_	
WASTEWATER TREATMENT PLANTS	STREET, AND STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, STREET, ST	1000 GAL	833 505 R	5	45,242
PUMPING STATIONS	560 560,00	GPM	3625450351	<u>×</u>	27,000
	3001U	PER LF	A810228A	*	1,033
AUMINIS INATION	99.25	1000 GAL	BELSON OF	*	3,3/8
	90,20 ····	1000 GAL	STREW ASSA		
	0.074	1000 GAL	REALWARD	e	07 664
	association de la constante de la constante de la constante de la constante de la constante de la constante de	0.9,0031	MILLOUGH	5	174 907
TOTAL ANNUAL UEM					1/4,207
	ANNUAL				
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7.00%	10 2017 - 10 2017 - 10		\$	622,000
PRESENT WORTH OF CAPITAL		[s	855,000

TOTAL 20-YEAR PRESENT WORTH

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

Mill Creek Branch and Mill Creek.xls

\$

1,477,000

Hardin County Regional Facilities Plan

Service Area	MIII Croek
Alternative	Elown WWTP
Design Year	2027
Design Population	1870
Dosign Industrial Acros	10 N N N N N N N N N N N N N N N N N N N

impact to Existing Utility: Existing Collection System Existing WWTP

\$1,500 per customer \$500 per customer

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
GRAVITY INTERCEPTOR SEWER				╇	
8-INC	H S 55 0	0 PERIE	0844(0208		617.650
10-INC	H 5 2 2 2 2 60.0	D PERLE	255565526	<u>इ</u>	017,000
12-INC	H \$ 65.0	0 PERLE	2829303	i s	190.450
15-INC	H \$ 70.0	0 PER LF	2000000	ŤŠ	
18-INC	H \$ 80.0	PER LF	CONTRACTOR OF	š \$	
21-INC	H (\$	PER LF	Section 1	\$ \$	
24-INC	H \$100.0	0) PER LF	1800 Base	3 S	-
27-INC	H \$110.0	0 PER LF	Residence.	\$	-
30-INC	H \$ 120,0	D PER LF	****	ŝ \$	-
33-!NC	H I S 130.0	PER LF	的影響起說	ģ \$	-
36-INC	H 5 140.0	PER LF	NG2ADDAXA	\$	
42-INC	H 5 160,0	PER LF	HUND DESCRIPTION	15	-
MANHOLES 48-INC	H S 2 500 0		A CONTRACTOR OF	5	
	2,000,0		19598349463798	₽	142,500
FORCE MAIN				⊢	
4-INC	HIS 200	PERLE	000000000000000000000000000000000000000	i s	-
6-INC	H S 35.00	PERLF	287.750	1š	271 250
8-INCI	1 \$ 40.00	PER LF	124325344	ŧŝ	
10-INCI	45.00	PER LF	376657805	5	-
12-INC	- SO.00	PER LF	PARTICIPACION OF	5	-
14-INCI	-[\$	PER LF		\$	-
16-INC	1.5	PERLF	STATES	\$	-
18-INCI	\$ 80.00	PER LF	ALC: NO.	\$	-
24-INC	1 \$	PER LF	ROLDA	\$	-
PUMP STATION (IF<1500 GPM USE 150*GPM+100,	000)	GPM	在长450 3运	\$	167,500
PUMP STATION (IF>1500 GPM USE 215"GPM+550,	000)	GPM	WHENERAL	\$	100,000
	States and the grad	GPM	Charles Adda to	\$	-
WASTEWATER TREATMENT DI ANT	INTERNATION		and the second		
	4,00	AVE GPD	MEMICE	5	· · ·
	<u> </u>	<u> </u>		-	
SUBTOTAL BASE COST			al. i	÷	1 499 350
	1	1	1	Ť	1,403,330
EASEMENTS	0.5%			s	7 447
RESTORATION (PAVEMENT AND DRIVEWAY	10%			5	148,935
EROSION AND SEDIMENT CONTROL	S 3, 59 1.5%			\$	22,340
GENERAL CONDITIONS	1.435-06-06-8 %	>		\$	119 148
SUBTOTAL CONSTRUCTION COST				\$	1,787,220
CONTINGENCY AND TECHNICAL SERVICE	40%			\$	714,888
IMPACT TO EXISTING UTILITY					
COLLECTION SYSTEM CAPACITY FEE	\$ 1,600.00	PER CUSTOMER	557	\$	835,000
WWTP CAPACITY FEE	\$	PER CUSTOMER	557	ş	278,333
	I				
TOTAL CAPITAL COST OPINION				\$	3,615,000
ANNUAL OPERATION& MAINTENANCE		r	<u>г</u> г		
WASTEWATER TREATMENT PLANTS	STRATEGY CONTRACTOR	1000 GAL	2000.0553		204 400
PUMPING STATIONS	\$60.00	GPM	532450359	Ś	27,000
FORCE MAINS & INTERCEPTORS	\$0.10	PERLF	\$2191030	5	2 191
ADMINISTRATION	\$0.25	1000 GAL	260.055	ś	15,239
REPLACEMENT	\$0.25	1000 GAL	STANA 2		
DEBT-WWTP (20 YEARS-4%)	0,074	1000 GAL	STEN/ALE/		
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	13,615,000	ş	209,670
TOTAL ANNUAL O&M				\$	458,299
······				-	
DESCRIPTION	INFERES I	NU. UF YEARS			
PRESENT WORTH OF O&M	7.00%	1997年4月1日 114		\$	1,636,000
PRESENT WORTH OF CAPITAL				ş	1,838,000

TOTAL 20-YEAR PRESENT WORTH

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

s

3,474,000

Hardin County Regional Facilities Plan

Regional Facilities Plan	
Service Area	Mill Greek
Alternative	Radcliff WWTP
Design Year	2027 32
Design Population	1670
Design Industrial Acres	0

Impact to Existing Utility: New force main proposed to be tled into new headworks

New headworks \$1000 Connection Charge per customer

·····	Contraction	i oliziga per costoli	MINIOPE		
ITEM	UNIT COST	UNITS	OF UNITS		COST
	1	1			
GRAVITY INTERCEPTOR SEWER				-	
8-INCH	\$ 65.00	PERLF	8511230	\$	617,650
10-INCH	\$ 60.00	PERLF	Serence and	\$	-
12-INCH	\$	PER LF	882/830 F	\$	190,450
15-INCH	\$ 70,00	PERLF	發展影響	\$	-
18-INCH	\$ 80.00	PER LF		\$	
21-INCH	\$ 90,00	PER LF	DE COMPANY	5	-
24-INCH	S 100.00	PER LF		\$	-
27-INCH	\$ 110.00	PER LF		\$	-
30-INCH	\$ 120,00	PERLF		\$	•
33-INCH	\$ 130.00	PER LF	部治理機能	\$	-
36-INCH	\$140.00	PERLF	SHE MAN	\$	-
42-INCH	S. 2018 160.00	PERLE	SHEET	\$	-
48-INCH	5 180.00	PERLP		ş	
MANHOLES	\$ <u></u> 2,000,00	EACH	1928-19 ABS-7	<u></u>	142,500
FORCE MAIN					
LINCH	\$ 50,000,000,000	PERIE	12412539258	5	
	\$ 35.00	PERLE	S22833055	ŝ	991,550
8-INCH	\$ 40.00	PERLF	202030223	s	-
10-INCH	\$ 45.00	PERLF		ŝ	
12-INCH	S 50.00	PER LF	12-1800-1800	ŝ	-
14-INCH	\$ 60.00	PER LF	CHARMEN !	\$	-
16-INCH	S 70.00	PER LF	SHERE A	\$	-
1B-INCH	\$ 80.00	PER LF	1	\$	
24-INCH	\$ 90.00	FER ÚF	5000000	Ş	-
PUMP STATION (IF<1500 GPM USE 150°GPM+100,0	00)	GPM	009450368	\$	167,500
PUMP STATION (IF>1500 GPM USE 215*GPM+550,0	60)	GPM	均2450 988	\$	167,500
PUMP STATION	ALL PART AND	GPM	の名誉の		
WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD	建非常的	\$	-
IMPACT TO EXISTING UTILITY				_	
NEW HEADWORKS	\$ 23.8.2.3882.00	AVE GPD	23.96.0008	\$	334,000
				_	0.011.152
SUBTOTAL BASE COST				\$	2,611,150
	NE NOVING TO THE			-	42.050
DESTORATION (DAVENENT AND DRIVENIA)	1/1.00 C			ş	10,000
EDOSION AND SEDIMENT CONTROL	NEW DOLLARS IN 1070			e e	201,413
GENERAL CONDITIONS	84			\$	208 892
GERERAE CONDITIONS	1961 (Sec. 1971) (Sec. 0.1				200,042
SUBTOTAL CONSTRUCTION COST		1		5	3 133 380
SOBTOTAL CONSTRUCTION COST				÷.	5,153,505
CONTINGENCY AND TECHNICAL SERVICE	S-227382738273-32096			ŝ	1,253,352
IMPACT TO EXISTING UTILITY	5507201793W-20181898	· · · ·		•	(Lington)
CONNECTION CHARGE	S 1.000.00	PER CUSTOMER	557	s	557,000
				·	
TOTAL CAPITAL COST OPINION***				\$	4,944,000
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	64-545-055-62	1000 GAL	第60,055年	\$	249,916
PUMPING STATIONS	\$60.00	GPM	能0900 12	\$	64,000
FORCE MAINS & INTERCEPTORS	\$0.10	PERLF	第42/490年	\$	4,249
ADMINISTRATION	Sec. 25	1000 GAL	成60,955至	\$	15,239
REPLACEMENT	17 SO.26	1000 GAL	WWN/AUX		
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	第032302支		
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	\$4/311(598)	\$	250,073
TOTAL ANNUAL O&M				\$	308,165
TOTAL OPECENT WORTH	INTEREST	NO. OF YEARS			1
DESCRIT WARTLAS AND	25528-265982- 7:000	10.07 10.00		\$	1 100 000
PRESENT WORTH OF CADITAL	Contraction (1997)	nes terrologi des d		ŝ	2,513,000
TOTAL 20-YEAR DRESENT WOOTU				š	3,613,000
				-	

**Property Owner will be responsible for cost to connect structure to new sewer
 ***Excludes the cost from Design Year 2015
 10% contingency is used to account for current variability in pipe and fuel costs
 Salvage value is excluded from present worth analysis
 Collector sewers cost are excluded from this analysis since they are common to all alternatives
 All costs in 3rd quarter 2007 dollars

Hardin County Regional Facilities Plan

Service Area Design Population

Impact to Existing Utility: Not Applicable

ITEM	UNIT COST	UNITS	OF UNIT	2	COST
GRAVITY INTERCEPTOR SEWER	1	1		+	
8-INC	H \$182 80 855.0	D PER LF	12201230	e s	617,650
10-INC	H S 60.0	PER LF	STOL STOL	ŝ s	_
12-INC	H \$\$\$\$\$007065.0	D PERLF	362(030)	<u> </u>	190,450
15-INC	H \$100 70.0	PERLF	0.000	\$ 5	_
18-INC	H \$100 80.0) PER LF	1000000000	\$	-
21-INC	H \$ 90.00	PER LF	64388000	e s	-
24-INC	H \$100.00	D PER LF	100000000000000000000000000000000000000	l s	-
27-INC	H \$ 110.00	PER LF	10534500	ŝ	•
30-INC	H 5 120.00	PER LF	120000000	ŝ	
33-INC	H \$ 130.00	PERLF	1251504563	ŝ	
36-INC	H S 140.00	DI PER LF	10050201854/5	i s	
42-INC	H \$ 160.00	PER LF	STREET, SOL	a s	
48-INC	H SIA 180.00	PERLF	CALCONDERING OF	ŝ	· · · · ·
MANHOLES	5 2:500.00	EACH	28957/88	5	142,500
				1	
FORCE MAIN				+	
4-INC	H S 30.00	PERLE	-	15	
6-INC	H S 35.00	PERLF	19940 0000	n s	1 400 000
8-INC	H S 40.00	PERLE	(CANCELED AND	s	.,
10-INC	5 45.00	PERLE	SECONDER D	e s	
12-INC	1 50.00	PERLE	Satisfies	ŝ	
14-INC	I S 60.00	PERLE	STATE OF	Ť	
16-INC	1.5.000	PERLE	Late Color	Ś	
18-INC	I S 80'00	PERIF	2012222222		
24-INC	Store 90.00	PERIE	2000000000000000	١š-	
			1202010004207	ť	
PUMP STATION (IF<1500 GPM USE 150*GPM+10	0.000)	GPM	699205/1988	3	187 500
PUMP STATION (IF>1500 GPM USE 215*GPM+55	3,0001	GPM	18152757325	è	167,500
PUMP STATION	PARTS PLACE.	GPM	324230256	ł÷	100,000
······································	- MARGANAN AND AND A MARG		229740/00/00/00/00	<u> </u> -	100,000
WASTEWATER TREATMENT PLANT	S	AVE GPD	1016720008	ŀ.	417 500
	a state and a state of the stat		6851.04900.005	<u> </u>	417,500
				-	
· · · · · · · · · · · · · · · · · · ·			1		
SUBTOTAL BASE COST		ł	4	L.,	1 1 1 1 1 1 1 1 1
	· · · · · · · · · · · · · · · · · · ·		T	~	3,203,100
EASEMENTS	THE REAL CONTRACTOR		<u> </u>		
RESTORATION (PAVEMENT AND DRIVEWAY	1000 C 2000 C 2000			3	16,016
EROSION AND SEDIMENT CONTROL	107			\$	320,310
GENERAL CONDITIONS	Sector Control OF		ļ	\$	48,047
OCHEINE COMDITIONS	WARES IN NUMBER OF			3	256,248
SUBTOTAL CONSTRUCTION COST				_	
SUBTOTAL CONSTRUCTION COST	r			\$	3,843,720
CONTINUERION AND TECHNICAL OF DUIOD	Second Second states and a second				
CONTINGENCY AND TECHNICAL SERVICE	- X 26 26 1 1 1 1 1 4 0%			\$	1,537,488
	1	i			
TUTAL CAPITAL COST OPINION	r			\$	5,381,000
		r			
ANNUAL OPERATIONS MAINTENANCE					
WASTEWATER TREATMENT PLANTS	SENSES 11002032	1000 GAL	定601955运	Ş	60,955
PUMPING STATIONS	305 x \$60.00	GPM	國第900部計	\$	54,000
FURCE MAINS & INTERCEPTORS	\$0.10	PERLF	級54月60距	\$	5,416
ADMINISTRATION	\$0.50	1000 GAL	送601955定	\$	30,478
REPLACEMENT	\$0.25	1000 GAL	國60)955英	\$	15,239
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	\$Z017373E	\$	51,902
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	2.4420.058/44	C.S. COST	4,679,627,	\$	271,418
TOTAL ANNUAL O&M				\$	489,407
	ANNUAL		(T		
TOTAL PRESENT WORTH	INTEREST	NU. OF YEARS			
PRESENT WORTH OF O&M	7,00%	站。它们在这里出行了。 10		\$ [°]	1,747,000
PRESENT WORTH OF CAPITAL				s	2,735,000

TOTAL 20-YEAR PRESENT WORTH

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives Alf costs in 3rd quarter 2007 dollars

4,482,000

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Hardin County Regional Facilities Plan

Service Area Alternative Fort Knox Design Year Design Industrial Acres

impact to Existing Utility:	Upgrade Existing Collection System

ITEM	UNIT COST	UNITŠ	NUMBER OF UNITS		COST
GRAVITY INTERCEPTOR SEWER					
8-INCH	\$ 55.00	PERLF	国和1290 年	\$	617,650
10-INCH	S	PERLF		\$	•
12-INCH	\$ 65.00	PERLF	12223030	\$	190,450
15-INCH	\$	PERLF	100000	\$	-
18-INCH	\$ 80.00	PER LF		\$	-
21-INCH	S	PERLF		\$	<u> </u>
24-INCH	S 100.00	PERLF		\$	
27-INCH	\$	PERLP		\$	-
30-INCH	\$ 120,00	PERLF	Plant and a state	5	-
33-INCH	5.0.00	PERU	201002000	\$	-
36-INCH	\$ 140.00	PERLF			
42-INCH	\$160.00			2	-
48-INCH	\$ 180.00	FERLE		3	-
MANHULES	3	EACH	A CONSTRUCTION OF CONSTRUCTION OF CONSTRUCTION OF CONSTRUCTION OF CONSTRUCTION OF CONSTRUCTION OF CONSTRUCTION	3	142,500
5050° May					
FORCE MAIN	e la composición do la	OCD 1 C	ROMANDONING		
44100	S		Statement of the	3	1 495 400
	a		Chief and the second	3	
	CONTRACTOR OF CONTRACTOR		175 C 175 C 175	3	-
	-9-100	PERCE	Contraction (Contraction)	\$	•
12-INCH	5 00.00			÷	
14-INCH	\$	PERLF		÷.	· · · ·
	Store 15 10,00		1222203000000	*	
18-INUR	S 00.00			\$	-
24-INCD	States States and States	ren ur	(CAREGOVINCER)	3	
FUNCE CTATION (F 44600 CDL4USE 450) CDL4100		COM	NEW SOLUTION	-	167 500
PUMP STATION (IF<1500 GPM USE 150 GPM+100,0	00)	GPM	NUMBER OF STREET	÷	107,000
PUMP STATION (IP 100 GPM USE 215 GPM+550,0	VV]	CPM	100000000000000000000000000000000000000	ě	101,000
	Section Association and a sector of the	Gru	COLORING STORY	ž.	
WASTEWATER TREATMENT PLANT	Contraction of the second	AVE GPD		-	
	19.20 States and the second	AVE OF D	CONCORPORT.CC	*	
IMPACT TO EXISTING UTILITY					
UPGRADE TO COLLECTION SYSTEM		1UMP SUM		5	185,000
		Long Con		Ť	
·····					
SUBTOTAL BASE COST				\$	2,655,700
				· · · ·	
EASEMENTS	200 (Sec. 2019-201) 694			s	13 279
RESTORATION (PAVEMENT AND DRIVEWAY)	100 C C C C C C C C C C C C C C C C C C			ŝ	265 570
EROSION AND SEDIMENT CONTROL	100000000000000000000000000000000000000	·····		s	39 836
GENERAL CONDITIONS				ŝ	212 456
GENERAL CONDITIONS	A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR OF A CONTRACTOR A				2,12,400
SUBTOTAL CONSTRUCTION COST				¢	3 186 840
SUBTOINE CONSTRUCTION COST				Ť	5,100,040
CONTINICENCY AND TECHNICAL SERVICE	Constant and the second			e	1 274 798
CONTINGENCI AND TECHNICAL SERVICE	A PROPERTY AND A PROPERTY AND			•	1,214,100
TOTAL CADITAL COST DEMICAN				•	4 462 000
TOTAL CAPITAL COST OF INION	<u> </u>	· · · · · · · · · · · · · · · · · · ·	·	*	4,402,000
· · · · · · · · · · · · · · · · · · ·					
ANNULAL OPERATIONS MAINTENANCE					
WACYEWATED TREATMENT DI ANTS		1000 GAL	STRO DECAS	¢	121 010
DUMPING STATIONS	VE: 5860.00 / F/ /	COM	20000000000000	÷	54,000
EORCE MAINS & INTERCEPTORS	Solution and Solution	96916	26616372032	÷	4 802
ADMINISTRATION	CD:25	1000 CAL	CERTINESSE	÷	16 230
REPLACEMENT	ALCONTRACTOR	1000 GAL	ANT NUA SEA		10,200
DEBT-WWTP (20 VEARS_4%)	California (1974)	WWTP COST	HERE N/ AVAMA		
DEBLCOU ECTION SVETEM /30 VEARE 4421	SHUTCH CONTRACTOR	CS COST	x25050428	\$	258 700
TOTAL ABBILLO NOR OF OTAL ABBILLE OTAL	20100000000000000000000000000000000000	0.3,0031		ě	454 747
TOTAL ANNUAL 08M				÷	404,147
<u> </u>	ANNIA				
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7.00%	(MR) 53 (10		\$	1,624,000
PRESENT WORTH OF CAPITAL				\$	2,268,000

TOTAL 20-YEAR PRESENT WORTH

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

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Hardin County Regional Facilities Plan

Service Area	Mill Grook
Alternativo	Vine Grove WWTP
Dealgn Year	2027/SE
Dosign Population	2000 1670
Design Industrial Acros	· · · · · · · · · · · · · · · · · · ·

impact to Existing Utility: New force main proposed to be tied into existing WWTP

Ex	pand Existin	g WWTP
----	--------------	--------

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
CRAWTY INTERCEPTOR SEWER	· · · · · · · · · · · · · · · · · · ·	ļ	-	1	
GRAWIT INTERCEPTOR SEWER	A Sector Charles Bellev	DEDIE	abu di nanis	+	017 000
10.100	60.0		10021749846	11 9 11 0	017,030
12-INCH	\$ 25 265 0	PERLE	2852:02052		100 450
15-INCH	1 \$ 70.00	PERLE	2002202000	8 5	180,450
18-INCH	\$ 80.00	PER LF	100000000000000000000000000000000000000	Š	· · · · ·
21-INCH	90.00	PERLE	1683968299	ŝ	
24-INCH	S 100.00	PERLF	Sector and	š	-
27-INCh	S 110.00	PERLF	Sectors.	Ś	
30-INCH	120.00	PERLF	No No N	3 5	
33-INCF	130.00	PERLF		5	
36-INCH	\$	PERLF	Rest Const	\$	
42-INCH	i \$160.00	PER LF	5454600	\$	-
48-INCH	160.00	PER LF	States and	\$	-
MANHOLES	\$ 2,500.00	EACH	34257620	\$	142,500
				Г	
FORCE MAIN				\square	
4-INCH	\$ 30.00	PER LF	使着现在能	\$	
6-INCH	\$ 35,00	PER LF	3.38,280/2	\$	1,339,800
8-INCH	\$ 40.00	PER LF		\$	-
10-INCH	\$ 45.00	PERLF	1948-1957 (S	\$	-
12-INCH	\$ 50.00	PER LF	Sec.	\$	•
14-INCH	\$ 60.00	PER LF	家庭的新聞	\$	
16-INCH	\$ 70.00	PER LF	Sex 2	\$	-
18-INCH	\$ 80,00	PER LF	IN SECTION	\$	-
24-INCH	\$ 90,00	PER LF	CARL CAR	\$	-
PUMP STATION (IF<1500 GPM USE 150'GPM+100,0	000)	GPM	2245032	\$	167,500
PUMP STATION (IF>1500 GPM USE 215 GPM+550,0	000)	GPM	建築450 第2	\$	167,500
PUMP STATION		GPM	化历史的新生产	Ş	-
	\$	AVE GPD	ALC: NO.	\$	
UPGRADE TO EXISTING COLLECTION SYSTEM	internet induktion	f	STATES CONTRACT		
EXPAND EXISTING WWTP	5 4 00	AVE GPD	Sciet/0002	¢	669 000
			50 M 8447	Ť	000,000
SUBTOTAL BASE COST				\$	3 293 400
			1	Ť	5,200,400
EASEMENTS	64050 AV	1	·	5	18 487
RESTORATION (PAVEMENT AND DRIVEWAY)	10%	·		5	329 340
EROSION AND SEDIMENT CONTROL	1.5%			ŝ	49 401
GENERAL CONDITIONS	B%			ŝ	263 472
	1114 1.00			<u> </u>	200,112
SUBTOTAL CONSTRUCTION COST				5	3 952 080
			1	· · · ·	
CONTINGENCY AND TECHNICAL SERVICE	SAN 1997 - Ca 10%			\$	1,580,832
TOTAL CAPITAL COST OPINION		· · · · · · · · · · · · · · · · · · ·		\$	5,533,000
		l			
ANNUAL OPERATION& MAINTENANCE		·			
WASTEWATER TREATMENT PLANTS		1000 GA1	S\$60\9553%	s	304 775
PUMPING STATIONS	\$60.00	GPM	2001 XXX	š	54 000
FORCE MAINS & INTERCEPTORS	\$0.10	PERLF	8362544D2s	5	5.244
ADMINISTRATION	\$0.25	1000 GAL	£60,955	Ś	15,239
REPLACEMENT	\$0.00	1000 GAL	SEN/AGE	÷	
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	81122 258	\$	83.047
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	ALE 0.058 P 12	C.S. COST	4410742	\$	255.823
TOTAL ANNUAL OAM				Ś	718.128
				÷	
	ANNUAL		1		
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7.00%	10		s	2,584,000

PRESENT WORTH OF CAPITAL TOTAL 20-YEAR PRESENT WORTH

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

\$

2,813,000 5,377,000

Hardin County Regional Facilities Plan

Service Area Pawley Cr., Upper Pawley Cr., Upper Ottor Cr., & Lower Otter Cr. Alternativ Vine Grove WWTP 2000 Dosign Year Sec.

Design Population	9560
Design industrial Acres	

S, Impact to Existing Utility: New force main proposed to be tied into existing WWTP Expand Existing WWTP

NUMBER UNIT COST UNITS COST ITEM OF UNITS GRAVITY INTERCEPTOR SEWER 55'00 2416.690% BINCH PERLÉ 917,950 10-INCHUS! 10:06/24 PERLE 2 ABRIDGE 172 800 ¢ 65 00 PER LF 難 12-INCH 15 15-INCH S 70.00 PERLF 18-INCH 80.00 PERLE 82708 661,600 21-INCH 90.00 PERLE 22/02 ŝ 204,300 \$ 24-INCH 100.00 PER LF 1000 S 110,00 PER LF 27-INCH 30-INCH 120.00 PERLF \$ 33-INCH 130.00 PERLE 100 D S ഭാ 36-INCH \$ 140.00 PER LF S 42-INCH \$ PERLF 160.00 \$ 新聞 西泊湖 48-INCH ŝ £7180,00 PERLE 1000 ¢ 300,000 MANHOLES \$18.55 2 500 00 EACH 0120 55 ŝ FORCE MAIN 4-INC 30,00 PERUF 9 . Tool 227,500 6-INCH .35.00 PERLF \$10,500 kg S. 40:00 8-INCH (**C**) PERLE Selected? PERLF 10-INCH (\$12 45.00 12-INCH ;50,00 PERLF 15-INCH s 36D.00 PERLE \$131000U 5 839,400 16-INCH S 70.00 PER LP 54.66 236363 PER LF 18-INCH 60.00 -24-INCH 90,00 PER LF 1220 **S** 3410 PUMP STATION (IF<1500 GPM USE 150"GPM+100.000) GPM 或治疗700% 915,500 PUMP STATION (IF>1500 GPM USE 215"GPM+550,000) GPM 167.500 影響450%空 PUMP STATION GPM and in the 0.000 WASTEWATER TREATMENT PLANT AVE GPD S IMPACT TO EXISTING UTILITY UPGRADE TO EXISTING COLLECTION SYSTEM 4.00 AVE GPD EXPAND EXISTING WWTP (465;000) 1.940.000 S. . 6.346.550 SUBTOTAL BASE COST EASEMENTS 0.5 31,733 RESTORATION (PAVEMENT AND DRIVEWAY) 109 634,655 EROSION AND SEDIMENT CONTROL 1.59 95, 198 GENERAL CONDITIONS 507,724 82 SUBTOTAL CONSTRUCTION COST 7,615,860 CONTINGENCY AND TECHNICAL SERVICE 40% s 3,046,344 TOTAL CAPITAL COST OPINION \$ 10,662,000 ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS SS5(C1) 1000 GAL 177:02 885,125 GPM 828150SD \$ PUMPING STATIONS \$60.00 129,000 FORCE MAINS & INTERCEPTORS PERLF 50,600 **\$0.10** 5,060 **ADMINISTRATION** \$0.25 1000 GAL 177,025 44,256 REPLACEMENT \$0.00 1000 GAL SAN AS DEBT-WWTP (20 YEARS-4% 241,176 3/259/138 0.074 WWTP COST C.S. COST DEBT-COLLECTION SYSTEM (30 YEARS-4%) 0.058 429,366 28402,882 TOTAL ANNUAL O&M 1,733,983 ANNUAL NO. OF YEARS TOTAL PRESENT WORTH INTEREST PRESENT WORTH OF O&M 7.00 S No. 17 (1997) 6 191,000 PRESENT WORTH OF CAPITAL \$ 5,420,000

TOTAL 20-YEAR PRESENT WORTH

*Property Owner will be responsible for cost to connect structure to new sewer

***Excludes the cost from Design Year 2015

40% contingency is used to account for current variability in pipe and fuel costs

Salvage value is excluded from present worth analysis

Collector sewers cost are excluded from this analysis since they are common to all alternatives

All costs in 3rd guarter 2006 dollars

\$ 11.611.000

Hardin County Regional Facilities Plan

Service Area	Paw
Alternativo	
Dealgn Year	という
Design Population	
Design Industrial Acros	2/68

Ney Craupper, Parkey Craupper, Ottor, Crass, Crass, Construction, Crass, S:0

Impact to Existing Utility: Not Applicable

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
GRAVITY INTERCEPTOR SEWER	- 			╀	
BINCI	H SCHERENSES	PERIF	100000	1.	017 050
10-INC	H \$12501240-60.00	PERLE	INTERNAL CONTRACTOR	-	172,800
12-INC	- SHANDSHARES (0	PERLE	10000-000000	5 5	172,000
15-INC	S	PERLE	10.0550002	a s	
1B-INCI	1 Setter 80.00	PER LF	122322705	a s	661,600
21-INC	1 \$	PER LF	\$82227.05	ŝ	204,300
24-INCI	I \$ 300.00	PERLF	CONTRACTOR OF	\$	•
27-INCI	1 \$ 5110.00	PER LF	105226	\$	-
30-INC	1 \$ 120.0C	PERLF		í Ş	-
33-INC	- 130.00	PER LF		\$	-
36-INCI	140.00	PER LF		\$	
42-INCh	I S	PERLF		\$	•
4B-INCI	S. (180.00	PERLF		\$	-
MANHOLES	\$ 2,500.00	EACH	36332033	15	300,000
	<u> </u>		ļ	4	
FORCE MAIN					
4-ING	5 30.00	E PER LF		\$	•
6-ING	1 S .: .: .: .: .: .: .: .: .: .: .: .: .:		影けたしの設	15	227,500
B-INCh	40.00 (Contraction of the contraction of the contra	I PERLF	10000000	ا بًا	
10-1190	1 3 35 45.0	PERLF	24 Contraction of the	l÷.	-
12-ING	1 9 46 A 10 00 00	PCKLP	Distantia Contraction	ł÷	-
14-INCF	9.00.00.00	PERLF	ALCONOMIC STREET	•	-
10-INC			Sales and Links	•	•
24-INC	S		HERE BALLAND	ŀ	<u> </u>
24110	1 90 / 10 / 10 / 10 / 10 / 10 / 10 / 10		Service and the service of the servi	Ļ	
PUMP STATION (IF<1500 GPM USE 150'GPM+100)	0001	GPM	B22650 552	5	167 500
PUMP STATION (IE>1500 GPM USE 215 GPM+550	000)	GPM	Manager and m	1÷	000,000
PUMP STATION	30.000	GPM	Contraction of the	ŝ	
	- 114-56-112-2.65W124		-Manneteringer	Ť	
WASTEWATER TREATMENT PLANT	\$ 2.50	AVE GPD	£485,000%	s	1.212.500
		· · · ·			
					
			-		
SUBTOTAL BASE COST				\$	3,864,150
EASEMENTS	0.5%			\$	19,321
RESTORATION (PAVEMENT AND DRIVEWAY)	S/ Sci (52 - 510%			\$	386,415
EROSION AND SEDIMENT CONTROL	1.5%			\$	57,962
GENERAL CONDITIONS	13.60 States 26.88%			\$	309,132
		<u>I. </u>			
SUBTOTAL CONSTRUCTION COST				\$	4,636,980
CONTINGENCY AND TECHNICAL SERVICE	至43103。8至40%			\$	1,854,792
TOTAL CAPITAL COST OPINION				\$	6,492,000
ANNUAL OPERATIONS MANY CHANGE					
MASTEWATED TOPATHENT DI ANTO		1000 CM	WEITTING	~	177.005
PIIMPING STATIONS	560 0D 30	GPM	2611LIVAQ2	\$	177,025
FORCE MAINS & INTERCEPTORS	2040 - CO-10-	DED I C	SHOR PARTY	÷	27,000
ADMINISTRATION	S0 50	1000 GAI	100500001005 90477311250	÷	89,542
REPLACEMENT	Sec. 30 25	1000 GAL	924446949E	\$	44 256
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	2037/072	š	150 743
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058 3.3	C.S. COST	661454(928)	\$	258 386
TOTAL ANNUAL ORM			ay 100 23 0 60	š	749 584
				·	, 40,004
	ANNUAL		1		
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			1
PRESENT WORTH OF O&M	7.00%	S. States 18:54-10		\$	2,676,000

WORTH FOLLOWING INITIAL CAPITAL EXPENSE

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives Alf costs in 3rd quarter 2007 dollars

\$ 5,976,000

Hardin County Regional Facilities Plan

Pawley Gr/ Upper Pawley Cr. Upper Offer Cr. & Lower Offer Gr.255
Radollf,WWTP
2027
2223-28560 222222
NEXTRON STR

Impact to Existing Utility: New force main proposed to be tied into new headworks

New headworks \$1000 Connection Charge per customer

	+loss Commanios	i ounde het ogerennet			
ITEM	UNIT COST	UNITS	NUMBER OF UNITS	Γ	COST
GRAVITY INTERCEPTOR SEWER	(PC-2-2/5E-2)55(55)50	DED LE	And the second	÷	047 050 00
	Sec. 20.00		CALL STREET	ł÷	917,950.00
10-INCF	0.55000000			÷	172,000,00
12-INCF	0.000		000000000000000000000000000000000000000	÷	
10-INCF	001007-007010-00	DEDIE	Constant of the	÷	661 600 00
10-INCP	00.00		100002344255	*	204 200 00
21-INCF				l °	204,300,00
24-INC	S		BALL SOLUTION	÷	
27-INCI 20 INCH	S		Station of the	÷	
32-INCH	S	OED 16		÷	
36-INCH	S		Construction of the	š	
42.INCH	100,000		Contraction of the second	÷	
	S		NEW YORK OF THE REAL	÷	<u> </u>
	35 2 500 00	FUCH	States and the	÷	200 000 00
MANNOLES	WWW.W.22,000.00		10203522	Ľ	300,000.00
SORCE MAIN		}			
	Place statute of	DEDIE	and College and the		
4-INCH			Contraction of the	5	-
6-INCH	5.00		COLUMN TO COLUMN	÷	227,500
8-INCH	⇒ 31 - 31 - 240.00		ACCURATE AND ADDRESS	ş.	
10-INCH	Sate 1 45.00	PERLE		\$	-
12-INCH	s 50.00	PERLF		\$	-
15-INCH	\$60.00	PER LF	2086302	\$	2,311,800
16-INCH	\$	PER LF	Dia kanala	\$	-
18-INCH	\$ 80,00	PER LF		\$	
24-INCH	S - 100 20190,00	PER LF		\$	-
PUMP STATION (IF<1500 GPM USE 150°GPM+100,0	000)	GPM	國約700萬	\$	915,500
PUMP STATION (IF>1500 GPM USE 215*GPM+550,0	000)	GPM	巡145088	\$	167,500
INTERMEDIATE PUMP STATION	SHOW AND AND AND AND AND AND AND AND AND AND	GPM	必要/700歲	\$	915,500
WASTEWATER TREATMENT PLANT	\$ 34.00	AVE GPD	建設設置	\$	-
	1				
IMPACT TO EXISTING UTILITY	1				
NEW HEADWORKS	\$ 1.00	AVE GPD	2485,0005	\$	485,000
SUBTOTAL BASE COST				\$	7,279,450
			Г		
EASEMENTS	Sec. 5%			\$	36,397
RESTORATION (PAVEMENT AND DRIVEWAY)	10%			s	727,945
EBOSION AND SEDIMENT CONTROL	1.			s	109,192
GENERAL CONDITIONS				Š	582 356
	A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A STATE OF A			· · ·	
SUBTOTAL CONSTRUCTION COST		L		÷	8 735 340
SectorAL Construction Cost		ŀ		Č.	0,100,040
CONTINGENCY AND TECHNICAL SERVICE	1755 - D. 632 584 DAL				3 404 136
IMPACT TO EXISTING ITTUITY	1. 12. 13. 13. 19. 19. 19. 19. 19. 19. 19. 19. 19. 19			-	0,404,100
	\$ 1000.00	PER CUSTOMER	1 617	5	1 617 000
oon to be the	1,000.00	PARODITOMER	1,017	\$	1,017,000
				-	12 846 079
TOTAL CAPITAL COST OPINION				<u> </u>	13,040,000
······································		1			
					
ANNUAL OPEKA HONS MAIN LENANCE		1000 001	and the second second	-	70°
WASTEWATER TREATMENT PLANTS	assaulter and a second second second	1000 GAL	metric 44251	\$	/25,803
PUMPING STATIONS	\$60.00	GPM	48839100U	\$	231,000
FORCE MAINS & INTERCEPTORS	Sec. 7. 50 10	PERLE	18/03403	\$	7,514
ADMINISTRATION	\$0,25	1000 GAL	ST17/0256	\$	44,256
REPLACEMENT	\$0.00	1000 GAL	ASIEN/ASIE	_	
DEBT-WWTP (20 YEARS-4%)	2:0,074	WWTP COST	19225024	\$	68,265
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	12,923,498	\$	749,563
TOTAL ANNUAL O&M				\$	1,826,401
	ANNUAL				
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	1947 APA 7.00%	No. 10		\$	6,621,000
DDECENT WORTH OF CARITAL					7 0 30 000

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

TOTAL 20-YEAR PRESENT WORTH

\$ 13,560,000

Hardin County Regional Facilities Plan

Service Area Pawley CrigUpper Pawley CrigUpper Other Crig & Lower Other Crig Design Year 2027

Design Population Design Industrial Acres 9560) 50.05

Impact to Existing Utility: Upgrade Existing Collection System

GRAVITY INTERCEPTOR SERVER 9/10000 9/10000 9/10000 9/10000 9/10000 9/10000 9/10000 9/10000 9/10000 9/10000 9/10000 9/10000 9/10000 9/10000 9/10000 9/100000 9/100000 9/100000 9/1000000 9/1000000 9/100000	ІТЕМ	UNIT COST	UNITS	NUMBER OF UNITS	Γ	COST
GRAVITY INTERCEPTOR SEWER SINCE SUBJECTION PER LF BIB (B6002) SINCE SUBJECTION 13-NOCH SUBJECTION					L	
B-NCH B-NCH BER LF BER LF <td>GRAVITY INTERCEPTOR SEWER</td> <td></td> <td></td> <td></td> <td>L</td> <td></td>	GRAVITY INTERCEPTOR SEWER				L	
TO-NCH 18 COUNT 18 PER LF SERIES 18 T 2, 200,00 13 TA-NCH 2 (10, 10, 10, 10, 10, 10, 10, 10, 10, 10,	8-INC	H \$ 55.0	0: PERLF	S\$16,690X	5	917,950.00
10 10<	10-INC	HJ \$ 60.0	PER LF	122(880)	ļŝ	172,800.00
Instruct Instruct	12-INC	1.5 65.0	DI PERLE	5000000000	l s	-
2 ENECL 2 ENECL <t< td=""><td>18-INC</td><td></td><td>DERLF</td><td></td><td>2</td><td>-</td></t<>	18-INC		DERLF		2	-
24-INCH 24-INCH <t< td=""><td>21-100</td><td>HIS ON G</td><td></td><td>100000000</td><td></td><td>001,000,00</td></t<>	21-100	HIS ON G		100000000		001,000,00
27-INCH 32-INCH 32-INCH <t< td=""><td>24-INC</td><td>H S 100.0</td><td></td><td>100000000000000000000000000000000000000</td><td></td><td>204,300.00</td></t<>	24-INC	H S 100.0		100000000000000000000000000000000000000		204,300.00
33-INCH 33-INCH <t< td=""><td>27-INC</td><td>1 5 110.0</td><td>D PERIF</td><td>Southern State</td><td>ŧ</td><td></td></t<>	27-INC	1 5 110.0	D PERIF	Southern State	ŧ	
33-INCH 5 33-INCH 5 <t< td=""><td>30-INC</td><td>S 120.0</td><td>PERLE</td><td>(STATES OF STATES</td><td>5</td><td></td></t<>	30-INC	S 120.0	PERLE	(STATES OF STATES	5	
38.INCH (\$ 32.000,100,000) PER LF 28.000,000,000 44.INCH (\$ 32.000,000,000,000,000,000,000,000,000,00	33-INCI	1 \$	PER LF	535333337	5	
42-INCH (\$ 362-INC) PER LF 362-INC) 5 MANHOLES 522-IN2,2500,000 EACH 3522-IN2,2500,000 FOR LF 3522-IN2,000,000 FOR LF 3522-IN2,000,000,000,000,000,000,000,000,000,0	36-INCI	1 \$ 140.0	D. PER LF	27883U3832	5	-
44-INCH Status	42-INCI	I \$ 160.0) PER LF	ZSECTOR	5	-
MANHOLES Sample Stocom EACH Sample Stocom FACH Sample Stocom FORCE MAIN	48-INCI	I 5 180.0), PER LF	300 C	\$	-
FORCE MAIN 4 4 5 5 5 5 6-INCH \$ 5 5 5 227,500 8 227,500 8 227,500 8 227,500 8 10<	MANHOLES	\$ 2,500.00	EACH	國語 20版版	\$	300,000.00
FORCE MAIN 4-INCH 5 5.000 PER LF BARDBARD 5 6-INCH 5 5.000 PER LF BARDBARD 5 227.500 10-INCH 5 5.000 PER LF BARDBARD 5 - 10-INCH 5 5.000 PER LF BARDBARD 5 - 11-INCH 5 5.000 PER LF BARDBARD 2,445,000 16-INCH 5 50.000 PER LF BARDBARD 2,445,000 16-INCH 5 50.000 PER LF BARDBARD 2,445,000 PUMP STATION (IF-ISO0 GPM USE 150'GPAH-100.000) GPM BARDBARD 5 - PUMP STATION (IF-ISO GPM USE 150'GPAH-100.000) GPM BARDBARD 5 - INTERMEDITAR PUMP STATION 5 - 165,500 S 95,500 WASTEWATER TREATMENT PLANT 5 - 167,500 S 915,500 MAPACT YO EXISTING UTLITY LUMP SUM \$ - - - <						
4-INCH IS 350.00 PER LF 3882803883 \$ 6-INCH IS 355.00 PER LF 3882800883 \$ 227,500 10-INCH IS 35.00 PER LF 3882800883 \$ - 12-INCH IS 35.00 PER LF 388280883 \$ - 12-INCH IS 35.00 PER LF 388280883 \$ - 13-INCH IS 35.00 PER LF 38828088 \$ - 14-INCH IS 35.00 PER LF 38828088 \$ - 14-INCH IS 350.00 PER LF 38828088 \$ - 14-INCH IS 30.00 GPM 38248088 \$ - 104PSTATION (IP-1500 GPM USE 150 GPM+100.000) GPM 38249088 \$ - 104PSCT YO EXISTING UTLITY LUM	FORCE MAIN				Ĺ	
G-INCH S 35.00 PER LF 588620088 \$ 227,500 B-INCH S 30.00 PER LF 58862088 \$ - 10-INCH S 30.00 PER LF 58862088 \$ - 12-INCH S 30.00 PER LF 58862088 \$ - 13-INCH S 30.00 PER LF 58862088 \$ - 16-INCH S 30.00 PER LF 58862088 \$ - 18-INCH S 30.00 PER LF 58862088 \$ - 24-INCH S 30.00 PER LF 58862088 \$ - 19-INCH S 30.00 PER LF 58862088 \$ - 24-INCH S 30.00 PER LF 58862088 \$ - PUMP STATION (IF-1500 GPM USE 150'GPM+100.000) GPM 589170028 \$ 915,500 INTERMEDIATE PUMP STATION \$ 915,500 WASTEWATE REATMENT PLANT \$ 40.00 AVE GPD 5892170028 \$ \$ 915,500 IMPACT YO EXISTING UTLITY IUPGRADE TO COLLECTION SYSTEM LUMP SUM \$ - UPGRADE TO COLLECTION SYSTEM LUMP SUM \$ - - SUBTOTAL CONSTRUCTION COST \$ 6827,655 \$ 34,630	4-INC	15	PER LF	SALES AND	\$	-
E-IRC-T19, 37.55 PER LF Restaurant Status 10-INCH S SUBJECT Restaurant Status	6-INCI	1 \$ 35.00	PERLF	15866,500 %8	Ľ٩	227,500
Iteraction Iteraction PERL F PERL F <th< td=""><td>B-INCH</td><td>1)ə. 1</td><td></td><td></td><td>Ļ\$</td><td></td></th<>	B-INCH	1)ə. 1			Ļ\$	
LethChill Construction PERL F EXEMPTION 15-INCH 3000 PERL F 1550075003 \$ 2,445,000 16-INCH 3000 PERL F 2550075003 \$ - 24-INCH 3000 PERL F 2550075003 \$ - 24-INCH 3000 PERL F 255075003 \$ 915,500 PUMP STATION (IF<1500 GPM USE 15°CPM+100,000)	10-INCh	1134 SOLO (145.00 118 SOLO (145.00	PERLF	20200000	1 <u>\$</u>	-
Line (L) Line (L)	12-INCh	a a		12525556	\$	
Number PERLET CERLET CERLET<	15-INCF 46 INCS	00,00 1 S 70 00	PERLC DEDIE	NONVERSION	\$	2,445,000
241/ICH 3 20000 PER LF 243/36/36/8 3 - PUMP STATION (IF-1500 GPM USE 150*GPM-100,000) GPM 282/37/20/32 \$ 915,500 PUMP STATION (IF-1500 GPM USE 215*GPM-450,000) GPM 282/37/20/32 \$ 915,500 INTERMEDIATE PUMP STATION \$ 30000 GPM 282/37/20/32 \$ 915,500 WASTEWATER TREATMENT PLANT \$ 4.000 AVE GPD 282/38/282 \$ - IMPACT YO EXISTING UTILITY I <td>18-11/02</td> <td>1000 105 - 2000</td> <td></td> <td>201026-096</td> <td>÷</td> <td></td>	18-11/02	1000 105 - 2000		201026-096	÷	
Lemical IV PLACI REBRIEVED 3 - PUMP STATION (IF-1500 GPM USE 150 GPM+00,000) GPM REBRIEVED 3 915,500 PUMP STATION (IF>1500 GPM USE 215' GPM+550,000) GPM REBRIEVED 3 167,500 INTERMEDIATE PUMP STATION S 200,000 GPM REBRIEVED 3 915,500 WASTEWATER TREATMENT PLANT S 400 AVE GPD REBRIEVED 3 - IMPACT YO EXISTING UTILITY IUPGRADE TO COLLECTION SYSTEM IUMP SUM S - IMPACT YO EXISTING UTILITY IUPGRADE TO COLLECTION SYSTEM IUMP SUM S - SUBTOTAL BASE COSY S 6,927,650 S 10,3915 EASEMENTS S 10,3915 S 10,3915 GENERAL CONDITIONS B% S 54,212 SUBTOTAL CONSTRUCTION COST S 6,313,180 - CONTINGENCY AND TECHNICAL SERVICE 40% S 325,272 TOTAL CAPITAL COST OPINION*** S 11,638,000 S ANNUAL OPERATION& MAINTENANCE SEGUESSERSES S	24-INC	1 S 00.00		220366-0596	\$	-
PUMP STATION (IF-1500 GPM USE 150°GPM+100,000) GPM 2017/0052 \$ 915,500 PUMP STATION (IF-1500 GPM USE 215°GPM-550,000) GPM 5000000000000000000000000000000000000	2441101	100000	e en u	SCORES-10/5729	2	
PUMP STATION (IP-1500 GPM USE 215'GPM+350,000) GPM 22011/2020 107,500 INTERMEDIATE PUMP STATION (S) (GPM) 22011/2020 (S) 107,500 WASTEWATER TREATMENT PLANT (S) (GPM) 22011/2020 (S) (GPM) 2011/2020 (S) (GPM) 2011/2020 (S) (GPM) 2011/2020 (GPM) 2011/2020 (GPM) 2011/2020 (GPM) 2011/2020 (GPM) 2011/2020 (GPM) 2011/2020 (GPM)	PUMP STATION (IE<1500 GPM USE 150"GPM+100	0001	GPM	233212700 55	¢	015 500
INTERIMEDIATE PUMP STATION INF. Out Out<	PUMP STATION (IF>1500 GPM USE 215" GPM+550	0001	GPM	492450-225	s	167 500
WASTEWATER TREATMENT PLANT Summary and the summary and	INTERMEDIATE PUMP STATION	IS 040	GPM	68512700#A	Š	915 500
WASTEWATER TREATMENT PLANT \$ 4.00 AVE GPD MEXACT YO EXISTING UTILITY UPGRADE TO COLLECTION SYSTEM LUMP SUM \$. UPGRADE TO COLLECTION SYSTEM LUMP SUM \$. SUBTOTAL BASE COST \$ 6,927,650 EASEMENTS	·····	and the second second second		CERCOPEL SPREEK	Ť	010,000
IMPACT YO EXISTING UTILITY UPGRADE TO COLLECTION SYSTEM UURGRADE TO COLLECTION SYSTEM UNRTH UNTEREST NO. OF YEARS TO ALL RESTORATION (PAVEMENT AND DRIVEWAY) USE 1500 0.55% \$ 6,927,650 \$ 7,738 \$ 6,000 \$ 6,975,000 \$ 6,975,004 \$ 7,738 \$ 0,0074 \$ WVTP COST \$ 860,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 1,312,045 \$ 0,000 \$ 6,975,004 \$ 0,000 \$ 6,975,004 \$ 0,000 \$ 6,975,004 \$ 0,000 \$ 6,975,004 \$ 0,000 \$ 6,975,004 \$ 0,000 \$ 6,975,004 \$ 0,000 \$ 6,975,004 \$ 0,000 \$ 6,975,004 \$ 0,000 \$ 6,975,004 \$ 0,000 \$ 6,975,004 \$ 0,000 \$ 6,975,004 \$ 0,000 \$ 6,975,000 \$ 0	WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD	1002546-200	s	
IMPACT YO EXISTING UTILITY ILUMP SUM \$ UPGRADE TO COLLECTION SYSTEM ILUMP SUM \$ SUBTOTAL BASE COST \$ 6,927,650 EASEMENTS Impact 10% \$ \$ EASEMENTS Impact 10% \$ \$ \$ EASEMENTS Impact 10% \$ \$ \$ \$ EROSION AND SEDIMENT CONDITIONS \$		1			÷	
UPGRADE TO COLLECTION SYSTEM LUMP SUM \$ SUBTOTAL BASE COST \$ 6,927,650 SUBTOTAL BASE COST \$ 6,927,650 EASEMENTS \$ 34,633 RESTORATION (PAVEMENT AND DRIVEWAY) \$ \$ SUBTOTAL CONTROL \$ \$ GENERAL CONDITIONS \$ \$ SUBTOTAL CONSTRUCTION COST \$ \$ SUBTOTAL CONSTRUCTION COST \$ \$ SUBTOTAL CONSTRUCTION COST \$ \$ CONTINGENCY AND TECHNICAL SERVICE \$ \$ TOTAL CAPITAL COST OPINION*** \$ \$ ANNUAL OPERATIONS MAINTENANCE \$ \$ WASTEWATER TREATMENT PLANTS \$ \$ SUBTOTAL CONTROL \$ \$ PUMPING STATIONS \$ \$ PUMPING STATIONS \$ \$ SOUD FORCE MAINS & INTERCEPTORS \$ \$ DEBT-WUPT (20 YEARS-4%) \$ \$ \$ DEBT-WUPT (20 YEARS-4%) \$ \$ \$ \$ </td <td>IMPACT TO EXISTING UTILITY</td> <td></td> <td></td> <td></td> <td>-</td> <td></td>	IMPACT TO EXISTING UTILITY				-	
SUBTOTAL BASE COST \$ 6,927,550 EASEMENTS 5 6,927,650 EASEMENTS 5 6,927,650 EASEMENTS 5 6,927,650 ERSTORATION (PAVEMENT AND DRIVEWAY) 5 682,765 EROSION AND SEDIMENT CONTROL 51,5% \$ 103,961 GENERAL CONDITIONS 6,313,180 \$ \$ SUBTOTAL CONSTRUCTION COST \$ 6,313,180 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 3,325,272 TOTAL CAPITAL COST OPINION*** \$ 11,636,000 ANNUAL OPERATION& MAINTENANCE \$ 3,325,272 TOTAL CAPITAL COST OPINION*** \$ 11,636,000 ANNUAL OPERATION& MAINTENANCE \$ 3,325,272 ANNUAL OPERATION& MAINTENANCE \$ 3,325,272 ANNUAL OPERATIONA MAINTENANCE \$ 3,325,272 ADMINISTRATION \$ 3,325,272 ADMINISTRATION \$ 3,325,272 DEBT-WURT (20 YEARS-4%) \$ \$ DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$	UPGRADE TO COLLECTION SYSTEM	1	LUMP SUM		\$	•
SUBTOTAL BASE COST \$ 6,927,650 EASEMENTS \$ 34,630 RESTORATION (PAVEMENT AND DRIVEWAY) \$ 34,630 EROSION AND SEDIMENT CONTROL \$ 982,765 EROSION AND SEDIMENT CONTROL \$ 982,765 SUBTOTAL CONSTRUCTIONS \$ 982,765 GENERAL CONDITIONS \$ 103,015 CONTINGENCY AND TECHNICAL SERVICE \$ 6,313,180 CONTINGENCY AND TECHNICAL SERVICE \$ 3,325,272 TOTAL CAPITAL COST OPINION*** \$ 11,638,000 ANNUAL OPERATIONA MAINTENANCE \$ 3,325,272 TOTAL CAPITAL COST OPINION*** \$ 11,638,000 FORCE MAINS & INTERCEPTORS \$ 23,000 FORCE MAINS & INTERCEPTORS \$ 50,00 GENERAL \$ 50,00 FORCE MAINS & INTERCEPTORS \$ 50,00 GENERAL \$ 50,00 GENERAL \$ 50,00 GENERAL \$ 50,00 GOM \$ 50,225 ADMINISTRATION \$ 50,200 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 50,00 TOTAL ANNUAL DAM \$ 1,312,044 TOTAL ANNUAL DAM \$ 1,312,045 <tr< td=""><td></td><td></td><td></td><td></td><td>\$</td><td></td></tr<>					\$	
SUBTOTAL BASE COST \$ 6,927,650 EASEMENTS 0.5% \$ 34,630 RESTORATION (PAVEMENT AND DRIVEWAY) 10% \$ 652,765 EROSION AND SEDIMENT CONTROL 15% \$ 652,765 EROSION AND SEDIMENT CONTROL 15% \$ 652,765 GENERAL CONDITIONS 8% \$ 103,915 SUBTOTAL CONSTRUCTION COST \$ 8,313,180 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 3,325,272 TOTAL CAPITAL COST OPINION** \$ 11,638,000 ANNUAL OPERATIONS \$ 114,638,000 YASTEWATER TREATMENT PLANTS \$ 114,638,000 FORCE MAINS & INTERCEPTORS \$ 30,25 PUMPING STATIONS \$ 30,25 ADMINISTRATION \$ 50,25 DEBT-WWTP (20 YEARS-4%) \$ 50,25 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 50,000 TOTAL ANNUAL OAM \$ 1,312,045 TOTAL ANNUAL OAM \$ 1,312,045 TOTAL ANNUAL OAM \$ 1,312,045 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 5,916,000 TOTAL ANNUAL OAM \$ 1,312,045 TOTAL ANNUAL OAM \$ 1,312,045						
EASEMENTS \$ 34,630 RESTORATION (PAVEMENT AND DRIVEWAY) \$ 050,055 \$ 34,630 RESTORATION (PAVEMENT AND DRIVEWAY) \$ 103,615 \$ 103,615 GENERAL CONDITIONS \$ 854,212 \$ 103,615 SUBTOTAL CONSTRUCTION COST \$ 8,313,180 \$ 554,212 SUBTOTAL CONSTRUCTION COST \$ 8,313,180 \$ 3,325,272 TOTAL CAPITAL COST OPINION*** \$ 11,638,000 \$ 11,638,000 CONTINGENCY AND TECHNICAL SERVICE \$ 11,638,000 \$ 11,638,000 TOTAL CAPITAL COST OPINION*** \$ 11,638,000 \$ 11,638,000 ANNUAL OPERATIONS MAINTENANCE \$ 11,638,000 \$ 234,000 FORCE MAINS & INTERCEPTORS \$ 50,200 \$ 2000 GAL \$ 247,02252 \$ 3,44,255 REPLACEMENT \$ 50,200 \$ 1000 GAL \$ 24,255 \$ 44,255 REPLACEMENT \$ 50,200 1000 GAL \$ 287,0002 \$ 7,738 \$ 44,255 DEBT-WWTP (20 YEARS 4%) \$ 50,200 1000 GAL \$ 281,000 \$ 67,004 \$ 1,312,044 DEBT-WWTP (20 YEARS 4%) \$ 50,200 1000 GAL \$ 281,000 \$ 67,004 \$ 1,312,045 DE	SUBTOTAL BASE COST				\$	6,927,650
EASEMENTS \$ 34,030 RESTORATION (PAVEMENT AND DRIVEWAY) \$ 692,765 EROSION AND SEDIMENT CONTROL \$ 103,965 GENERAL CONDITIONS \$ 8% SUBTOTAL CONSTRUCTION COST \$ 6,313,180 CONTINGENCY AND TECHNICAL SERVICE \$ 11,638,000 CONTINGENCY AND TECHNICAL SERVICE \$ 11,638,000 ANNUAL OPERATION& MAINTENANCE \$ 11,638,000 WASTEWATER TREATMENT PLANTS \$ 560,000 FORCE MAINS & INTERCEPTORS \$ 5225 ADMINISTRATION \$ 50,252 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 50,000 COSTAL CANDY TO COST \$ 6,75,004 FORCE MAINS & INTERCEPTORS \$ 50,252 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 50,000 COSTAL ANNUAL D&M \$ 1,312,044 TOTAL CANTH OF ORM \$ 5,916,000						
RESTORATION (PAVEMENT AND DRIVEWAY) \$ 992,765 EROSION AND SEDIMENT CONTROL \$ 103,615 GENERAL CONDITIONS \$ 854,212 SUBTOTAL CONSTRUCTION COST \$ 6,313,180 CONTINGENCY AND TECHNICAL SERVICE \$ 11,638,000 TOTAL CAPITAL COST OPINION*** \$ 11,638,000 ANNUAL OPERATIONA MAINTENANCE \$ 11,638,000 WASTEWATER TREATMENT PLANTS \$ 860,000 GENERAL SERVICE \$ 3,325,272 ANNUAL OPERATIONA MAINTENANCE \$ 11,638,000 WASTEWATER TREATMENT PLANTS \$ 860,000 FORCE MAINS & INTERCEPTORS \$ 50,100 FORCE MAINS & INTERCEPTORS \$ 50,000 GEBT-WWTP (20 YEARS-4%) \$ 50,001 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 50,007,400,0058 TOTAL ANNUAL 0&M \$ 1,312,049,	EASEMENTS	0.5%	, ,		\$	34,638
EROSION AND SEDIMENT CONTROL \$ 103,915 GENERAL CONDITIONS 6% SUBTOTAL CONSTRUCTION COST \$ 6,313,180 CONTINGENCY AND TECHNICAL SERVICE \$ 6,313,180 CONTINGENCY AND TECHNICAL SERVICE \$ 6,313,180 CONTINGENCY AND TECHNICAL SERVICE \$ 11,638,000 TOTAL CAPITAL COST OPINION*** \$ 11,638,000 ANNUAL OPERATION& MAINTENANCE \$ 11,638,000 WASTEWATER TREATMENT PLANTS \$\$ 3325,272 ANNUAL OPERATIONS \$ 50,000 FORCE MAINS & INTERCEPTORS \$ 11,638,000 FORCE MAINS & INTERCEPTORS \$ 50,020 CEBT-WWTP (20 YEARS-4%) \$ 50,020 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 80,007,4 TOTAL ANNUAL O&M \$ 1,312,045 TOTAL ANNUAL O&M \$ 1,312,045 TOTAL PRESENT WORTH \$ 5,916,000 TOTAL PRESENT WORTH OF O&M \$ 7,705% PRESENT WORTH OF CAPITAL \$ 5,916,000	RESTORATION (PAVEMENT AND DRIVEWAY)	10%	×		\$	692,765
GENERAL CONDITIONS 8% \$ 554,212 SUBTOTAL CONSTRUCTION COST \$ 9,313,180 \$ 3,325,272 CONTINGENCY AND TECHNICAL SERVICE \$ 3,325,272 TOTAL CAPITAL COST OPINION*** \$ 11,638,000 ANNUAL OPERATION& MAINTENANCE \$ 11,638,000 WASTEWATER TREATMENT PLANTS \$ 80,000 FORCE MAINS & INTERCEPTORS \$ 50,200 PUMPING STATIONS \$ 50,200 PORCE MAINS & INTERCEPTORS \$ 5,7738 DEBT-WWTP (20 YEARS-4%) \$ 50,200 DEBT-WWTP (20 YEARS-4%) \$ 6,70,000 GAL DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 6,000 GAL TOTAL ANNUAL D&M \$ 1,312,045 TOTAL PRESENT WORTH \$ 1,312,045 PRESENT WORTH OF 0&M \$ 5,916,000 PRESENT WORTH OF CABITAL \$ 5,916,000	EROSION AND SEDIMENT CONTROL		×	<u>I. </u>	\$	103,915
SUBTOTAL CONSTRUCTION COST \$ 6,313,180 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 3,325,272 TOTAL CAPITAL COST OPINION*** \$ 11,638,000 ANNUAL OPERATION& MAINTENANCE \$ 11,638,000 WASTEWATER TREATMENT PLANTS \$ 3325,272 ANNUAL OPERATION& MAINTENANCE \$ 3325,272 WASTEWATER TREATMENT PLANTS \$ 3326,272 FORCE MAINS & INTERCEPTORS \$ 3327,0252 FORCE MAINS & INTERCEPTORS \$ 3237,000,025 FORCE MAINS & INTERCEPTORS \$ 3,025,270 DEBT-WWTP (20 YEARS-4%) \$ 30,000 COST \$ 327,0252 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 30000 GAL TOTAL ANNUAL D&M \$ 1,312,044 TOTAL CAPRTH \$ 1,312,044 TOTAL PRESENT WORTH \$ 1,312,044 PRESENT WORTH OF O&M \$ 4,865,000 PRESENT WORTH OF CABITAL \$ 5,916,000 PRESENT WORTH OF CABITAL \$ 5,916,000	GENERAL CONDITIONS	8%			<u>\$</u>	554,212
SUBTOTAL CONSTRUCTION COST \$ 8,313,80 CONTINGENCY AND TECHNICAL SERVICE \$ 3,325,272 TOTAL CAPITAL COST OPINION*** \$ 11,638,000 ANNUAL OPERATIONA MAINTENANCE \$ 11,638,000 WASTEWATER TREATMENT PLANTS \$ 860,000 FORCE MAINS & INTERCEPTORS \$ 803,000 FORCE MAINS & INTERCEPTORS \$ 800,000 GENTLASS & INTERCEPTORS \$ 800,000 CONTINS & INTERCEPTORS \$ 800,000 GENTLASS & INTERCEPTORS \$ 800,000 CONTROL \$ 800,000 GENTLASS & INTERCEPTORS \$ 800,000 GENTLASS & INTERCEPTORS \$ 800,000 COLL \$ 800,000 GENTLASS & INTERCEPTORS \$ 800,000 COLL \$ 800,000 GENTLASS & INTERCEPTORS \$ 800,000 SOLO 1000 DEBT-WWTP (20 YEARS-4%) \$ 800,000 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 800,000 TOTAL ANNUAL 0&M \$ 1,312,049 TOTAL ANNUAL 0&M \$ 1,312,049 TOTAL ANNUAL 0&M \$ 1,312,049 PRESENT WORTH \$ 8,917,00%		1				
CONTINGENCY AND TECHNICAL SERVICE 40% \$ 3,325,272 TOTAL CAPITAL COST OPINION*** \$ 11,638,000 ANNUAL OPERATION& MAINTENANCE \$ 11,638,000 WASTEWATER TREATMENT PLANTS \$ 325,272 PUMPING STATIONS \$ 50,000 FORCE MAINS & INTERCEPTORS \$ 30,000 FORCE MAINS & INTERCEPTORS \$ 30,100 PLMPING STATION \$ 0,255 ADMINISTRATION \$ 0,255 DEBT-WWTP (20 YEARS-4%) \$ 0,000 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 0,0056 TOTAL ANNUAL D&M \$ 1,312,046 TOTAL PRESENT WORTH OF O&M \$ 5,816,000 PRESENT WORTH OF CABITAL \$ 5,816,000	SUBTOTAL CONSTRUCTION COST				2	8,313,180
CONTINUENCI AND TECHNICAL SERVICE 40.8 \$ 3.25,272 TOTAL CAPITAL COST OPINION** \$ 11,638,000 ANNUAL OPERATION& MAINTENANCE \$ 11,638,000 WASTEWATER TREATMENT PLANTS \$ 200,000 GPM PUMPING STATIONS \$ 500,000 GPM FORCE MAINS & INTERCEPTORS \$ 500,000 GPM ADMINISTRATION \$ 502,000 GAL BET-LACEMENT \$ 50,000 GAL DEBT-WWTP (20 YEARS-4%) \$ 50,000 1000 GAL DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 00,058 TOTAL ANNUAL D&M \$ 1,312,045 TOTAL PRESENT WORTH \$ 1,312,045 PRESENT WORTH OF 08M \$ 1,316,000 PRESENT WORTH OF CASIFILITIONS \$ 5,816,000	CONTINCENCY AND TECHNICAL SERVICE	5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		<u> </u>	-	
TOTAL CAPITAL COST OPINION** \$ 11,638,000 ANNUAL OPERATION& MAINTENANCE	CONTINGENCY AND TECHNICAL SERVICE	5. (AUX			\$	3 325 272
ANNUAL OPERATION& MAINTENANCE \$ 11,030,000 WASTEWATER TREATMENT PLANTS \$ 235,000 PUMPING STATIONS \$ 236,000 FORCE MAINS & INTERCEPTORS \$ 231,000 FORCE MAINS & INTERCEPTORS \$ 231,000 ADMINISTRATION \$ 232,000 GENERATIONS \$ 231,000 FORCE MAINS & INTERCEPTORS \$ 233,000 ADMINISTRATION \$ 232,000 ADMINISTRATION \$ 232,000 DEBT-WWTP (20 YEARS-4%) \$ 230,000 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 230,000 TOTAL ANNUAL 0&M \$ 1,312,045 TOTAL ANNUAL 0&M \$ 1,312,045 PRESENT WORTH \$ 3,916,000 PRESENT WORTH OF 0&M \$ 4,885,000 PRESENT WORTH OF CAPITAL \$ 5,916,000	TOTAL CAPITAL COST OPINION				-	44 630 630
ANNUAL OPERATION& MAINTENANCE WASTEWATER TREATMENT PLANTS 2000 1000 GAL 30172,0252 \$ 354,050 PUMPING STATIONS \$60,000 GPM 300585032 \$ 231,000 FORCE MAINS & INTERCEPTORS \$50,000 GPM 300585032 \$ 231,000 FORCE MAINS & INTERCEPTORS \$50,000 GPM 300585032 \$ 231,000 ADMINISTRATION \$50,25 1000 GAL 20172,0268 \$ 44,256 REPLACEMENT \$50,000 1000 GAL 20172,0268 \$ 44,256 REPLACEMENT \$50,000 1000 GAL 20172,0268 \$ 44,256 REPLACEMENT \$50,000 1000 GAL 20172,0268 \$ 44,256 REPLACEMENT \$50,000 1000 GAL 20172,0268 \$ 44,256 REPLACEMENT \$50,000 1000 GAL 20172,0268 \$ 44,256 REPLACEMENT \$50,000 1000 GAL 20172,0268 \$ 44,256 REPLACEMENT \$50,000 1000 GAL 20172,0268 \$ 44,256 REPLACEMENT \$50,000 1000 GAL 20172,0268 \$ 44,256 REPLACEMENT \$50,000 1000 GAL 20172,0268 \$ 44,256 REPLACEMENT \$50,000 1000 GAL 20172,0268 \$ 4,256 REPLACEMENT \$50,000 \$ 675,004 TOTAL ANNUAL 0.6M \$ 1,312,045 TOTAL PRESENT WORTH OF 0.8M \$7,000 \$ 4,865,000 PRESENT WORTH OF CAPITAL \$ 5,816,000 TOTAL 20174B PRESENT WORTH OF CAPITAL \$ 5,816,000 TOTAL 20174B PRESENT WORTH \$ 0,000 \$ 6,		r	*		\$	11,638,000
ANNUAL OPERATION& MAINTENANCE 3327200252 \$354,050 WASTEWATER TREATMENT PLANTS 332820000000000000000000000000000000000	····				_	ł
WASTEWATER TREATMENT PLANTS 3377.0252 \$ 354,050 PUMPING STATIONS 560.00 GPM 38385032 \$ 231,000 FORCE MAINS & INVERCEPTORS 525,000 GPM 38385032 \$ 231,000 FORCE MAINS & INVERCEPTORS 52,50,000 GPM 38385032 \$ 231,000 FORCE MAINS & INVERCEPTORS 52,50,000 GPM 38385032 \$ 7,733 ADMINISTRATION 50,25 1000 GAL 887702626 \$ 4,4266 DEBT-WWTP (20 YEARS-4%) 50,000 1000 GAL BERNAWS DEBT-COLLECTION SYSTEM (30 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) 50,000 1000 GAL BERNAMSS TOTAL ANNUAL 0&M \$ 1,312,044 \$ 1,312,044 \$ 1,312,044 TOTAL PRESENT WORTH INTEREST NO. OF YEARS \$ 4,885,000 \$ 4,885,000 PRESENT WORTH OF 06M 77,00% \$ 4,885,000 \$ 4,885,000 \$ 4,885,000 \$ 5,916,000 \$ 5,916,000 \$ 5,916,000 \$ 5,916,000 \$ 5,916,000 \$ 5,916,000 \$ 5,916,000 \$ 5,916,000 \$ 5,916,000 \$ 5,916,000 \$ 5,916,000 <	ANNUAL OPERATION& MAINTENANCE		T			
PUMPING STATIONS COUNT	WASTEWATER TREATMENT PLANTS	200524800052-00	1000 GAL	32177:0052	ŝ	354 050
FORCE MAINS & INTERCEPYORS 20,000 ADMINISTRATION \$ 7,733 ADMINISTRATION \$ 50,25 DEBT-WUTP (20 YEARS-4%) \$ 60,000 DEBT-WUTP (20 YEARS-4%) \$ 7,730 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ 7,730 TOTAL ANNUAL \$ 1,312,045 TOTAL ANNUAL \$ 1,312,045 PRESENT WORTH \$ 7,700% PRESENT WORTH OF CAPITAL \$ 5,916,000 PRESENT WORTH OF CAPITAL \$ 5,916,000	PUMPING STATIONS	\$60.00	GPM	383.850	ś	231.000
ADMINISTRATION \$0.25 1000 GAL \$1720268 \$42,256 REPLACEMENT \$50,00 1000 GAL \$1720268 \$42,256 DEBT-WWTP (20 YEARS-4%) \$20,074 WWTP COST \$281NA355 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$20,074 WWTP COST \$281NA355 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$20,074 WWTP COST \$281NA355 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$20,074 \$20,074 \$20,074 TOTAL ANNUAL D&M \$1,312,046 \$1,312,046 \$1,312,046 TOTAL PRESENT WORTH INTEREST NO. OF YEARS \$20,000 \$4,865,000 PRESENT WORTH OF CAPITAL \$5,516,000 \$4,865,000 \$5,516,000 \$4,665,000 \$5,516,000 \$5,5	FORCE MAINS & INTERCEPTORS	\$0.10	PER LF	\$\$7,360 \$	\$	7.736
REPLACEMENT 1000 GAL RENANSE DEBT-WWTP (20 YEARS-4%) XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	ADMINISTRATION	\$0,25	1000 GAL	SITE 0258	\$	44,256
DEBT-WWTP (20 YEARS-4%) WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) 0.056 C.S. COST 0.0568 675,004 TOTAL ANNUAL D&M \$ 1,312,046 \$ 1,312,046 \$ 1,312,046 \$ 1,312,046 TOTAL PRESENT WORTH INTEREST NO. OF YEARS \$ 1,312,046 \$ 5,016,000 PRESENT WORTH OF 0&M \$ 7,00% \$ 1,010 \$ 4,685,000 \$ 5,016,000 PRESENT WORTH OF CAPITAL \$ 5,016,000 \$ 5,016,000 \$ 1,010,000 \$ 1,010,000	REPLACEMENT	\$0,00	1000 GAL	BEN/ARM		
DEBT-COLLECTION SYSTEM (30 YEARS-4%) 0.058 C.S. COST 0.058 675,004 TOTAL ANNUAL D&M \$ 1,312,049 \$ 1,312,049 \$ 1,312,049 TOTAL PRESENT WORTH INTEREST NO. OF YEARS \$ 4,685,000 \$ 4,685,000 PRESENT WORTH OF CAPITAL \$ 5,916,000 \$ 5,916,000 \$ 1,010,000 \$ 1,010,000	DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	EXNAME		
TOTAL ANNUAL D&M \$ 1,312,045 TOTAL PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF O&M 7700% 1000 \$ 4,665,000 PRESENT WORTH OF CAPITAL \$ 5,916,000 TOTAL 20XFEAR PRESENT WORTH \$ 4,000 000	DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	181638,000	\$	675,004
TOTAL PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF O&M PRESENT WORTH OF CAPITAL S 5,916,000 TOTAL 20/FEAR PRESENT WORTH OF CAPITAL	TOTAL ANNUAL OBM				\$	1,312,046
TOTAL PRESENT WORTH INTEREST NO. OF YEARS PRESENT WORTH OF OAM PRESENT WORTH OF CAPITAL S,916,000 TOTAL 20,YEAR PRESENT WORTH						
PRESENT WORTH OF CAPITAL PRESENT WORTH OF CAPITAL S,000 PRESENT WORTH OF CAPITAL S,016,000 TOTAL 20,YEAR PRESENT WORTH		ANNUAL				
PRESENT WORTH OF CAPITAL \$ 4,655,000 PRESENT WORTH OF CAPITAL \$ 5,916,000 TOTAL 20,YFAR PRESENT WORTH	DESCRIPTION OF ANY	INTERCOL NUMBER	NO. UT I GARO		<u> </u>	4 000
TOTAL 20-YEAR PRESENT WORTH		C-4.1-550-1 W17.00%	aaraa (200) 2003 - 2005 - 10		<u>ه</u>	4,085,000
					ه د	4,810,000

Hardin County Regional Facilities Plan

Leogional i dollaron i telli	
Service Area	North Upper Nolin River
Alternative	SPump to Elown WWTP
Design Year	2017.
Design Population	医结束 317 美国 拉美
Design Industrial Acres	建设的影响628 影响影响
-	

Impact to Existing Utility: Existing Collection System Existing WWTP

\$0 per customer \$500 per customer

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	F	T	NUNDER		
ITEM	UNIT COST	UNITS	OFUNITS		COST
			or drate		
			-		
GRAVITY INTERCEPTOR SEWER	Service Sectors	00010	1000040005000		
8-INCH	00.00		CRAME CONTRACT OF STREET	÷-	477.500
	S		587300000	P-	477,000
12-INCH	3.00.00		192202-00-022	<u>}</u>	-
15-INCH	5	PERLF	220210503	\$	843,500
18-INCH	S 80.00	PERLF		\$	-
21-INCH	S 90.00	PERLF	550,955,967,64	\$	-
24-INCH	5 100.00	PERLF	Personal and the second second second second second second second second second second second second second se	\$	· ·
27-INCH	\$ 110.00	PERLF		\$	-
	S 120.00	PERLF	1000000000	\$	<u> </u>
33-INCH	\$130.00	PERLF	SASE 1973	\$	-
36-INCH	(\$ 3) 140.00	PERLF	の語のななの	s	
42-INCH	\$ 160.00	PERLF		\$	-
48-INCH	\$ 160.00	PERLF	MACON LINE	\$	
MANHOLES	\$ 2,500.00	EACH	製約80月至6	\$	200,000
					·
FORCE MAIN					
4-INCH	\$ 30.00	PERLF		\$	
6-INCH	5.35.00	PER LF	THE WAR	S	
8-INCH	\$ 40.00	PERLF	COLORINA	\$	
10-INCH	\$ 45.00	PER LF	1243343333	\$	-
12-INCH	S 50.00	PER LF	的名称	\$	-
14-INCH	\$ 60,00	PER LF		\$	•
16-INCH	\$ 70.00	PER LF	建設設設設	\$	-
18-INCH	\$ 80.00	PER LF	孤25,610 章	\$	2,048,800
24-INCH	\$ 90.00	PERLF	1990 (D) (1990)	\$	-
PUMP STATION (IF<1500 GPM USE 150"GPM+100	,000)	GPM	氯4500位	\$	1,517,500
PUMP STATION (IF>1500 GPM USE 215"GPM+550	,000)	GPM	巡4500章	\$	1,517,500
PUMP STATION	·秋阳和秋秋(43) (43)	GPM	-	\$	-
	i				
WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD	SAME AND A	\$	-
· · · · · · · · · · · · · · · · · · ·					
		1			
SUBTOTAL BASE COST			• • • • •	\$	6,604,900
EASEMENTS	0.5%			s	33 025
RESTORATION (PAVEMENT AND DRIVEWAY)	10%			ŝ	660,490
EROSION AND SEDIMENT CONTROL	1.5%			ŝ	99.074
GENERAL CONDITIONS	8%			ŝ	528,392
OENERVIC OONDINOIO				•	,
SUBTOTAL CONSTRUCTION COST				5	7 925 880
SUBJUTRE CONSTRUCTION COST	l'			<u> </u>	7,525,000
CONTINUENCY AND TECHNICAL SEBUICE				e	2 170 262
IMPACT TO EXISTING UTUTY	2.000 State 10 State 10 State 10 State			3	0,00,002
	S	PER CUSTONES		č	
COLLECTION STOTEM ON AGAIN FEE	S 500.00.	PER CUSTOMER	0.004	\$	4 046 933
WWIP CAFACITI FEE	ະຈຸ	FERGUSTUMEN	9,094	3	4,940,033
TOTAL CADITAL COST OPPOSIT	1	ł			46 043 000
TOTAL CAPITAL COST OFINION					10,043,000
ANNUAL OPERATIONS MAINTENANCE	Charles and the second second second	1000 041	200 00000	-	0 000 400
WASTEWATER TREATMENT PLANTS	SECTOR SCIENCES	1000 GAL	29052008	\$	3,032,420
PUMPING STATIONS	\$60.00	GPM	220,000.82	<u>}</u>	540,000
FURCE MAINS & INTERCEPTORS	\$0.10		RAD OZUS	<u> </u>	4,562
ADMINISTRATION	\$0.25	1000 GAL	23915,200	\$	226,300
REPLACEMENT	······	1000 GAL	See NAME		
DEBI-WWIP (20 YEARS-4%)	0.074	WWIP COST	SHELN/AND		
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	16,043,000	\$	930,494
TOTAL ANNUAL O&M				\$	4,733,776
TOTAL PRESENT WORTH	ANNUAL INTEREST	NO. OF YEARS		6	50 (50 500
TOTAL PRESENT WORTH PRESENT WORTH OF 0&M	ANNUAL INTEREST	NO. OF YEARS		s	50,150,000
TOTAL PRESENT WORTH PRESENT WORTH OF O&M PRESENT WORTH OF CAPITAL	ANNUAL INTEREST	NO. OF YEARS		s \$	50,150,000 16,043,000

fiON Hardin County Regional Facilities Plan Service Area Atternative <u>Rumpic New Southern WWTP</u> Design Population Design Population

Design Year	SPECIE 2017
Design Population	CK: 1377.
esign Industrial Acres	1628

Impact to Existing Utility: Not Applicable

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
				Г	
GRAVITY INTERCEPTOR SEWER					
8-INC/	55.00	PER LF	Statistics on the	<u>ų s</u>	-
12 NO			588/A9608		477,600
15-100	1.5	DEDIE	80000000		9/3 500
18-INCH	1 SUSTREE 180 00	PERIE	BARRY STREET	13	043,000
21-INC	S 90.00	PER LF	100000000000000000000000000000000000000	i s	
24-INC	I S 100.00	PERLF	6086680	ŝ	-
27-INC	I S 20 Cal 110.00) PER LF	1000000000	s	-
30-INC1	120.00	PER LF	States.	\$	-
33-INCF	+ [\$ ³][\$), PERLF	2000 A	\$	-
36-INCH	140.00	PER LF		\$	-
42-INC	11.5); PER LF	國家的國家	\$	•
48-INCF	5	PERLF	OCHORAGE.	5	-
MANHULES	7\$52752,500.0C	EACH	\$34\$BU 200	\$	200,000
FORCE MAIN				⊢	
4-INCH	150000000000000000000000000000000000000	PESIE	100000000000000000000000000000000000000	1	
6-iNCH	\$ 35.00	PERLE	AND AND AND AND AND AND AND AND AND AND	s	
8-INCH	S 40.00	PERLF	A COLOR	ŝ	
10-INCH	\$ 45.00	PERLF	10-20-000	İs	
12-INCF	S 50.00	PERLF	2265282578	\$	-
14-INCF	l \$2000660.00	PERLF	STREET, STREET	\$	-
16-INCH	\$ 70.00	PERLF	的现代的	\$	-
18-INCH	\$ 33 30 680.00	PERLF	£29/730	\$	2,378,400
24-INCH	\$1.00.00	PERLF	资源0层数	\$	-
	[<u> </u>		
PUMP STATION (IF<1500 GPM USE 150 GPM+100	,000)	GPM	\$24:50.025	\$	1,517,500
PUMP STATION (IPP1500 GPM USE 215'GPM+550	,000) Terte-sconservator	GPM CRM	6334,500 St	\$	1,517,500
	Manager and Addressed	GPM	2012262253	12	
WASTEWATER TREATMENT PLANT	48332022234323200	AVE GPD	200000	-	0 020 000
	A CALLER AND A CALL		SPLIC AVAILABLE	-	3,320,000
		1			
		1			
SUBTOTAL BASE COST				\$	16,854,500
EASEMENTS	0.5%			\$	84,273
RESTORATION (PAVEMENT AND DRIVEWAY)	50%	*	ļ	\$	1,685,450
EROSION AND SEDIMENT CONTROL	j]:5% }},],5%		<u> </u>	\$	252,818
GENERAL CONDITIONS	141 31 1 1 1 2 2 2 2 2 2 2			2	1,348,360
SUBTOTAL CONSTRUCTION COST	L			•	20 225 400
CONTRACT CONSTRUCTION COST		1		,	20,225,400
CONTINGENCY AND TECHNICAL SERVICE	37 - Sec. 240%			ŝ	8 090 160
	ALTER AL			•	0,030,100
TOTAL CAPITAL COST OPINION**				5	28.316.000
		1			
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	CARES (100 \$100 \$100 \$100 \$100 \$100 \$100 \$100	1000 GAL	RP05:2001	\$	905,200
PUMPING STATIONS	\$60.00	GPM	S称9:000度	\$	540,000
FURCE MAINS & INTERCEPTORS	\$0.10	PERLF	图497740座	\$	4,974
AUMINIS IKATION	50,50	1000 GAL	89052003	<u>\$</u>	452,600
	- AB 30.25	1000 GAL	当905;200š	\$	226,300
DEBT-COLLECTION SYSTEM /30 VEADS 49/1	0.074.273	WWIP COST	10,065,859	\$	1,233,274
TOTAL ANNUAL OF	TOTAL COLUMNS AND AND AND AND AND AND AND AND AND AND	U.S. COSI	US DOUGHT	\$	675,708
IUTAL ANNUAL 08M				\$	4,038,055
	ANNUAL	· · · · · · · · · · · · · · · · · · ·	······		
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7:00%	20		\$	42,779,000
PRESENT WORTH OF CAPITAL				\$	28,316,000
TOTAL 20-YEAR PRESENT WORTH				\$	71.095.000

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Hardin County Regional Facilities Plan

Regional Facilities Plan	
Service Area	Rose Runs
Alternative	E Pumpto E Town WWTP
Design Year	医成素 2017 蒙古派
Design Population	5 5 5 7 5 0 S S S S S S S S S S S S S S S S S S
Design Industrial Acres	

Impact to Existing Utility: Existing Collection System Existing WWTP

\$0 per customer \$500 per customer

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ПТЕМ	UNIT COST	UNITS	NUMBER OF UNITS		COST
[<u></u>					
GRAVITY INTERCEPTOR SEWER	Paz-Man-inuz-a-iaai		-		
8-INCH 10-INCH	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	PERLF	100000000000000000000000000000000000000	ł	691,900.00
12-INCH	5 65 00	PERIF	60700 M970	5	
15-INCH	S	PERLF		ŝ	_
18-INCH	S 80.00	PERLF	S	s	
21-INCH	S	PERLF		\$	+
24-INCH	\$ 100.00	PERLF		\$	-
27-INCH	\$97.8 110.00	PERLF		\$	•
30-INCH	S 120:00	PERLF		\$	-
33-INCH	3 3 3 3 3 3 0 0 0	PERLF	Contractor (City)	5	•
36-INCH	\$5.55555140.00	PERLF	CONCERNING IN FRAME	è	
42-11101 48-INCH	\$ 3140.00	PERLE	Distance in the second	ŝ	· · · · ·
MANHOLES	\$ 2.500.00	EACH	100000000000000000000000000000000000000	Ś	125,000.00
FORCE MAIN					
4-INCH	\$ 30.00	PERLF		\$	-
6-INCH	\$ 35.00	PERLF	EA1214103	\$	434,350
8-INCH	\$ 40.00	PERLF		\$	-
10-INCH	S. 45.00	PERLF	NACE OF BRIDE	5	
12-INGH	S 50.00		STATISTICS OF A STATISTICS	÷	·····
14-INCH	S	PERLE	STANDERSCOOL	3	<u> </u>
18-INCH	\$ 120.00	PERLE	Contraction of the local sector	ŝ	
24-INCH	\$ 200.00	PERIF	26408549608	s	-
PUMP STATION (IF<1500 GPM USE 150*GPM+100,	000)	GPM	建計2005年	\$	130,000
PUMP STATION (IF>1500 GPM USE 215*GPM+550,	.000)	GPM		\$	-
PUMP STATION	资金的管理	GPM		s	-
WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD		s	-
SUBTOTAL BASE COST		E		÷	1 381 250
30510182 0432 0051		1		ŕ	1,001,200
EASEMENTS	SEC.24.00.65%			s	6.906
RESTORATION (PAVEMENT AND DRIVEWAY)	10%			\$	138,125
EROSION AND SEDIMENT CONTROL	STORE 1.5%			\$	20,719
GENERAL CONDITIONS	8%			\$	110,500
SUBTOTAL CONSTRUCTION COST				\$	1,657,500
CONTINGENCY AND TECHNICAL SERVICE	40%			\$	663,000
COLLECTION SYSTEM CAPACITY SEE	I CARLES AND AND AND AND AND AND AND AND AND AND	DED CUSTOMED	250		
WWTP CAPACITY FEE	\$	PER CUSTOMER	250	\$	125.000
	0.141	T LIV OOD TOMLEY		Ť	
TOTAL CAPITAL COST OPINION**				\$	2,446,000
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	のないのである	1000 GAL	\$2263755	\$	91,706
PUMPING STATIONS	\$60.00	PEAK GPD	382200常務	<u>\$</u>	12,000
FORCE MAINS & INTERCEPTORS	\$0.10	PERLF	2624-9902	\$	2,499
REPLACEMENT	50.25 St.	1000 GAL	NEW COLOR	\$	6,844
DEBT-WWTP (20 YFARS-4%)	100 0000000000000000000000000000000000	WWTP COST	REPORT VALUES		
DEBT-COLLECTION SYSTEM (30 YEARS 4%)	38880.058	C.S. COST	2226000	s	141.868
TOTAL ANNUAL D&M		2.0.0001	Annal and a second second second second	Ś	254.917
				÷.	
	ANNUAL				
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	10.354/13-7.00%	20		\$	2,701,000
PRESENT WORTH OF CAPITAL				\$	2,446,000
TOTAL 20-YEAR PRESENT WORTH				٦.	5,747,000

DESCRIPTION Hardin County Regional Facilities Plan Service Area Vegeonal Facilities Plan Servico Area Alternative Puint to New Southern WWTP Design Your Dosign Population Design Industrial Acres

Not Applicable Impact to Existing Utility

npact to	existing	ontity	•	NO	Abblic

ITEM	UNIT COST	UNITS	OF UNIT	۲ 5	COST
GRAVITY INTERCEPTOR SEWER			_	1	
8.INC	H REPERTING REP	DED1C	EP2070F2007		004 000
10-INC	HIS SOUTH ROM		1200202000	<u>원</u> ~	691,800
12-INC	1 S 85.0	0 PERLE	GENERAL STREET	ŝ	
15-INC	I S 70.0	0 PER LF	Second Second		
18-INCI	80.0	0. PER LF	TAXABOR CONT	a s	· · · · ·
21-INC	-l \$ 90.0	0 PER LF	10000	a s	
24-INC	1 \$ 100.0	0 PER LF	5	s s	
27-INC	IS 110.0	0) PER LF	2012203	ŝ	-
	120.0	0 PER LF	2 20 20	\$\$	-
	I S 130.0	0 PERLF	Stand Street	5	-
36-INCF	140.0	0 PER LF		\$ \$	-
42-INCH	I \$	0 PERLF		\$ \$	-
48-INC	i s 180.0	0 PER LF		\$ \$	-
MANHULES	\$ 2,500.0	D EACH	55555020	5	125,000
50505 HUN				1	
FORCE MAIN			1		
4-INCh	S	D PER LF		\$ \$	-
6-INCF	1 S	PER LF	8222350	5	782,250
	40.00			<u> </u> \$	i
	45.00		STATE OF COMPANY	5	
124NCF	5 50.00	PERLP	2012/01/2017	12	-
16-INCH	00,00	V DEDLC	200000000000000000000000000000000000000	3	
18-INCH	S	PERLE	CONTRACTOR OF CONTRACTOR		
24-INCH	S 200 00		CARGE SARES	13	-
			CICHERS & COMPOSITION	<u> </u>	
PUMP STATION (IF<1500 GPM USE 150°GPM+100	.000)	GPM	2002200392	ls.	130,000
PUMP STATION (IF>1500 GPM USE 215'GPM+550	.000)	GPM	2012000000	Š	130,000
PUMP STATION	STOT BERGARD	GPM	STATES	15	
			- Internation	Ě	
WASTEWATER TREATMENT PLANT	\$4.00	AVE GPD	警75:000金	\$	300,000
·····					
SUBTOTAL BASE COST				\$	2,029,150
EASEMENTS	0.5%			\$	10,146
RESTORATION (PAVEMENT AND DRIVEWAY)	10%			\$	202,915
ERUSION AND SEDIMENT CONTROL	1.5%	-		\$	30,437
GENERAL CONDITIONS	8%	, 		\$	162,332
				L	
SUBTOTAL CONSTRUCTION COST	· · · · · · · · · · · · · · · · · · ·			\$	2,434,980
CONTINGENCY AND TECHNICAL SERVICE	1		ļ	-	
CONTINUENCE AND TECHNICAL SERVICE	1.00 D 1.049 109 008			\$	973,992
TOTAL CARITAL COST ORINION		i			
TOTAL GAPTIAL COST OPINION		1		\$	3,409,000
		·		-	
ANNUAL OPERATION& MAINTENANCE		I	<u>, </u>		
WASTEWATER TREATMENT PLANTS	Sector Contractor	1000 GAI	327A75.N	\$	27 275
PUMPING STATIONS	\$60.00	GPM	589200588	÷	12 000
FORCE MAINS & INTERCEPTORS	\$0.10	PERLF	234,03018	ŝ	3 493
ADMINISTRATION	\$0,50	1000 GAL	27/375 %	Ś	13.688
REPLACEMENT	\$0.25	1000 GAL	第27/375案	ŝ	6,844
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	2504;0049	\$	37.296
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	9 8 4 0.058 (A)	C.S. COST	2,904,996	\$	168.490
TOTAL ANNUAL O&M				\$	269,185
	ANNUAL		1		
IUTAL PRESENT WORTH	NTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	<u></u>	2012		\$	2,852,000
PRESENT WORTH OF CAPITAL				\$	3,409,000
TOTAL 20-YEAR PRESENT WORTH				\$	6,261,000

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**Property Owner will be responsible for cost to connect structure to new sewer 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

Hardin County Regional Facilities Plan Serv

County reading a maintenant tert	
Service Area	H.U. Nolin River, U. Holin River, Cox Run, Jackson Branch, Nolin River
Alternativo	Pump to New Southern WWTP
Design Year	2027
Equivalent Design Population	26490
Design Industrial Acres	高等的 理想的 自己的

Not Applicable

Impact to Existing Utility:

ЛЕМ	UNIT COST	UNITS	NUMBER OF UNITS		COST
GRAVITY INTERCEPTOR SEWER		DED LC	10000000000000000000000000000000000000	Ļ	704 560
8-INCH 10 INCH	5	PERLP	82192210/2	ŀ	1 624 800
12-INCH	\$ 00.00	PCRUF	202203010048	ł÷	1,334,000
15-INCH	\$ 70.00	PERLE	2021522-0025	ŝ	399 700
18-INCH	\$ 80.00	PERLF	1255358076	1 š	446 400
21-INCH	\$ 90.00	PERLF	8045/990%	ŧ÷	1,439,100
24-INCH	\$ 100,00	PERLF	2105708	\$	1,057,000
27-INCH	\$ 110.00	PER LF	10000000	5	-
30-INCH	\$ 120,00	PERLF		\$	
33-INCH	\$ 130.00	PER LF	SEASING SEASING	\$	-
36-INCH	\$ 140.00	PER LF	沙口的男孩们	\$	-
42-INCH	\$ 160,00	PERLF	No. State	\$	-
48-INCH	\$, 180.00	PERLF		<u>I</u>	-
MANHOLES	\$ 2,500,00	EACH	9562311355	<u>ا ا</u>	777,500
EORCE MAIN			 	–	
4-INCH	\$ 30.00	PERIE	N. SAMERIA	s	
6-INCH	\$ 35.00	PERLE	SAME AND A	Ś	-
8-INCH	S 40.00	PERLF	1000	Ś	
10-INCH	\$ 45.00	PERLF	Sector So	\$	
12-INCH	\$ 50.00	PERLF	系的建筑能改	\$	-
14-INCH	\$ 60.00	PER LF		\$	-
16-INCH	\$ 70.00	PER LF	0000000000	\$	-
18-INCH	\$.80.00	PER LF	的思想的法	\$	-
24-INCH	\$ 90.00	PER LF	相等的新闻	\$	·····
			archida armenidare	<u> </u>	
PUMP STATION (IF<1500 GPM USE 150 GPM+100,0	00)	GPM GFI/	SEARCHER TH	ş	-
PUMP STATION (IP>1500 GPM USE 215 GPM+550,0	KU) Latra in statistica and	GPM CRM	Reaction States	\$	
	alon et navi staj j	GPM	CONSTRUCTOR	<u>~</u>	· · · · ·
WASTEWATER TREATMENT PLANT	\$ 2.50	AVE GPD	53169,0002	5	422,500
			2041491939-06	Ť	
SUBTOTAL BASE COST				<u>*</u>	6,858,550
				_	
EASEMENTS	0.5%			\$	34,293
RESTORATION (PAVEMENT AND DRIVEWAT)	1070			С	102 979
EROSION AND SEDIMENT CONTROL	894			è	549 694
GENERAL CONDITIONS		1		4	010,001
SUBTOTAL CONSTRUCTION COST				s	8.230.260
		l		Č	
CONTINGENCY AND TECHNICAL SERVICE	40%			\$	3,292,104
TOTAL CAPITAL COST OPINION***				\$	11,522,000
·					
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	334233510083482	1000 GAL	540110855K	\$	61,685
PUMPING STATIONS	\$60,00	GPM	SALARS CALLER	ې د	- 7 701
	30.10 50.50	1000 CAL	28/J/1099/Ja	÷	7,704
REPLACEMENT	2000 000 000 000 000 000 000 000 000 00	1000 GAL	SCR11POSIA	ŝ	15 421
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	270977PM	\$	62,624
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	10.812/292	š	627,109
TOTAL ANNUAL OBM				\$	795,345
				ويستق	
	ANNUAL				
TOTAL PRESENT WORTH	INTEREST	NO, OF YEARS			
PRESENT WORTH OF O&M	.ecv	ar - 10		<u>ş</u>	2,840,000
PRESENT WORTH OF CAPITAL				\$	5,857,000
TOTAL 20-YEAR PRESENT WORTH				*	6,697,000

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

N.U. Nolin River, U. Nolin River, Cox Run, Jackson Branch, Nolin River, ks

Hardin County Regional Facilities Plan

could reduction a montane a terr	
Service Area	N.U. Nolin River, U. Nolin River, Cox Run, Jackson Branch, Nolin River
Alternative	Rump to E-Town WWTP
Design Year	52027/ E.U.
Equivalent Design Population	26490
Design Industrial Acres	

Impact to Existing Utility: Existing Collection System

Existing WWTP

\$0 per customer \$500 per customer

ITEM	UNIT COST	UNITS	OF UNITS	5	COST
GRAVITY INTERCEPTOR SEWER			_		
B-INC	H \$ 55.0	0 PER LF	资金[3]2303	Ş	781,550.00
10-INC	H]\$1的。你就是160.0	0) PERLF	3625/5803	š. \$	1,534,800.00
12-INC	H(\$129.1199.52.65.0	0 PER LF	北方 建築運動	6 \$	-
15-INC	H [\$据《梁家》》\$70.0	0 PER LF	28.6.740.8	ž S	399,700.00
18-INC	H \$22.000 280.0	0 PERLF	10065358018	\$	446,400.00
21-!NC	H \$ 90,0	0 PER LF	\$3515,9903	§ \$	1,439,100.00
24-INC	H \$ 100.0	0 PERLF	新闻D 5704	\$ S	1,057,000,00
27-INC	H S 110.0	0 PERLF	24	5 S	•
	H (\$32,000 a)20.0	0 PER LF	TOWN DOWN	f \$	
33-INC	H_\$130.0	0 PER LF	Read and the	\$	-
36-INC	H \$ 140.0	0, PERLF		\$	-
42-INC	H (\$) \$160.0	PER LF	1933 B	1 \$	-
48-INC	H S 200 180,0	0 PER LF		\$	-
MANHOLES	\$ 2,500,0	0 EACH	128311203	Ş	777,500.00
FORCE MAIN					
4-INC	H \$30,0	D PERLF	S. S. S. S. S. S. S. S. S. S. S. S. S. S	\$	-
6-INC	H \$ 35.0	PER LF	il al a ser	\$	-
8-INCI	H IS 40.0	2 PERLF		\$	-
10-INC	H \$ 45.0	PERLF	South State	\$	-
12-INCI	H \$ 50.00	PER LF	第28,630周	\$	1,431,500
14-INC	H \$ 60.00	PER LF	が登場を開始	\$	-
16-INCI	H \$ 70.00) PERLF		\$	-
18-INC	H \$ 80.00). PER LF		5	-
24-INCI	- \$ 90,00	PER LF	112223	\$	•
			1	<u> </u>	
PUMP STATION (IF<1500 GPM USE 150°GPM+100,	.000)	GPM	361/200	\$	280,000
PUMP STATION (IF>1500 GPM USE 215"GPM+550,	000)	GPM	法法的 和利用	\$	-
PUMP STATION		GPM	LOS STREET	\$	•
			1		
WASTEWATER TREATMENT PLANT	\$ 4,00	AVE GPD	教育を読む	\$	-
		<u> </u>			
SUBTOTAL BASE COST	<u> </u>			\$	8,147,550
				í	
EASEMENTS	0,59	<u>نا</u>		\$	40,738
RESTORATION (PAVEMENT AND DRIVEWAY) 109	<u></u>		\$	814,755
EROSION AND SEDIMENT CONTROL	- 1:5 % - 1:5%	à		\$	122,213
GENERAL CONDITIONS	SAN 2 4 5 188	۵		\$	651,804
		<u> </u>			
SUBTOTAL CONSTRUCTION COST				\$	9,777,060
CONTINGENCY AND TECHNICAL SERVICE	40%			Ş	3,910,824
IMPACT TO EXISTING DITLITY		L			
COLLECTION STSTEM CAPACITY PEE	\$.	PER CUSTOMER	563	\$	
WWTP CAPACITY FEE	\$ 500.00	PER CUSTOMER	563	\$	281,667
TOTAL CADITAL COST ODINIONI				<u> </u>	
TOTAL CAPITAL COST OPINION				\$	13,970,000
ANNUAL OPERATIONS MAINTENANCE					
WASTEWATER TREATMENT DI ANTO	12 Holdstein Childrein	1000 0.11			
PUINGING STATIONS	2000 00 00 00 00 00 00 00 00 00 00 00 00	1000 GAL	33,01(085)2	<u>></u>	206,645
FORCE MAINS & INTERCEPTORS	Contraction of the second second second second second second second second second second second second second s	GPM	2001200A1	\$	/2,000
	00,10 00,10		HELLON LAUR	\$	10,627
REPLACEMENT	30,25	1000 GAL	2011085%	<u>></u>	15,421
DERT-WWTP (20 VEAPS-1%)	62.06	1000 GAL	#RONA SEE		
DEBL-COLLECTION SYSTEM /30 YEADS 444	0.079 free	WWIP COST	BONNA SE	_	
TOTAL ADDRESS OF CONTRACTOR (OF TEARS-4%)	240 401058 22425	C.S. COST	13,970,000	2	810,260
TOTAL ANNUAL 08M				\$	1,114,953
	ANNUAL				
TOTAL PRESENT WORTH	INTEREST	NO, OF YEARS			I
PRESENT WORTH OF OAM	7.00%	Salaria - Parata		s	3 981 000
PRESENT WORTH OF CAPITAL				Ś	7,102,000

TOTAL 20-YEAR PRESENT WORTH

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

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11,083,000

Hardin County Regional Facilities Plan

Service Area	Contract States U.W. Philder Ch. Lower Valley, Rose Bins
Altomative	E Fump to New Southern WWTP
Dosign Year	2027235
Design Population	生活的12260.第286
Design Industrial Acres	

Impact to Existing Utility: Not Applicable

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
			ļ		
GRAVITY INTERCEPTOR SEWER			ENGINE CONTRACT	Ļ	1 020 050
8-INCH	100 CO		1000710101010	<u>}</u>	1,929,950
12-INCH	STATE 28 (300.00		300730-00398	+	279,000 489,050
15-INCH	S	PERLE		Š.	400,000
18-INCH	S 80.00	PERLF	2002000000	İs	_
21-INCH	5 290.00	PERLF	121800.04	İs	
24-INCH	\$ 100:00	PERLF	Farm D and	5	-
27-INCH	\$ 110.00	PER LF	SERIO DE SE	\$	-
30-INCH	\$ 120.00	PER LF	包約2000年	\$	-
33-INCH	\$ 130.00	PER LF		\$	-
36-INCH	\$ 140.00	PERLF	就把这些新闻	\$	-
42-INCH	\$ 160.00	PERLF		\$	
48-INCH	\$22,00	PERLE		<u>\$</u>	
MANHOLES	\$ 2,500,00	EACH	202133333	<u> </u>	470,000
FORCE MAIN		DEDIE	1404000 CONTRACTOR		
BINCH	\$ 35.00	PFRIF	52215197026	s	558 950
8-INCH	\$ 40.00	PERLF	Ser 242	s	
10-INCH	\$ 45.00	PERLF	S.C.S.S.C.S.	\$	-
12-INCH	5	PER LF	SACTOR	\$	-
14-INCH	\$	PER LF		\$	-
16-INCH	\$ 70,00	PER LF	19966	\$	-
18-INCH	\$	PER LF		\$	•
24-INCH	S 00.00	PER LF	要用の意識が	5	-
PUMP STATION (IF<1500 GPM USE 150°GPM+100,0	00)	GPM	356350Mir	\$	152,500
PUMP STATION (IF>1500 GPM USE 215"GPM+550,0	00)	GPM GPM	STATISTICS.	\$	
POMP STATION		GPM	1999,999,999,999,999	\$	· · · ·
WASTEWATER TREATMENT PLANT	CONTRACTOR 2012	AVE GPD	8862/00058		155.000
	A.M	7.20.0	TRENING VPAC	•	100,000
		l			
		1			
		Í			
SUBTOTAL BASE COST				\$	4,015,350
EASEMENTS	0.5%			\$	20,077
RESTORATION (PAVEMENT AND DRIVEWAY)	1			\$	401,535
EROSION AND SEDIMENT CONTROL	1.07			2	60,230
GENERAL CONDITIONS	2010-00-00-00-00-00-00-00-00-00-00-00-00-			÷.	321,228
SUBTOTAL CONSTRUCTION COST		1		5	4 818 420
				*	-41010,420
CONTINGENCY AND TECHNICAL SERVICE	10.000.000.0040%			\$	1,927,368
		i			
TOTAL CAPITAL COST OPINION***		•		\$	6,746,000
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	開始に100歳間間	1000 GAL	£22,630	\$	22,630
PUMPING STATIONS	\$60,00	GPM	38,4850 85	\$	21,000
	50.10		3402.940.Q	\$	6,284
SEPLACEMENT	0.0U	1000 GAL	1044,0302	*	11,315
DEBT-WWTP (20 YEARS-4%)	20010000000000000000000000000000000000	WWTP COST	00000000000000000000000000000000000000	*	0,000
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	45232 0.058 market	C.S. COST	(6:485'607)	š	376 164
TOTAL ANNUAL OXM	and a second second second second second second second second second second second second second second second	0.0.0001	and a second second second second second second second second second second second second second second second	ŝ	462.331
				· ·	
· · · · · · · · · · · · · · · · · · ·	ANNUAL				
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7:00%	389 (Selection 10		\$	1,651,000
PRESENT WORTH OF CAPITAL				<u>\$</u>	3,429,000
TOTAL 20-YEAR PRESENT WORTH				\$	5,080,000

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs In 3rd quarter 2007 dollars

Hardin County Regional Facilities Plan Service Area Alternative Planp to E-Town (collection System) Dosign Year Design Population 2027 Design Industrial Acres 347. OP \$14.95

Impact to Existing Utility: Existing Collection System Existing WWTP

\$0 per customer \$500 per customer

ТЕМ	UNIT COS	T UNITS	NUMB OF UN	ER ITS	COST
GRAVITY INTERCEPTOR SEWER					
PINCE TOR SEWER					
		00 PER LF	\$\$3500	<u>015</u> S	1,929,950.0
12-INC	H S	00 PERLF			279,000.0
15-INC	H 5 70	00 PERLF	100000	50 S	469,950.0
	HISCHAR	00 PERLE	52353426	824 S	-
21-INC	HIS		10000000000000000000000000000000000000		
24-INC	H S 100	00 PERLE	Service of		
27-INC	HIS CONTROL	00 PERIE	1200422,020	0201 3	
30-INC	H S 120	00 PERIE	2020650.00	- 1882 - 1882 - 1882	· ·
33-INC	H S 130	00 PERLE	NEWSCO		
36-INC	H S 140	00 PERLF	CALCORD S	2000 V 2000 V	
42-INC	H (\$ 160	00 PERLE	BODA REAL		
48-INCI	H S	00 PEBLE	2000		
MANHOLES	\$ 2,500	00 EACH	26271881	派 \$	470,000.0
FORCE MAIN					
4-INC	1.5 30	OF PERIF	Sector Astron	æ e	
6-INC	S. C. 35.	DO) PERIE	354,41800		
8-INCH	4.5	DO PERLE	CONSTRACT OF CONST	261 V 261 V	514,150
10-INCH	45.	0 PERLE	296201000000	961 C	
12-INCH	\$	0 PERLF	0725258662	20 V	
14-INCH	S 60.0	0 PERIF	200400565		
16-INCH	S 70.0	0 PERLF	C Sectores		
18-INCH	\$ 80.0	0; PERLF	200000000000000000000000000000000000000		
24-INCH	S 90.0	0 PERLF	Sectors.	<u>s</u> s	<u> </u>
I have about a state				Ť	· · · · · · · · · · · · · · · · · · ·
UMP STATION (IF<1500 GPM USE 150*GPM+100.0	000)	GPM	282/350 H	a s	152 500
UMP STATION (IF>1500 GPM USE 215*GPM+550,0	(000	GPM	100000	a s	
		GPM GPM	STATE!	ž s	· · ·
VASTEWATER TREATMENT OF ANY				1-	
AND TERMENT POANT	5 4.0	0 AVE GPD	10 AMARA	8 \$	-
SUPTOTAL BASE COST					
SUBTOTAL BASE COST				\$	3,815,550
EASEANENITO					
RESTORATION (PAVEMENT AND DRIVEWAY)	0.5	76 V	<u> </u>	15	19,078
EROSION AND SEDIMENT CONTROL	6 M 10	<u>~</u>		\$	381,555
GÉNERAL CONDITIONS	610	76		15	67,233
CENCIPE CONDITIONS	A 1785 - 62 9.2846 - 56 0	<u>*</u>	ļ	5	305,244
SUBTOTAL CONSTRUCTION COST		_[Ļ	4 570 000
CONTINUETION NO TROUBLE			1	ŕ	4,078,060
PACT TO EXISTING UTILITY	409	6		\$	1,831,464
UPGRADE TO EXISTING COLLECTION SYSTEM		<u> </u>			
IRGRADE TO EVICTING WAITED	5 1,500,00	PER CUSTOMER	297	\$	445,000
CI SIGEL TO EXISTING WWIP	\$ 500.00	PER CUSTOMER	503	\$	251,667
TOTAL CAPITAL COST OPINION***		<u> </u>	<u> </u>	<u>ــــــــــــــــــــــــــــــــــــ</u>	7 107 000
				Č.	1101,000
INUAL OPERATIONS MAINTENANCE					
WASTEWATER TREATMENT PLANTS	See.53/35/5056	1000 GAL	8222 Ann	5	75 044
PUMPING STATIONS	\$60.00	<u>GPM</u>	242340420	\$	/5,811
FORCE MAINS & INTERCEPTORS	\$0.10	PERIF	BOB DRADES	÷	21,000
ADMINISTRATION	\$0.25	1000 GAL	622 B307	š	5,100
REPLACEMENT	\$0.25	1000 GAL	BONNAUS	<u> </u>	3,038
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	ENRN/ARSA:		
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	7.107.000	s	412 208
TOTAL ANNUAL O&M				÷.	570 940
			·	<u> </u>	J&V,040
TAL PRESENT WORTH	NNUAL		T	·	
RESENT MORTH OF ORME	CIERES!	NO. OF YEARS			
PRESENT WORTH OF OXM	san 1997 ,00%	10		s	1,860,000
TOTAL 20-YEAR PRESENT WORKING				\$	3,613,000
TOTAL ANTIDAL PRESENT WORTH				5	5 473 000

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

5,473,000

Hardin County Regional Facilities Plan

(Regio)tal Facilities Fiall	
Service Area	Upper Younger Creek
Altornativo	Pump to E-Town Collection System
Design Year	2017
Design Population	1160
Design Industrial Acros	的现在分词 化二乙酸

Existing WWTP

Impact to Existing Utility: Existing Collection System

\$1,500 per customer \$500 per customer

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GRAVITY INTERCEPTOR SEWER BINCH 5::::::::::::::::::::::::::::::::::::	ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
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3Q-INCH 153:22:1120.00: PER LF Selections S 33:NDM 153:25:100.00: PER LF Selections S S 36:ANCH 153:25:100.00: PER LF Selections S S 42:INCH 153:25:100.00: PER LF Selections S S 43:INCH 153:25:100.00: PER LF Selections S 140.000 FORCE MAIN 4-INCH 153:25:100.00: PER LF Selections S 114.000 6-INCH 153:25:100.00: PER LF Selections S 1208.000 6-INCH 153:25:100.00: PER LF Selections S - 10-INCH 153:25:100.00: PER LF Selections S - 114-INCH 153:25:100.00: PER LF Selections S - 12-INCH 153:25:100.00: PER LF	27-INCH	\$ 110.00	PERLF		\$	-
33-INCH ISSUE 30.00.0 PER LF 388/3285 5 42-INCH ISSUE 2360.00.0 PER LF 388/3285 5 42-INCH ISSUE 2360.00.0 PER LF 388/3285 5 44-INCH ISSUE 2360.00.0 PER LF 388/3285 5 MANHOLES ISSUE 2260.00.0 PER LF 388/3285 5 MANHOLES ISSUE 2260.00.0 PER LF 388/3285 5 140.000 6-INCH ISSUE 260.00.0 PER LF 388/3285 5 128/02 5 128/02 6-INCH ISSUE 260.00.0 PER LF 388/32855 5 - 10-INCH ISSUE 260.00.0 PER LF 388/32855 5 - 12-INCH ISSUE 260.00.0 PER LF 388/32855 5 - 14-INCH ISSUE 260.00.0 PER LF 388/32855 5 - 16-INCH ISSUE 260.00.0 PER LF 388/32855 5 - 16-INCH ISSUE 260.00.0 PER LF 388/38855 - - 924-INCH ISSUE 260.00.0 PER LF 388/38855 - <t< td=""><td>30-INCH</td><td>\$ 120,00</td><td>PERLF</td><td>6464-5</td><td>\$</td><td>-</td></t<>	30-INCH	\$ 120,00	PERLF	6464-5	\$	-
36-INCH [\$ PER_LF 32222328 5 - 42-INCH [\$ 32222328 5 - - 44-INCH [\$ 32222328 5 - - 44-INCH [\$ 32222328 5 - - PORCE MAIN 4-INCH [\$ 32222328 5 140.000 PER_LF 3500.000 PER_LF 3500.002 5 144.000	33-INCH	\$ 130.00	PERLF		\$	-
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44-INCH (SM2/160.00) PER LF S02/160/30/3 140.00 FORCE MAIN 4-INCH (SM2/160.00) EACH S02/160/30/3 140.00 FORCE MAIN 4-INCH (SM2/160.00) PER LF S02/160/30/3 5.1280.00 GENCE MAIN 4-INCH (SM2/160.00) PER LF S02/160/30/3 5.1280.00 GENCH (SM2/160.00) PER LF S02/160/30/3 5.1280.00 PER LF S02/160/30/3 5.1280.00 GENCH (SM2/160.00) PER LF S02/160/30/3 5.1280.00 PER LF S02/160/30/3 5.1280.00 GENCH (SM2/160.00) FER LF S02/160/30/3 5.1280.00 5.1280.00 5.1280.00 GENCH (SM2/160.00) FER LF S02/160/30/3 5.1280.00 5.1280.00 5.1280.00 5.1280.00 5.1280.00 5.1280.00 5.1280.00 5.1280.00 5.1280.00 5.115.00 5.115.00 5.115.00 5.115.00 5.115.00 5.115.00 5.115.00 5.115.00 5.115.00 5.115.00 5.115.00 5.115.00 5.115.00 5.115.00 5.115.00 5.261.00 5.261.00 <td< td=""><td>42-INCH</td><td>\$ 160.00</td><td>PERLF</td><td></td><td>\$</td><td>-</td></td<>	42-INCH	\$ 160.00	PERLF		\$	-
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4-INCH IS 5-INTERNET 5-INT	FORCE MAIN					
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IDENTITY INCLUSION PERCET Sector	8-INCH	Q.00		CONTRACTOR OF CONTRACTOR	1	
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PUMP STATION (IF>1500 GPM USE 215'GPM+550,000) GPM 9287802088 \$ 115,000 INTERMEDIATE GPM GPM 688220988 \$ 133,000 WAS'TEWATER TREATMENT PLANT S AVE GPD 288882928 \$ - WAS'TEWATER TREATMENT PLANT S AVE GPD 288882928 \$ - WAS'TEWATER TREATMENT PLANT S 2,683,000 - - - SUBTOTAL BASE COST \$ 2,683,000 S 13,415 RESTORATION (PAVEMENT AND DRIVEWAY) 2,00% \$ 2,268,300 EROSION AND SEDIMENT CONTROL 3,00% \$ 2,268,300 SUBTOTAL CONSTRUCTION COST \$ 3,219,600 - SUBTOTAL CONSTRUCTION COST \$ 3,219,600 - MPACT TO EXISTING UTILITY COLLECTION SYSTEM CAPACITY FEE S 1,000,000 PER CUSTOMER 387 \$ 393,333 TOTAL CAPITAL COST OPINION** \$ \$ 5,2281,000 \$ 141,839 PUMPING STATIONS S600,000 PER LF 2826	PUMP STATION (IF<1500 GPM USE 150'GPM+100	.0001	GPM	影影[20] 第120章 第1	\$	118,000
INTERMEDIATE GPM R8220198 \$ 133,000 WASTEWATER TREATMENT PLANT \$ 4.00 AVE GPD 26220198 \$ - WASTEWATER TREATMENT PLANT \$ 4.00 AVE GPD 26220198 \$ - SUBTOTAL BASE COST \$ 2,683,000 \$ 13,415 RESTORATION (PAVEMENT AND DRIVEWAY) 30% \$ 268,300 \$ 2468,300 EROSION AND SEDIMENT CONTROL 56% \$ \$ 214,640 \$ 40,245 SUBTOTAL CONSTRUCTION COST \$ 3,219,600 \$ \$ 3,219,600 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,287,840 IMPACT TO EXISTING UTILITY \$ 3,219,600 \$ \$ COLLECTION SYSTEM CAPACITY FEE S: 1,600,000 PER CUSTOMER 387 \$ \$ MASTEWATER TREATMENT PLANTS \$ 5,281,000 \$ \$ \$ \$ WASTEWATER TREATMENT PLANTS \$ \$ \$ \$ \$ \$	PUMP STATION (IF>1500 GPM USE 215'GPM+550	.000)	GPM	资源(00) 港	\$	115,000
WASTEWATER TREATMENT PLANT \$ 4.00 AVE GPD 285822828 \$. SUBTOTAL BASE COST \$ 2,683,000 \$. <td< td=""><td>INTERMEDIATE</td><td>87.82 TO 2 TO 1</td><td>GPM</td><td>RIG220197</td><td>\$</td><td>133,000</td></td<>	INTERMEDIATE	87.82 TO 2 TO 1	GPM	RIG220197	\$	133,000
WASTEWATER TREATMENT PLANT \$ 3,00 AVE GPD \$ 2683000 SUBTOTAL BASE COST \$ 2,683,000 \$ 2,683,000 EASEMENTS 0.5% \$ 13,415 RESTORATION (PAVEMENT AND DRIVEWAY) 0.05% \$ 13,415 RESTORATION (PAVEMENT AND DRIVEWAY) 0.05% \$ 268,300 EROSION AND SEDIMENT CONTROL 0.05% \$ 40,245 GENERAL CONDITION \$ 3,219,600 \$ 214,640 SUBTOTAL CONSTRUCTION COST \$ 3,219,600 \$ 1,287,840 MPACT TO EXISTING UTLITY \$ 1,287,840 \$ 1,287,840 MPACT TO EXISTING UTLITY \$ 1,287,840 \$ 1,287,840 WWTP CAPACITY FEE \$ 1,287,840 \$ 1,287,840 WWTP CAPACITY FEE \$ 5,281,000 \$ 1,287,840 WWTP CAPACITY FEE \$ 5,280,000 \$ 193,333 TOTAL CAPITAL COST OPINION** \$ 5,281,000 \$ 5,281,000 WASTEWATER TREATMENT PLANTS \$ 5,281,000 \$ 5,281,000 FORCE MAINS & INTERCEPTORS \$ 50,100 \$ 6,400 FORCE MAINS & INTERCEPTORS \$ 50,000 \$ 690,692 DEBT-WWTP (20 YEARS-4%)						
SUBTOTAL BASE COST \$ 2,683,000 EASEMENTS 5 268,300 RESTORATION (PAVEMENT AND DRIVEWAY) 5 268,300 EROSION AND SEDIMENT CONTROL 5 268,300 SUBTOTAL CONSTRUCTION CONTROL 5 268,300 SUBTOTAL CONSTRUCTION CONTROL 5 214,640 SUBTOTAL CONSTRUCTION COST \$ 3,219,600 CONTINGENCY AND TECHNICAL SERVICE 40% MPACT TO EXISTING UTILITY 5 COLLECTION SYSTEM CAPACITY FEE 5 1,287,840 MPACT TO EXISTING UTILITY 5 COLLECTION SYSTEM CAPACITY FEE 5 1,287,840 WWTP CAPACITY FEE 5 5,281,000 WASTEWATER TREATMENT PLANTS 5 5,281,000 VWATE CAPACITY FEE 5 5,281,000 ANNUAL OPERATION& MAINTENANCE 5 5,281,000 WASTEWATER TREATMENT PLANTS 5 5,281,000 VASTEWATER TREATMENT PLANTS 5 5,281,000 PUMPING STATIONS 5 5,000 6 PM SUBSTRATION 5 5,025 1000 GAL 5 26,400 FORCE MAINS & INTERCEPTORS 5 0,000 GAL 5 2,281,000 5 10,555 DEBT-WWTP (20 YEARS-4%) <t< td=""><td>WASTEWATER TREATMENT PLANT</td><td>\$ 4.00</td><td>AVE GPD</td><td></td><td>\$</td><td>•</td></t<>	WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD		\$	•
SUBTOTAL BASE COST \$ 2,683,000 EASEMENTS 0.5% \$ 13,415 RESTORATION (PAVEMENT AND DRIVEWAY) 10% \$ 266,300 EROSION AND SEDIMENT CONTROL 1.5% \$ 40,245 GENERAL CONDITIONS \$ 40,245 \$ 214,640 SUBTOTAL CONSTRUCTION COST \$ 3,219,600 CONTINGENCY AND TECHNICAL SERVICE 40% MPACT TO EXISTING UTILITY \$ 1,287,840 COLLECTION SYSTEM CAPACITY FEE \$ 1,600,000 WWTP CAPACITY FEE \$ 1,600,000 WWTP CAPACITY FEE \$ 5,281,000 WWTP CAPACITY FEE \$ 5,281,000 WWTP CAPACITY FEE \$ 5,281,000 WASTEWATER TREATMENT PLANTS \$ 5,281,000 FORCE MAINS & INTERCEPTORS \$ 500,000 PER LF \$ 28,400 VMATE CAPACITY FEE \$ 500,000 PER LF \$ 5,281,000 FORCE MAINS & INTERCEPTORS \$ 500,000 PER LF \$ 5,281,000 PUMPING STATION \$ 502,52 1000 GAL \$ 24,400 \$ 141,839 PUMPING STATION \$ 502,52 1000 GAL \$ 28,400 \$ 5,400						
SUBTOTAL BASE COST \$ 2,683,000 EASEMENTS						
EASEMENTS 0.5% \$ 13.415 RESTORATION (PAVEMENT AND DRIVEWAY) 0.0% \$ 268,300 EROSION AND SEDIMENT CONTROL \$ 40,245 GENERAL CONDITIONS \$ 40,245 GENERAL CONDITIONS \$ 214,640 SUBTOTAL CONSTRUCTION COST \$ 3,219,600 CONTINGENCY AND TECHNICAL SERVICE 40% MPACT TO EXISTING UTILITY \$ 1,287,840 MPACT TO EXISTING UTILITY \$ 1,287,840 WWTP CAPACITY FEE \$ 5,281,000 WWTP CAPACITY FEE \$ 5,281,000 WWTP CAPACITY FEE \$ 5,281,000 WASTEWATER TREATMENT PLANTS \$ 5,281,000 FORCE MAINS & INTERCEPTORS \$ 5,281,000 PUMPING STATION \$ 5,010 PEBLY WATP (20 YEARS-4%) \$ 0,0074 DEBT-WWTP	SUBTOTAL BASE COST				\$	2,683,000
EASEMENTS 0.5% \$ 13,415 RESTORATION (PAVEMENT AND DRIVEWAY) \$ 268,300 \$ 268,300 EROSION AND SEDIMENT CONTROL \$ 268,300 GENERAL CONDITIONS \$ 40,245 GENERAL CONDITIONS \$ 214,640 SUBSTOTAL CONSTRUCTION COST \$ 3,219,600 CONTINGENCY AND TECHNICAL SERVICE 40% MPACT TO EXISTING UTILITY \$ 1,287,840 COLLECTION SYSTEM CAPACITY FEE \$ 1,287,840 MPACT TO EXISTING UTILITY \$ 1,287,840 COLLECTION SYSTEM CAPACITY FEE \$ 1,287,840 WWTP CAPACITY FEE \$ 1,287,840 WWTP CAPACITY FEE \$ 5,281,000 TOTAL CAPITAL COST OPINION** \$ 5,281,000 ANNUAL OPERATION& MAINTENANCE \$ 5,281,000 WASTEWATER TREATMENT PLANTS \$ 5,281,000 PUMPING STATIONS \$ 560,000 GPM SATEWATER TREATMENT PLANTS \$ 5,281,000 PORCE MAINS & INTERCEPTORS \$ 0,000 GAL \$ 242,030,85 \$ 141,839 PUMPING STATIONS \$ 500,000 GPM \$ 26,400 \$ 5,470 DEBT-WWTP (20 YEARS-4%) \$ 0,000						
RESTORATION (PAVEMENT AND DRIVEWAY) 20% \$ 268,300 EROSION AND SEDIMENT CONTROL \$ 40,245 \$ 40,245 GENERAL CONDITIONS \$ 8% \$ 214,640 SUBTOTAL CONSTRUCTION COST \$ 3,219,500 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,287,840 IMPACT TO EXISTING UTILITY \$ 1,287,840 COLLECTION SYSTEM CAPACITY FEE \$ 1,600,000 WWTP CAPACITY FEE \$ 1,287,840 TOTAL CAPITAL COST OPINION** \$ 5,281,000 WASTEWATER TREATMENT PLANTS \$ 5,281,000 FORCE MAINS & INTERCEPTORS \$ 500,000 PUMPING STATIONS \$ 560,000 FORCE MAINS & INTERCEPTORS \$ 500,000 PORCE MAINS & INTERCEPTORS \$ 500,000 PORCE MAINS & INTERCEPTORS \$ 500,000 PERL F \$ 284,40000 S 50,225 \$ 1000 GAL BEBT-WUTP (20 YEARS-4%) \$ 0,007,4000 DEBT-WUTP (20 YEARS-4%) \$ 0,007,4000 DEBT-WUTP (20 YEARS-4%) \$ 0,007,4000 DEBT-WUTP (20 YEARS-4%) \$ 0,007,4000 TOTAL ANNUAL O&M \$ 490,592	EASEMENTS	0.5%			\$	13,415
EROSION AND SEDIMENT CONTROL (3.5%) \$ 40,245 GENERAL CONDITIONS (3.5%) \$ 214,640 SUBTOTAL CONSTRUCTION COST \$ 3,219,600 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,287,840 IMPACT TO EXISTING UTILITY (3.5%) \$ 1,287,840 COLLECTION SYSTEM CAPACITY FEE (3.5%) (3.750,000) WYP CAPACITY FEE (3.5%) (3.750,000) TOTAL CAPITAL COST OPINION** \$ 5,281,000 ANNUAL OPERATIONS MAINTENANCE (3.750,000) WASTEWATER TREATMENT PLANTS (3.750,000) FORCE MAINS & INTERCEPTORS (3.000) FORCE MAINS & INTERCEPTORS (3.000) PER LF (3.25,000) CEBT-WWTP (20 YEARS-4%) (3.000,74,000) DEBT-WWTP (20 YEARS-4%) (3.000,74,000) TOTAL ANNUAL OBM \$ 490,592 TOTAL ANNUAL OBM \$ 490,592 TOTAL PRESENT WORTH OF CAPITAL (3.00,67,600) PRESENT WORTH OF CAPITAL (3.06,200) TOTAL ANNUAL OBM \$ 5,197,000 PRESENT WORTH OF CAPITAL \$ 5,281,000 TOTAL ANNUAL OBM	RESTORATION (PAVEMENT AND DRIVEWAY)	10%			\$	268,300
GENERAL CONDITIONS S 214,640 SUBTOTAL CONSTRUCTION COST \$ 3,219,600 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,287,840 MPACT TO EXISTING UTILITY COLLECTION SYSTEM CAPACITY FEE 40% \$ 1,287,840 COLLECTION SYSTEM CAPACITY FEE 5 1,600,000 PER CUSTOMER 387 \$ 580,000 WWTP CAPACITY FEE 5 5,000,000 PER CUSTOMER 387 \$ 593,333 TOTAL CAPITAL COST OPINION** \$ 5,2281,000 \$ 5,2281,000 WASTEWATER TREATMENT PLANTS 550,000 GPM IF 324,220,008 \$ 141,839 PUMPING STATIONS 550,000 GPM IF 324,220,008 \$ 10,355 REPLACEMENT 550,100 PER LIF 325,470,000 \$ 10,000 GAL 344,203,008 \$ 10,555 COLLECTION SYSTEM CAPACITY FEE 50,100 PER LIF 325,470,000 \$ 10,555 \$ 10,000 GAL 344,4008 K \$ 26,400 \$	EROSION AND SEDIMENT CONTROL	128.3853031.5%			\$	40,245
SUBTOTAL CONSTRUCTION COST \$ 3,219,600 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,287,840 IMPACT TO EXISTING UTILITY IMPACT TO EXISTING UTILITY \$ 1,287,840 COLLECTION SYSTEM CAPACITY FEE 5,000,000 PER CUSTOMER 387 \$ 580,000 WWTP CAPACITY FEE 5,000,000 PER CUSTOMER 387 \$ 193,333 TOTAL CAPITAL COST OPINION** \$ 5,281,000 \$ 5,281,000 ANNUAL OPERATION& MAINTENANCE I000 GAL \$ 5,281,000 WASTEWATER TREATMENT PLANTS \$ 560,000 GPM \$ 26,400 PUMPING STATIONS 5,500,007 GPM \$ 26,400 FORCE MAINS & INTERCEPTORS 5,000,007,400 GPM \$ 26,400 PUMPING STATIONS 5,000,007,400 GPM \$ 26,400 FORCE MAINS & INTERCEPTORS 5,000,000 GAL \$ 26,400 \$ 141,839 DEBT-WWTP (20 YEARS-4%) 5,000,007,400 \$ 000 GAL \$ 26,400 \$ 10,555 DEBT-COLLECTION SYSTEM (30 YEARS-4%) 5,000,007,400 \$ 306,208 \$ 10,555 \$ 10,007,400 \$ 306,208 TOTAL ANNUAL OBM <t< td=""><td>GENERAL CONDITIONS</td><td>8%</td><td></td><td></td><td>\$</td><td>214,640</td></t<>	GENERAL CONDITIONS	8%			\$	214,640
SUBTOTAL CONSTRUCTION COST \$ 3,219,600 CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,287,840 IMPACT TO EXISTING UTILITY Impact TO EXISTING UTILITY Impact TO EXISTING UTILITY COLLECTION SYSTEM CAPACITY FEE 40% \$ 1,287,840 WWTP CAPACITY FEE 5,21,000 PER CUSTOMER 387 \$ 580,000 WWTP CAPACITY FEE 5,221,000 PER CUSTOMER 387 \$ 193,333 TOTAL CAPITAL COST OPINION** \$ 5,221,000 \$ 5,221,000 \$ 193,333 ANNUAL OPERATIONS MAINTENANCE Impact To EXISTING STATIONS \$ 5,221,000 \$ 5,221,000 PUMPING STATIONS 560,000 GPM Impact Stations \$ 5,470,005 PORCE MAINS & INTERCEPTORS 50,000 GPM Impact Stations \$ 5,470,005 DEBT-WWTP (20 YEARS-4%) 50,000,74,260 WWTP COST Impact Stationg \$ 10,585 DEBT-WUTP (20 YEARS-4%) Impact Stationg S 10,585 \$ 490,592 \$ 490,592 TOTAL ANNUAL O&M \$ 490,592 TOTAL ANNUAL O&M \$ 490,592 \$ 5,197,000 TOTAL ANNUAL O&M \$ 5,197,000					Ļ	
CONTINGENCY AND TECHNICAL SERVICE 40% \$ 1,287,840 IMPACT TO EXISTING UTILITY COLLECTION SYSTEM CAPACITY FEE 1,500,00/ PER CUSTOMER 387 \$ 560,000 WWTP CAPACITY FEE 5,500,00 PER CUSTOMER 387 \$ 580,000 WWTP CAPACITY FEE 5,500,00 PER CUSTOMER 387 \$ 5,281,000 TOTAL CAPITAL COST OPINION** \$ 5,281,000 S 5,281,000 S 5,281,000 ANNUAL OPERATIONS MAINTENANCE I000 GAL 1242(330) \$ 141,839 PUMPING STATIONS 550,000 GPM 1285(430) \$ 5,400 FORCE MAINS & INTERCEPTORS 1000 GAL 1242(330) \$ 141,839 DEBT-WWTP (20 YEARS-4%) 1000 GAL 1242(330) \$ 10,585 DEBT-COLLECTION SYSTEM (30 YEARS-4%) 1000 GAL 1282(330) \$ 10,585 TOTAL ANNUAL O&M \$ 490,592 1000 GAL 1282(330) \$ 306,298 TOTAL ANNUAL O&M \$ 490,592 1000 GAL 1282(330) \$ 306,298 TOTAL ANNUAL O&M \$ 490,592 1001 GAL 1282(310) \$ 306,298 TOTAL	SUBTOTAL CONSTRUCTION COST				<u> </u>	3,219,600
CONTINUENCY AND LECHNICAL SERVICE 307,00 \$ 1,28,040 IMPACT TO EXISTING UTLITY COLLECTION SYSTEM CAPACITY FEE \$ 1,500,000 PER CUSTOMER 387 \$ 580,000 WWTP CAPACITY FEE \$ 1,500,000 PER CUSTOMER 387 \$ 193,333 TOTAL CAPITAL COST OPINION** \$ 5,281,000 ANNUAL OPERATION& MAINTENANCE \$ 5,281,000 WASTEWATER TREATMENT PLANTS \$ 5,281,000 PUMPING STATIONS \$ 560,000 \$ 6PM PORCE MAINS & INTERCEPTORS \$ 50,100 \$ 26,400 FORCE MAINS & INTERCEPTORS \$ 50,100 \$ 10,355 REPLACEMENT \$ 50,255 1000 GAL \$ 24,203,005 DEBT-WWTP (20 YEARS-4%) \$ 0,058,750 \$ 0,000 \$ 490,592 DEBT-WWTP (20 YEARS-4%) \$ 0,0007,450 \$ 490,592 \$ 306,298 TOTAL ANNUAL OBM \$ 490,592 \$ 306,298 \$ 490,592 TOTAL PRESENT WORTH \$ ANNUAL \$ 5,197,000 \$ 5,197,000 PRESENT WORTH OF CAPITAL \$ 5,281,000 \$ 5,281,000 \$ 5,281,000		Salaria and the second			 	1 297 640
IMPACT TO EXISTING DILLIT S80.000 COLLECTION SYSTEM CAPACITY FEE \$500.000 WWTP CAPACITY FEE \$500.000 TOTAL CAPITAL COST OPINION** \$193.333 TOTAL CAPITAL COST OPINION** \$5,281,000 ANNUAL OPERATION& MAINTENANCE \$5,281,000 WASTEWATER TREATMENT PLANTS \$264,000 GPM \$284,400,800 \$264,000 FORCE MAINS & INTERCEPTORS \$500,000 GPM PUMPING STATIONS \$500,000 GPM \$284,400,800 \$264,000 FORCE MAINS & INTERCEPTORS \$500,000 GPM \$284,400,800 \$264,000 DEBT-WWTP (20 YEARS-4%) \$200,000 PER LF \$254,700,800 \$10,585 REPLACEMENT \$200,000,744 \$200,000,744 \$200,000,744 \$200,000,744 DEBT-WWTP (20 YEARS-4%) \$200,000,744 \$200,000,744 \$200,000,144 \$200,000,144 \$200,000,144 \$200,000,144 \$200,000,144 \$200,000,144 \$200,000,144 \$200,000,144 \$200,000,144 \$200,000,144 \$200,000,144 \$200,000,144 \$200,000,144 \$200,000,144 \$200,000,144<	CONTINGENCY AND TECHNICAL SERVICE	268720533555 40%			┡	1,207,040
COLLECTION STGTEM GAT AGT IT FEETO: COLLECTION STGTEM GAT AGT IT FEETO: COLLECTION STGTEM GAT AGT IT FEETO: COLLECTION STGTEM GAT AGT IT FEETO: COLLECTION STGTEM GAT AGT IT FEETO: COLLECTION STGTEM GAT AGT IT FEETO: COLLECTION STGTEM GAT AGT IT FEETO: COLLECTION STGTEM GAT AGT IT FEETO: COLLECTION STGTEM GAT AGT IT FEETO: COLLECTION STGTEM GAT AGT IT FEETO: COLLECTION STGTEM GAT AGT IT FEETO: COLLECTION STGTEM GAT AGT IT FEETO: COLLECTION STGTEM GAT AGT STGTEM GAT AGT <ths< td=""><td>IMPAGE TO EXISTING UTILITY</td><td>C</td><td>PER CIETOVER</td><td>307</td><td>•</td><td>580 000</td></ths<>	IMPAGE TO EXISTING UTILITY	C	PER CIETOVER	307	•	580 000
ANNUAL OPERATIONS. MAINTENANCE S 5,281,000 ANNUAL OPERATIONS. MAINTENANCE Image: State S	COLLECTION STSTEM CAPACITY FEE	600.00	PER CUSTOMER	387	-	103 333
TOTAL CAPITAL COST OPINION** \$ 5,281,000 ANNUAL OPERATIONS MAINTENANCE		Q	T ETT OGGT OMET		Ť	
ANNUAL OPERATIONS. MAINTENANCE Image: Control of	TOTAL CARITAL COST OPINION"				S	5.281.000
ANNUAL OPERATION& MAINTENANCE	TOTAL OAFTIAL COOT OFMICA		· · · · · · · · · · · · · · · · · · ·		,	_,,
ANNUAL OPERATION& MAINTENANCE 322/32/32/32/32/32/32/32/32/32/32/32/32/					<u> </u>	
WASTEWATER TREATMENT PLANTS WASTEWATER TREATMENT PLANTS WASTEWATER TREATMENT PLANTS 1000 GAL 124/234038 \$ 141,839 PUMPING STATIONS 550,00 GPM E26/270039 \$ 28,400 FORCE MAINS & INTERCEPTORS 550,10 PER LF 225/270039 \$ 5,470 ADMINISTRATION 550,25 1000 GAL 826/270039 \$ 10,555 REPLACEMENT 650,255 10000 GAL 826/270039 \$ 10,555 DEBT-WWTP (20 YEARS-4%) 550,005 10000 GAL 826/270039 \$ 306,298 DEBT-COLLECTION SYSTEM (30 YEARS-4%) 550,005 C.S. COST 826/1000 \$ 306,298 TOTAL ANNUAL OBM \$ 490,592 \$ 490,592 TOTAL PRESENT WORTH OF OBM \$ 490,592 \$ 5,197,000 PRESENT WORTH OF CAPITAL NO, OF YEARS \$ 5,281,000 PRESENT WORTH OF CAPITAL \$ 5,281,000 \$	ANNUAL OPERATION& MAINTENANCE					
PUMPING STATIONS \$60.00 GPM \$25/440,558 \$ 26,400 FORCE MAINS & INTERCEPTORS \$50.10 PER LF \$25,570,058 \$ 5,470 ADMINISTRATION \$50.25 1000 GAL \$25,230,25 \$ 10,585 REPLACEMENT \$ \$0.25 1000 GAL \$25,230,25 \$ 10,585 DEBT-WWTP (20 YEARS-4%) \$ \$ \$ \$ 10,585 DEBT-COLLECTION SYSTEM (30 YEARS-4%) \$ \$ \$ 306,298 TOTAL ANNUAL O&M \$ \$ 490,592 TOTAL ANNUAL O&M \$ \$ 490,592 TOTAL PRESENT WORTH NO, OF YEARS \$ \$ PRESENT WORTH OF OAM \$ \$ \$ PRESENT WORTH OF CAPITAL \$ \$ \$ \$ TOTAL 200% CAPEAPERFERT WORTH \$ \$ \$ \$	WASTEWATER TREATMENT PLANTS	2023-33-853-85%	1000 GAL	增42/340年	\$	141,839
FORCE MAINS & INTERCEPTORS S0:10 PER LF 225472008 \$ 5.470 ADMINISTRATION S0:25 1000 GAL 88228308 \$ 10.585 REPLACEMENT S0:25 1000 GAL 8827008 \$ 10.585 DEBT-WUTP (20 YEARS-4%) S0:074/S WWTP COST 88290438 306,298 DEBT-COLLECTION SYSTEM (30 YEARS-4%) S0:0074/S C.S. COST 82810000 \$ 306,298 TOTAL ANNUAL O&M \$ 490,592 \$ 306,298 \$ 306,298 TOTAL ANNUAL O&M \$ 490,592 \$ \$ 306,298 \$ TOTAL ANNUAL O&M \$ 490,592 \$ \$ \$ \$ TOTAL PRESENT WORTH INTEREST NO, OF YEARS \$ \$ \$ \$ PRESENT WORTH OF OAM \$ 5,197,000 \$ \$ \$ \$ PRESENT WORTH OF CAPITAL \$ \$ 5,281,000 \$ \$ \$ \$ \$ \$ \$	PUMPING STATIONS	\$60.00	GPM	B38440.948	\$	26,400
ADMINISTRATION S025 1000 GAL 82/223/08 \$ 10,585 REPLACEMENT \$ \$025 1000 GAL 82/223/08 \$ 10,585 DEBT-WWTP (20 YEARS-4%) \$ \$02074 \$ 1000 GAL 82/223/08 \$ 10,585 DEBT-WWTP (20 YEARS-4%) \$ \$ \$ 306,298 \$ 306,298 \$ 306,298 \$ 306,298 \$ 306,298 \$ 306,298 \$ 306,298 \$ \$ 306,298 \$ \$ 306,298 \$ \$ 306,298 \$ \$ \$ 490,592 \$ \$ \$ \$ 490,592 \$	FORCE MAINS & INTERCEPTORS	S0.10	PERLF	3454:7008	\$	5,470
REPLACEMENT 1000 GAL 1000 GAL 1000 GAL DEBT-WWTP (20 YEARS-4%) 200074 WWTP COST 1000 GAL 1000 GAL DEBT-WWTP (20 YEARS-4%) 200074 WWTP COST 1000 GAL 1000 GAL DEBT-COLLECTION SYSTEM (30 YEARS-4%) 200074 C.S. COST 102/201000 \$ 306,298 TOTAL ANNUAL OBM \$ 490,592 \$ 490,592 TOTAL PRESENT WORTH INTEREST NO, OF YEARS \$ 490,592 TOTAL PRESENT WORTH OF CAPITAL NO, OF YEARS \$ 5,197,000 PRESENT WORTH OF CAPITAL \$ 5,281,000 \$ 5,281,000 TOTAL 3/WYEAP REFERT WORTH \$ 10,476,000 \$ 10,476,000	ADMINISTRATION	\$0.25	1000 GAL	842,330	\$	10,585
DEBT-WWTP (20 YEARS-4%) WWTP COST WTP COST	REPLACEMENT	50.25 SO	1000 GAL	BENVALE		
DEBT-COLLECTION SYSTEM (30 YEARS-4%) C.S. COST H522610001 \$ 306,298 TOTAL ANNUAL 0&M \$ 490,592 \$ 490,592 TOTAL ANNUAL 0&M \$ 490,592 \$ 5,97,000 TOTAL PRESENT WORTH INTEREST NO, OF YEARS PRESENT WORTH OF 0.6M \$ 5,197,000 \$ 5,197,000 PRESENT WORTH OF CAPITAL \$ 5,281,000 \$ 10,478,000 TOTAL 3.0074AP PRESENT WORTH \$ 10,478,000 \$ 10,478,000	DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	建設N/A 就能		
TOTAL ANNUAL O&M \$ 490,592 TOTAL ANNUAL OBM ANNUAL TOTAL PRESENT WORTH INTEREST PRESENT WORTH OF OBM NO. OF YEARS PRESENT WORTH OF CAPITAL \$ 5,197,000 PRESENT WORTH OF CAPITAL \$ 5,281,000 TOTAL 2NYEAP REFERENT WORTH \$ 10,478,000	DEBT-COLLECTION SYSTEM (30 YEARS-4%)	E. 0.058	C.S. COST	15/281/000	\$	306,298
TOTAL PRESENT WORTH OF CAPITAL S. 10,476,000 S. 5,197,000 PRESENT WORTH OF CAPITAL S. 10,476,000 S. 5,281,000 C. 1014 J. 2017 AP PRESENT WORTH OF CAPITAL S. 10,476,0000 S. 10,476,000 S. 10,476,000 S. 10,476,0000	TOTAL ANNUAL O&M				\$	490,592
Intersect Intersect NO. OF YEARS PRESENT WORTH INTERST NO. OF YEARS PRESENT WORTH OF OAM S 5,197,000 PRESENT WORTH OF CAPITAL S 5,281,000 TOTAL 20,YEAP RESENT WORTH S 10,478,000						
IDIAL PRESENT WORTH Interest Interes Interest Interest <td></td> <td>INTEREST</td> <td></td> <td></td> <td></td> <td></td>		INTEREST				
PRESENT WORTH OF CAMPACINATION OF CAMPACINATICO OF CAMPACINATICO OF CAMPACINATICO OF CAMPACINATICO OF CAMPACINATICO OF	TOTAL PRESENT WORTH	Marile States 1000	STORESSION OF THE STORE		5	5 197 000
TOTAL 20.YEAR PRESENT WORTH \$ 10.478.000		1222 M. DESAVAS 9930	254 (26 16 19 16 16 16 16 16 16 16 16 16 16 16 16 16		ŝ	5,281,000
	TOTAL 20-YEAR PRESENT WORTH		.		\$	10,478.000

Hardin County Regional Facilities Plan

Service Area	Upper Younger Creek
Alternativa	Pump to E-Town Collection System:
Dosign Year	2027
Design Population	1580
Design Industrial Acres	

Impact to Existing Utility: Existing Collection System Existing WWTP

\$1,500 per customer \$500 per customer

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
		1		1_	
GRAVITY INTERCEPTOR SEWER	n an an an an an an an an an an an an an		(market) the same		
04NG	100,0		235,920,82	<u> </u>	380,600
12-100	10.0		10053184024	1.	236,400
15.100			TALEGRAPHICASE		<u> </u>
18-INCH	LIC SUBSCRIPTION		244303-000000000	4 २	
21-INC	1.5		ACCORDENCES IN CONTRACTOR OF C		
24-INCH	1000		201000000000000000000000000000000000000	e J	
27-INC	1.5 202202511000	PERLE	KMSCART2CD		
30-INC+	1.5	PERIF	BH220WFBLDS	4 s	
33-INC	130.0	PERLE	0.5550000000	s s	
38-INCH	140.00	PERLE	ACCORDING TO A	1.5	
42-INC	160.00	PER LE	COLORED AND	1-	
48-INC	S 201 180.00	PERIE	COST CONTRACTOR	i s	
MANHOLES	\$ 2,500,00	EACH	KINE ASSESS	i s	107 500
				Ť	101,000
FORCE MAIN	1	1		t	
4-!NCH	S 30.00	PERLF	Section of the	5	•
B-INCH	\$ 35.00	PER LF	1258890	\$	— ·
8-INCH	4D,00	PER LF	220000	\$	
10-INCH	\$ 45.00	PER LF	A STAR BAR	\$	-
12-INCH	\$ 50.00	PER LF	A REAL PARTY	\$	-
14-INCH	\$ 60.00	PER LF	CONTRACTOR OF	\$	-
16-INCH	\$ 70.00	PER LF		\$	-
18-INCH	\$ 80,00	PERLE	私にのなるのなか	\$	-
24-INCH	\$ 90,00	PERLF	No. of the local division of the local divis	\$	-
PUMP STATION (IF<1500 GPM USE 150 GPM+100 (200	GPM	556400988	\$	160,000
PUMP STATION (IF>1500 GPM USE 215*GPM+550,0	900)	GPM	规24002200	\$	160,000
PUMP STATION		GPM	\$175.000	Ş	-
WASTEWATER TREATMENT PLANT	\$ 4.00	AVE GPD	机运用形 法	S	-
SUBTOTAL BASE COST				\$	1,044,500
EASEMENTS	0.5%	<u> </u>		s	5,223
RESTORATION (PAVEMENT AND DRIVEWAY)	10%	>		\$	104,450
EROSION AND SEDIMENT CONTROL	1.5%	<u> </u>	I	\$	15,668
GENERAL CONDITIONS	87. 87			\$	83,560
SUBTOTAL CONSTRUCTION COST				ş	1,253,400
				-	
IMPACT TO EXISTING LITUITY	81. THE SEC. 21 40%		[]	\$	501,360
COLLECTION SYSTEM CAPACITY FEE	-	000 0 10 TOL 100			
NAMES CARACITY FEE	5 1,500.00	PER CUSTOMER	740	5	210,000
WWWIP CAPACITYPEE	5 000.00	PERCUSIOMER	140	Ş	70,000
TOTAL CARITAL COST ORINION***					0.005.000
TOTAL CAPITAL COST OPINION		¥	· · · · · · · · · · · · · · · · · · ·	\$	2,035,000
		Ł	l		
ANNUAL OPERATION& MAINTENANCE		i			
WASTEWATER TREATMENT PLANTS	1818-53185-843-84	1000 GAI	16/33030	5	51 356
PUMPING STATIONS	\$60.00	GPM	2053 BD1 898	\$	48,000
FORCE MAINS & INTERCEPTORS	\$0.10	PERLF	SSID 860 ST	ŝ	1 086
ADMINISTRATION	\$0.25	1000 GAL	E15:3303	ś	3 833
REPLACEMENT	\$0.25	1000 GAL	STRIN/ASSA	•	3,000
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	SPINA SE		
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	2:035:000	s	118.030
TOTAL ANNUAL OBM				Ś	222.304
				÷	
	ANNUAL		T		
TOTAL PRESENT WORTH	INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7.00%	S 200 S 10		\$	794,000
PRESENT WORTH OF CAPITAL				\$	1,034,000
TOTAL 20-YEAR PRESENT WORTH				\$	1,828,000

TOTAL 20-YEAR PRESENT WORTH

Property Owner will be responsible for cost to connect structure to new sewer *Excludes the cost from Design Year 2015 40% contingency is used to account for current variability in pipe and fuel costs Salvage value is excluded from present worth analysis Collector sewers cost are excluded from this analysis since they are common to all alternatives All costs in 3rd quarter 2007 dollars

Hardin County Regional Facilities Plan

Regional Facilities Plan	
Service Area	Cedar Greek
Altornativo	Rump to E-Town Collection System
Design Year	2027
Design Population	500
Design Industrial Acres	

Impact to Existing Utility: Existing Collection System Existing WWTP

\$1,500 per customer \$500 per customer

пем	UNIT COST	UNITS	NUMBER		COST
			OF UNITS		
GRAVITY INTERCEPTOR SEWER					
8-INCH	\$5.00	PERLF	Stat06018	\$	773,300
10-INCH	\$ 60,00	PERLF		\$	
12-INCH	S	PERLE		<u>\$</u>	-
15-INCH 18-INCH	52 20 20 00	PERLE	HERE AND A DESCRIPTION OF	\$	
21-INCH	S 90.00	PERLF		s	
24-INCH	\$ 100.00	PERLF		\$	-
27-INCH	\$ 110.00	PERLF		\$	-
30-INCH	\$ 120.00	PER LF		\$	
33-INCH	S 18, 130,00	PERLF	And the second s	\$	-
42-INCH	S12000000000000000000000000000000000000	PERLE	STREET, STREET	5	
48-INCH	S	PERLF		ŝ	
MANHOLES	\$ 2,500.00	EACH	52650388	\$	140,000
FORCE MAIN					
4-INCH	S5000030.00	PERLF	B\$19:210A	5	576,300
B-INCH	\$ 35.00	PERLF		\$	-
B-INCH	\$ 40.00	PERLF		\$	-
10-INCH	\$ 45.00	PER LF	A	\$	-
12-INCH	50.00	PERLF		ş	
14-INCH	5	PERIE	CONTRACTOR OF STREET	ŝ	-
18-INCH	\$ 80.00	PERLF	100000000000000000000000000000000000000	š	
24-INCH	\$	PERLF	建筑的建筑和	\$	-
		·			
PUMP STATION (IF<1500 GPM USE 150*GPM+100,	,000)	GPM	國家过40%家	\$	121,000
PUMP STATION (IF>1500 GPM USE 215"GPM+550, BUMP STATION	,000) Istorius (1997-1997)	GPM		5	<u> </u>
		GFM	Second States of States	3	-
WASTEWATER TREATMENT PLANT	S	AVE GPD		5	
					•
· · · · · · · · · · · · · · · · · · ·					
SUBTOTAL BASE COST				\$	1,610,600
· · · · · · · · · · · · · · · · · · ·					
EASEMENTS				\$	8,053
EROSION AND SEDIMENT CONTROL	100000000000000000000000000000000000000			\$	24 159
GENERAL CONDITIONS	8%			ŝ	128.848
SUBTOTAL CONSTRUCTION COST				\$	1,932,720
CONTINGENCY AND TECHNICAL SERVICE	40% (A)			Ş	773,088
COLLECTION SYSTEM CAPACITY FEE	\$120000	PER CLISTOMER	167	s	250.000
WWTP CAPACITY FEE	\$ 500.00	PER CUSTOMER	167	\$	83,333
		Í.			
TOTAL CAPITAL COST OPINION*			_	\$	3,039,000
· · · · · · · · · · · · · · · · · · ·		L			
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS		1000 GAL	经18,250路	S	61,138
PUMPING STATIONS	\$60.00	GPM	\$1140次来	\$	8,400
FORCE MAINS & INTERCEPTORS	\$0.10	PER LF	遂33270第	\$	3,327
	\$0.25	1000 GAL	副18,250款	5	4,563
DEBT-WWTP (20 YEARS-4%)	50,00 States	WWTP COST	TREN/AND		
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	3,039.000	\$	176.262
TOTAL ANNUAL O&M				\$	253,689
TOTAL PRESENT WORTH	ANNUAL INTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7.00%	· · · · · · · · · · · · · · · · · · ·		\$	906,000
PRESENT WORTH OF CAPITAL				\$	1,545,000
TOTAL 20-YEAR PRESENT WORTH				\$	2,451,000

DESCRIPTION Hardin County Regional Facilities Plan Service Area

regional rabinges r fait	
Service Area	Cedar Creek
Alternative	Fort Knox WWTP
Design Year	2027 1 3
Design Population	500 739 8
Design Industrial Acres	The second second second second second second second second second second second second second second second s

Impact to Existing Utility: Upgrade Existing Collection System

3년

ITEM	UNIT COST	UNITS	NUMBER OF UNITS	Τ	COST
				t	
GRAVITY INTERCEPTOR SEWER	1 A # 2021/05/04		the second second second second second second second second second second second second second second second s		
0-INCI	1000		12129050	<u> </u>	773,300
12-100				<u> 5</u>	·
15-INC	115	NE PERIE		1.	
18-INC	115 800			밟승	
21-INCI	H S 90.0	DI PERLE	LICENSES STREET		
24-INC	S 100.0	0 PER LF	South Manager	a š	
27-INC	- \$ 110.0	0. PER LF		a s	
30-INCH	1 \$ 120,0	0, PERLF		d s	
33-INCI	1 \$ 130.0	0 PERLF	St	\$	
36-INC	I \$:	0 PER LF		5	-
42-INCH	\$ 160.0	0 PER LF		15	-
48-INCH	180.0	0 PER LF		\$	-
MANHOLES	\$ 2,500.0	0 EACH		5	140,000
FORCE MAIN				┢	
4-INCH	S 30.0	0 PERLF	\$60:080\A	15	1.602.400
6-1NCI	\$ 35.0	0 PER LF		Ťŝ	
8-INCH	\$ 40.0	0 PERLF	SCHOOL SC	Ś	-
10-INCH	45.0	0. PER LF	1006301-000	5	-
12-INCH	\$	D PERLF		\$	-
14-INCH	\$60.0	0 PER LF		\$	-
16-INCH	S	DI PER LF		\$	•
18-INCH	\$ 80.0	D. PERLF		\$	•
24-JNCH	\$ 90.00	0 PER LF		\$	•
PUMP STATION (IF<1500 GPM USE 150°GPM+100,0	(00)	GPM	140.85	\$	121,000
PUMP STATION (IP>1500 GPM USE 215"GPM+550,0	00)	GPM	232030,230	\$	121,000
		ି GPM		\$	-
WASTEWATER TREATMENT PLANT	S. Cold States of M.	1 AVE COD	275 CALO SALES	-	
	WALL STREET	AVE GPD	120201200000000	2	· · ·
IMPACT TO EXISTING UTILITY			-		
UPGRADE TO COLLECTION SYSTEM		LUMP SUM	-	5	186 000
				Ť	100,000
SUBTOTAL BASE COST				\$	2.842.700
				<u> </u>	
EASEMENTS	0.59	6	ا س	\$	14,214
RESTORATION (PAVEMENT AND DRIVEWAY)	107	6		\$	284,270
EROSION AND SEDIMENT CONTROL	1:59			\$	42,641
GENERAL CONDITIONS	-7 8 %	6		\$	227,416
SUBTOTAL CONSTRUCTION CONT					
SUBTOTAL CONSTRUCTION COST			T 1	\$	3,411,240
CONTINGENCY AND TECHNICAL SERVICE	1000			-	4 004 400
CONTRIBUTION AND TECHNICAE OPICIOE	THE REPORT OF THE REPORT	<u> </u>	╉╍──┤	>	1,364,496
TOTAL CAPITAL COST OPINION**		1	<u> </u>	\$	4 776 000
			· · · · · · · · · · · · · · · · · · ·	<u>.</u>	4,110,000
ANNUAL OPERATION& MAINTENANCE					
WASTEWATER TREATMENT PLANTS	e=0152;00	1000 GAL	2518,2502	\$	36,500
FUMPING STATIONS	\$60.00	GPM	建設280米 建	\$	16,800
ADMINISTRATION	0.000	PERLF	A264102	<u>\$</u>	6,414
REPLACEMENT	\$0.20	1000 GAL	國約8)250國	\$	4,563
DEBT-WWTP (20 YFARS.4%)	0.074	1000 GAL	REALINY	_	
DE8T-COLLECTION SYSTEM (30 YEARS 4%)	0.0742238	C S COST	HARREN/AMAR		
TOTAL ANNUAL OF		0.3.0051	2011/02/00	<u>}</u>	211,008
TOTAL ARROAL UAM				<u> </u>	341,285
F/	ANNUAL				
OTAL PRESENT WORTH	NTEREST	NO. OF YEARS			
PRESENT WORTH OF O&M	7.00%	AT 19 18 19 10		5	1,219,000
PRESENT WORTH OF CAPITAL				5	2,428,000
TOTAL 20-YEAR PRESENT WORTH					3.647.000

Hardin County Regional Facilities Plan

y requonant aomaoo r mar		
Service Area	Clear	Creek
Alternative	Pump to E Town	Collection System
Design Year	2027	
Design Population	经已经1690 单次的	
Design Industrial Acres	EO BAX	
		-

Impact to Existing Utility: Existing Collection System Existing WWTP

\$1,500 per customer \$500 per customer

GRAVITY INTERCEPTOR SEWER	1 001 000
	1,021,000
12.INCH (\$\$2535778500) PER LE	
15-INCH 53/55/50/00 PER LE 85/56/50/56 S	
18-INCH (\$1/2/2/2/2000) PER LE (\$1/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2	-
21-INCH (\$ 90.00 PER LF 30.00 S	
24-INCH S 100.00 PER LF SS 30.00 S	-
27-INCH \$ 110,00 PER LF \$	-
30-INCH S 120.00 PER LF 300 States S	-
33-INCH (\$ 200 130.00) PER LF (18 13 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-
36-INCH \$ 法法法法法 140.00 PER LF 26460048 \$	
42-INCH (\$ 2000) PER LF	-
48-INCH \$100年66/180/00 PER LF # # # # # # # # # # # # # # # # # #	-
MANHOLES \$70,500,000 EACH \$10,2210 \$	330,000
FORCE MAIN	
4-INCH \$222233000 PER LF 83336288 S	-
6-INCH \$33,536,000 PER LF \$36,666 \$	
8-INCH \$ 36777740000 PER LF 8408908 \$	755,600
10-INCH \$ \$ \$ \$ \$ \$ \$ \$ \$	-
12-INCH \$. 50.00. PER LF \$	-
14-INCH \$2220000 PER LF 网络网络网络 \$	
16-INCH \$30000 PER LF \$30000 S	•
18-INCH STANDARD PER LF	-
24-INCH \$332 30.001 PER LF SERVICE \$	<u> </u>
	407 500
PUMP STATION (IF<1500 GPM USE 150 GPM+100,000) GPM (IF<1500 GPM (IF<1500 GPM (IF<1500 GPM)) GPM (IF<1500 GPM (IF<1500 GPM)) GPM (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM) (IF<1500 GPM)	164,500
PUMP STATION (IP>1500 GPM USE 215 GPM 530,000) GPM INTERPOSE OF INTERPOSE	-
FUMP STATION GEN STREAM	<u> </u>
WASTEWATER TREATMENT PLANT	
· · · · · · · · · · · · · · · · · · ·	
SUBTOTAL BASE COST	3.071.700
EASEMENTS CONSTRUCTOR S	15.359
RESTORATION (PAVEMENT AND DRIVEWAY)	307,170
EROSION AND SEDIMENT CONTROL 3	46,076
GENERAL CONDITIONS	245,736
SUBTOTAL CONSTRUCTION COST \$	3,686,040
CONTINGENCY AND TECHNICAL SERVICE	1,474,416
IMPACT TO EXISTING UTILITY	
COLLECTION SYSTEM CAPACITY FEE S1 500,000 PER CUSTOMER 563 \$	845,000
WWTP CAPACITY FEE \$5000000 PER CUSTOMER 563 \$	281,667
TOTAL CAPITAL COST OPINION" \$	6,287,000
ANNUAL OPERATION& MAINTENANCE	
WASTEWATER TREATMENT PLANTS WASTEWATER TREATMENT PLANTS WASTEWATER TREATMENT PLANTS	206,645
PUMPING STATIONS GPM 22243022 S	25,800
FURGE MAINS & INTERCEMPTORS 2000 STATE ADAPTION STATE	5,201
AUMIDIA INA INA INA INA INA INA INA INA INA I	15,421
	304 640
	517 742
TOTAL ANNUAL UAM	017,713
ANNIA	
TOTAL PRESENT WORTH INTEREST NO. OF YEARS	
PRESENT WORTH OF OAM STORY STRATON STRATE STRATE	2,206.000
PRESENT WORTH OF CAPITAL S	3,196.000
TOTAL 20-YEAR PRESENT WORTH C	5 402 000

Hardin County Regional Facilities Plan Facilities Plan Service Area Alternative Bump to New Southern WMT P

Attemative	Scrump to New 3
Dosign Year	2017
Dosign Population	920
Design Industrial Acres	全国的民 的 国际保险

Impact to Existing Utility; Not Applicable

ITEM	UNIT COST	UNITS	NUMBER OF UNIT:	2	COST
GRAVITY INTERCEPTOR SEWER				╧	
BINCH	100000000000000000000000000000000000000	N DEDIE			4 530 550
10-INC	60 O		28/2/30000 19875-56000		1,550,650
12-INC	S 65.0	0 PERLE	100000000000000000000000000000000000000	불충	
15-INC	\$ 70.0	D PERLF	1000503485	å s	
18-INCH	S 80.0	0 PER LF	Sec. 20	al s	-
21-INCH	\$ 90,0	D PER LF	Sector Sector	8 \$	-
24-INC)	100.0	D PER LF		3 \$	
27-INCH	S. 110.0	D PER LF		š \$	-
30-INCH	120.0	D PERLF	South States	<u>ś</u> \$	-
33-INCH	S 130.00	PER LF	BARREN	š \$	-
36-INCh	140.00) PER LF	<u> 22 (SI) 418</u>	<u> </u>	•
42-INCF	100 O		323562534	45	
MANHOLES	2 500 00	EACH	2223061585 222464455		177 500
	10		Social Desi	1 -	211,500
FORCE MAIN	1			╋	
4-INCH	S 30.00). PERLF	\$24,230	i s	726,900
6-INCH	S 35.00) PER LF	846:150	\$	1,615,250
B-INCH	\$ 40.00	PERLF	e sances	ş	-
10-INCH	\$	PER LF	and the	£ \$	-
12-INCH	\$ 50.00	PER LF	建物的	\$	•
14-INCH	S 60.00	PER LF	BREEDE	\$	-
16-INCH	\$	PERLF		\$	•
38-INCH	80.00		100000	\$	-
20-INCR	S	PERLF	MANGES, COM	15	
PUMP STATION (IE<1500 GPM USE 150 GPM+100	0001	GPM	3555900767	-	145.000
PUMP STATION (IF>1500 GPM USE 215"GPM+550	.000)	GPM	5536100397	5	145,000
INTERMEDIATE PUMP STATION	WHET CORRESPOND	GPM	2230059	ŝ	145 000
		· · · · · · · · · · · · · · · · · · ·	-	F	
WASTEWATER TREATMENT PLANT	\$ 4.00	AVG GPD	图92,0003	\$	368,000
		I			
· · · · · · · · · · · · · · · · · · ·			<u> </u>		
SUBTOTAL BASE COST		·	<u> </u>	Ļ	4 6 22 266
		1	Υ	r -	4,923,300
EASEMENTS	0.5%			5	24 617
RESTORATION (PAVEMENT AND DRIVEWAY)	10%			š	492,330
EROSION AND SEDIMENT CONTROL	1.5%			š	73.850
GENERAL CONDITIONS	8%			\$	393,864
			l		
SUBTOTAL CONSTRUCTION COST				\$	5,907,960
CONTINGENCY AND TECHNICAL SERVICE	40%			\$	2,363,184
		L		Ļ.,	
TUTAL CAPITAL COST OPINION**				Ş	8,271,000
		l			
ANNUAL OPERATION& MAINTENANCE		· · · · · ·	,		
WASTEWATER TREATMENT PLANTS	100 Mar	1000 GAL	233 580 2	s	33.580
PUMPING STATIONS	\$60.00	GPM	101700 per	ŝ	42.000
FORCE MAINS & INTERCEPTORS	S0.10	PERLF	\$\$98,210%	ŝ	9.821
ADMINISTRATION	\$0:50	1000 GAL	\$33,580¥	\$	16,790
REPLACEMENT	\$0,25	1000 GAL	333 580 1	\$	8,395
DEBT-WWTP (20 YEARS-4%)	0.074	WWTP COST	2618;2293	\$	45,749
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	2(852)771)	\$	443,861
TOTAL ANNUAL O&M				\$	600,196
	ANNITAL			_	
FOTAL PRESENT WORTH	NTEREST	NO. OF YEARS			- 1
PRESENT WORTH OF O&M	7.00%	20		\$	6,358.000
PRESENT WORTH OF CAPITAL				\$	8,271,000
TOTAL 20-YEAR PRESENT WORTH				\$	14,629,000

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Hardin County Regional Facilities Plan Sorvice Area 2000 a Soriera Service Areas Alternative 2017 2017 a Soriera Service Areas Design Year Design Year Design Population

3. 970
1993 - 1 0 11993 - A

180 GPM available capacity at Bonnieville intermediate PS Impact to Existing Utility:

ITEM	UNIT COST	UNITS	NUMBER OF UNITS		COST
				t	
GRAVITY INTERCEPTOR SEWER					
B-INCH	\$ 55.00	PERLF	220,030	15	1,145,650
	S 65 00		ESCHERCER STR		
12-3001	S 20.00	PERLE	SATISTICS PROF		
18-INCH	S 80.00	PERLF	Rectances and	Ť	
21-INCH	S 90.00	PERLF	2000000	Ťŝ	-
24-INCH	\$ 100.00	PERLF	S. State State	\$	-
27-INCH	\$110.00	PER LF	748 K 558	5	-
30-INCH	S 120.00	PERLF	A CONTRACTOR	\$	-
33-INCH	S 130.00	PERLF	他的智慧的态	\$	-
36-INCH	\$	FERLF		\$	-
42-INCH	S 160.00	PER LF	ZAMERICA	15	-
48-INCH	S 180.00	PERLF	Section of the	1 <u>s</u>	-
MANHOLES	2,500.00	EACH	2229032958	┡	207,500
FORCE MAIN	·		+	┢──	
4-INCH	\$ 30.00	PER LF	@24/230%	s	726,900
6-INCH	\$ 35.00	PERLF	3037002	s	1,179,500
8-INCH	\$ 40.00	PERLF	STREET, ST	\$	-
10-INCH	\$ 45.00	PERLF	Salar Salar	\$	-
12-INCH	\$ 50.00	PERLF	1222	\$	-
14-INCH	\$ 60.00	PERLF	STARSAR ST	\$	-
16-INCH	\$	PER LF		\$	-
18-INCH	\$ 80.00	PER LF	20000	\$	
20-INCH	(\$44) - 14 900	PER LF	12.22464075	<u> </u>	· · · ·
PUMP STATION (IE<1500 GPM LISE 150*GPM+100	000)	GPM	1262150000	-	122 600
PLIMP STATION (IF>1500 GPM USE 215°GPM+550	000)	GPM	2235480.000	10	127,000
PUMP STATION		GPM	REALENDER	Š	127,000
			100000000	Ť	
WASTEWATER TREATMENT PLANT	\$ 4.00	AVG GPD	Sales of	\$	-
IMPACT TO EXISTING UTILITY					
UPGRADE TO EXISTING COLLECTION SYSTEM			XXBIEKZ		
VEW EQUALIZATION BASIN AND ODOR CONTROL	\$ 2.00	AVE GPD	2892,000 b	\$	184,000
				Ļ	2 602 050
SOBIOTAL BASE COST		i.	1	r <u>è</u> -	3,693,050
FASEMENTS				~	19.465
RESTORATION (PAVEMENT AND DRIVEWAY)	10%			s	369 305
EROSION AND SEDIMENT CONTROL	1.5%			ŝ	55,396
GENERAL CONDITIONS	8%			\$	295,444
SUBTOTAL CONSTRUCTION COST				\$	4,431,660
CONTINGENCY AND TECHNICAL SERVICE	40%			\$	1,772,664
				í É	
TOTAL CAPITAL COST OPINION**				\$	6,204,000
		I		L	
			,		
WASTEWATER TREATMENT PLANTS	KARAN CATANGONE	1000 GAI	2033359019	s	152 453
PUMPING STATIONS	\$60.00	GPM	935330334	5	19.800
FORCE MAINS & INTERCEPTORS	\$0.10	PERLF	878 780	ŝ	7.876
ADMINISTRATION	\$0.25	1000 GAL	2335802	\$	8,395
REPLACEMENT	\$0.00	1000 GAL	SENVAGO		
DEBT-WWTP (20 YEARS-4%)	10.074	WWTP COST	臺309前048	\$	22,874
DEBT-COLLECTION SYSTEM (30 YEARS-4%)	0.058	C.S. COST	5.694,896	\$	341,904
TOTAL ANNUAL O&M				\$	553,302
TOTAL PRESENT WORTH	ANNUAL INTEREST	NO. OF YEARS			
PRESENT WORTH OF OAM	7.004	10 10 10 10 10 10 10 10 10 10 10 10 10 1	┝──┨	s	5 882 000
PRESENT WORTH OF CAPITAL	· · · · · · · · · · · · · · · · · · ·			ŝ	6.204.000
TOTAL 20-YEAR PRESENT WORTH				÷.	12,066,000

Hardin County Regional Facilities Plan Condes A 1.000

SOLAICE VIOR	Carbon & Solio	A Service Areas
Alternative	Pump to E-Town	Gollection System
Design Year	2至42017.381世	
Design Population	· 20页 920 / 20 / 20 / 20 / 20 / 20 / 20 / 20	
Dosign Industrial Acres	公元派出0定的部级	

Impact to Existing Utility: Existing Collection System Existing WWTP

\$0 per customer \$500 per customer

ITEM	UNIT COST	UNITS	NUMBE OF UNIT	R	COST
				1	
GRAVITT INTERCEPTOR SEWER	THE REAL PROPERTY AND				
8-IN	-FI -32 -2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	OU PERLE	3227630	<u>.</u>	\$ 1,530,650
12-IN	THE CONSTRUCTION OF		100000		\$
15-INC	H St. 70				
18-INC	HIS BO	00 PERIF	20000000000	後 (<u> </u>
21-INC	CH \$10.000	0 PERLE	AND DESCRIPTION OF THE	教会	<u> </u>
24-INC	CH 5	0 PERLE	10100000000	麗く	
27-INC	CH \$ 110.	0 PERLF	Line and Lin		
30-INC	CH S 120.0	0 PERLF			
33-INC	H \$ 130.	0 PERLF	330000000		
36-INC	H \$	0 PERLF	2220000	a 5	
42-INC	H \$ \$ 66.0	0 PERLF	550000	能 5	
48-INC	H \$ 180.0	9 PERLF	1.000	a s	-
MANHOLES	\$ 2,500.0	EACH	5551111	8 \$	277,500
SOROF MAIN					
FORCE MAIN					
4-INC	H S 30.0	0 PERLF	\$24,230	劉 \$	726,900
6-INC	nis 35.0	0 PERLF	\$\$47,6130	ā s	1,649,900
8-INC	n 🎝 🔅 🖓 🔅 40.0	OV PER LF	SAME	š \$	
10-INC	прадежа: 3:4 5 0 настоящие селотория	VI PERLE	307536530	활동	-
14.NC		OF PERLF	100000	<u>8</u> 5	<u> </u>
16-INC	H S 200	OF PERLE	2222223	<u> </u>	-
18-INC	HIS PAG			25	<u> </u>
20-INC	H S On n		STRENGTER C		
	1997-1997-1997-1997-1997-1997-1997-1997	FERLE	12000000000000	15	<u> </u>
PUMP STATION (IF<1500 GPM USE 150'GPM+100	0001	CON	2005000200		
PUMP STATION (IF>1500 GPM USE 215'GPM+550	0000	GPM	5255000555	<u>213</u>	145,000
NTERMEDIATE PUMP STATION	CINCELLIN CENTER	GPM	2212541010-25	2 2 2 c	115,000
		00 m	1320000389	₽~-	145,000
NASTEWATER TREATMENT PLANT	S 4.00	AVG GPD	1232500000000	10	
	<u> </u>		COLOR THE STATE OF	ابْ ا	
				⊢	
SUBTOTAL BASE COST	r			÷	A 589 050
			T	Ť	4,000,000
EASEMENTS	0.59	6		5	22 950
RESTORATION (PAVEMENT AND DRIVEWAY	109	6		13-	458.995
EROSION AND SEDIMENT CONTROL	10286-001.59	6		Š	68 849
GENERAL CONDITIONS	89	6	<u> </u>	1š-	367,196
		<u> </u>	1	F	
SUBTOTAL CONSTRUCTION COST				\$	5,507,940
	1		T		
CONTINGENCY AND TECHNICAL SERVICE	40%			5	2,203,176
APACT TO EXISTING UTILITY				È	
COLLECTION SYSTEM CAPACITY FEE	\$454. (A)	PER CUSTOMER	307	\$	
WWTP CAPACITY FEE	\$, 500.00	PER CUSTOMER	307	\$	153,333
TOTAL CAPITAL COST OPINION**				\$	7,864,000
	·				
WASTEWATER TOCATION AND	Polyan Man and Polyan State				
PUMPING STATIONS	100000 \$ 3/35 March	1000 GAL	黨33,580驚	\$	112,493
FORCE MAINS & INTERCEPTORE	\$60.00	GPM	52807.00 道法	\$	42,000
	いいごう へん あみがみ ちゃうかい いん	I PERLE	近99/200运	\$	9,920
ADMINISTRATION	\$0.10	1000 0	The second second second		8 205
	\$0.10 \$0.25	1000 GAL	國33,580家	\$	0,000
ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS 4%)	\$0.10 \$0.25 \$0.00	1000 GAL 1000 GAL	33,580)×	\$	0,050
ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-3%)	\$0.10 \$0.25 \$0.00 0.074	1000 GAL 1000 GAL WWTP COST	883,580 820 820 820 820 820 820 820 820 820 8	<u>s</u>	0,333
ADMINISTRATION REPLACEMENT DEBT-WVTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNIAL COM	\$0.10 \$0.25 \$0.00 0.074 0.058	1000 GAL 1000 GAL WWTP COST C.S. COST	2833/58015 2820/A885 2860/A885 37/864/000	s s	456,112
ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL OBM	\$0.10 \$0.25 \$0.00 0.074 0.058	1000 GAL 1000 GAL WWTP COST C.S. COST	2833/58012 9201/A382 13501/A382 17/864/000	s s \$	456,112
ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL OBM	\$0.10 \$0.25 0.074 0.058	1000 GAL 1000 GAL WWTP COST C.S. COST	28335802 2820(A) 2820(A) 2820(A) 2820(A) 272864(000)	5 5 5	456,112
ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL OBM YAL PRESENT WORTH	\$0.10 \$0.25 0.074 0.074 ANNUAL INTEREST	1000 GAL 1000 GAL WWTP COST C.S. COST	2233;580);; 22DN(A))); 232DN(A))); 27(864(000))	s s \$	456,112
ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL O&M JTAL PRESENT WORTH PRESENT WORTH OF 06M	\$0.10 \$0.25 \$0.00 \$0.00 \$0.00 \$0.058 \$0.058 \$0.058 \$0.058 \$0.058 \$0.058 \$0.058 \$0.0058	1000 GAL 1000 GAL WWTP COST C.S. COST NO. OF YEARS	3335801X 920VA 331VA 331VA 321VA 37(864(000)	s s s	456,112 628,920
ADMINISTRATION REPLACEMENT DEBT-WWTP (20 YEARS-4%) DEBT-COLLECTION SYSTEM (30 YEARS-4%) TOTAL ANNUAL 0&M TAL PRESENT WORTH PRESENT WORTH OF 0&M PRESENT WORTH OF CAPITAL	\$0.10 \$0.25 \$0.00 \$0.074 \$0.058 \$0.058 \$0.058 \$0.058 \$0.058 \$0.0058 \$0.0058 \$0.0058 \$0.0074 \$0.0074 \$0.000 \$0.0074 \$0.0000 \$0.00000 \$0.0000 \$0.0000 \$0.0000 \$0.0000 \$0.0000 \$0.00000 \$0.0000 \$0.0000 \$0.000000 \$0.0000 \$0.0000 \$0.0000 \$0.00000 \$0.00000 \$0.0000 \$0	1000 GAL 1000 GAL WWTP COST C.S. COST NO. OF YEARS	33358018 520N/A385 520N/A385 57/864/000	5 5 5 5 5 5	456,112 628,920 6,663,000 7,864,000

APPENDIX H NONMONETARY FACTORS

INTRODUCTION

The economic analysis considers only the cost implications of each alternative. There are often nonmonetary factors that can influence the selection or rejection of a given alternative. This section explains how nonmonetary factors were considered and will illustrate the influence of these factors in tables for each alternative. The nonmonetary factors were developed by evaluating the alternatives for the full 20 year planning horizon.

EVALUATION OF NONMONETARY FACTORS

Nonmonetary factors are included for watersheds that have been accepted into the revised Elizabethtown Planning Area. These factors were developed initially and retained for verification of the watersheds' acceptance into the Elizabethtown Planning Area.

In general, the Eastern Service Area watersheds had two conveyance and treatment alternatives evaluated; one being conveyance and treatment at a new Younger Creek WWTP. After KDOW determined that no wasteload allocation would be permitted for this proposed WWTP, this alternative was eliminated from the evaluation in the Eastern Service Area watersheds.

The scoring criteria used in the evaluation of nonmonetary factors is as follows: a score of 1 implies the factor is favorable for the alternative, a score of 0 implies the factor is neutral for the alternative, and a score of -1 implies the factor is unfavorable for the alternative. The favorability of each alternative is based on the sum of the nonmonetary factors. The nonmonetary factors considered in this RWWFP are explained below.

A. <u>Ability to Construct</u>

The ability to construct infrastructure was considered for each alternative. This includes the proposed force mains, pump stations, and new wastewater treatment plants (if applicable). This factor examined location, land use, and population density.

B. <u>Ability to Expand</u>

The ability to expand the infrastructure for unexpected development was considered for each alternative. This factor examined the location and land use surrounding the proposed infrastructure.

C. <u>Ability to Upgrade for Future Flow</u>

The ability to upgrade the existing or proposed wastewater treatment plants was considered for each alternative. This factor examined the available capacity at the existing wastewater treatment plants as well as difficulty in upgrading the WWTPs.

D. <u>Operation and Maintenance</u>

The operation and maintenance of the proposed force mains, pump stations and WWTPs was considered for each alternative. This factor examined the length and location of the proposed force main and the capacity and location of the proposed pump station(s).

E. <u>Anticipated Public Acceptance</u>

The anticipated public acceptance for each alternative was considered. Typically, the public is more accepting of conveying wastewater to an existing facility than constructing a new facility.

F. <u>Regional Solution</u>

The potential for each alternative to represent a regional solution for wastewater conveyance and treatment needs was considered. The Kentucky Division of Water encourages regional facilities as solutions to wastewater conveyance and treatment demands. Regional facilities compete better for limited grant assistance.

G. <u>Reliability</u>

The reliability of the force main and pump station(s) proposed in each alternative was considered. Shorter force mains and smaller pump stations were considered more reliable than longer force mains with larger or multiple pump stations.

H. <u>Odor Potential</u>

The potential for odor creation was considered for each alternative. Alternatives with longer proposed force mains were considered to have more potential for odor creation because the wastewater is enclosed for a longer period of time therefore having a greater chance of anaerobic decomposition. This could cause more odors upon discharge.

I. Impact to Land

The impact to an area based on the location of the proposed infrastructure was considered for each alternative. This factor examined land use around the proposed infrastructure.

J. Impact on Future Development

The ability or inability to develop an area based on the proposed alignment of the infrastructure was considered for each alternative. This factor examined projected population and projected land use.

K. Impact to KPDES permit

The impact to the KPDES permits for the existing wastewater treatment plants was considered for each alternative. As the influent and effluent increases in a wastewater treatment plant, the concentration of various chemicals (e.g. nitrogen, phosphorus) is expected to decrease. This factor examined each wastewater treatment plants' available capacity as well as its success in meeting the current KPDES permit.

L. Impact to Receiving Stream

The impact to the receiving stream due to the increase in effluent was considered for each alternative. WWTPs discharging into larger streams will have less impact than WWTPs discharging into smaller streams. The average daily flow in the receiving streams for the existing and proposed WWTPs were examined to assess the impact on the stream.

M. Easement Acquisition

The ability to acquire easements necessary to develop the collection and conveyance infrastructure was considered for each alternative. This factor examined land use and population density to decide the difficulty or ease with which easements could possibly be obtained.

The following tables will illustrate the non-economic factor evaluation for each Watershed for the overall project planning horizon. The tables are grouped according to service area, with the Northern Service area Watersheds first, the Southern Area second, the Eastern Service area third, the Valley Creek Service area fourth, and the Upton and Sonora Service area fifth.

TABLE 1

NORTHERN SERVICE AREAS-UPPER SHAW CREEK NONMONETARY FACTORS

	Alternative			
Factor	Pump to Etown WWTP	Pump to Otter Creek WWTP	Pump to Radcliff WWTP	
Ability to Construct	1	0	0	
Ability to Expand	1	0	0	
Ability to Upgrade for Future Flow	1	0	0	
Operation and Maintenance	0	-1	-1	
Anticipated Public Acceptance	1	0	1	
Regional Solution	1	0	1	
Reliability	1	-1	-1	
Odor Potential	1	-1	-1	
Impact to Land	1	-1	-1	
Impact on Future Development	0	0	0	
Impact to KPDES permit	-1	0	0	
Impact to Receiving stream	0	0	0	
Easement Acquisition	0	-1	-1	
Total	7	-5	-3	

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Upper Shaw Creek Watershed.

TABLE 2

NORTHERN SERVICE AREAS- PAWLEY CREEK AND OTTER CREEK NONMONETARY FACTORS

	Alternative			
Factor	Pump to Vine Grove	Gravity Collection to Otter Creek	Pump to Radcliff WWTP	Pump to Fort Knox WWTP
Ability to Construct	0	1	-1	-1
Ability to Expand	0	-1	0	1
Ability to Upgrade for Future Flow	-1	0	0	1
Operation and Maintenance	0	0	-1	-1
Anticipated Public Acceptance	1	-1	1	1
Regional Solution	1	-1	1	1
Reliability	1	1	0	0
Odor Potential	0	1	-1	-1
Impact to Land	0	0	0	0
Impact on Future Development	0	0	1	0
Impact to KPDES permit	-1	0	1	1
Impact to Receiving stream	0	0	0	-1
Easement Acquisition	-1	-1	-1	1
Total	0	-1	0	2

The noneconomic factors indicate that conveying wastewater to the Ft. Knox WWTP may be the best alternative for the Pawley Creek and Otter Creek Watersheds.

TABLE 3

NORTHERN SERVICE AREAS- BRUSHY FORK CREEK NONMONETARY FACTORS

	Alternative			
Factor	Pump to Vine Grove WWTP	Pump to Otter Creek WWTP	Pump to Radcliff WWTP	Pump to Fort Knox WWTP
Ability to Construct	0	0	0	0
Ability to Expand	0	0	0	0
Ability to Upgrade for Future Flow	-1	0	0	0
Operation and Maintenance	0	-1	0	-1
Anticipated Public Acceptance	1	0	1	1
Regional Solution	1	0	1	1
Reliability	0	0	0	0
Odor Potential	0	0	0	0
Impact to Land	-1	-1	-1	1
Impact on Future Development	0	0	0	1
Impact to KPDES permit	-1	0	1	1
Impact to Receiving stream	0	0	-1	-1
Easement Acquisition	0	0	-1	-1
Total	-1	-2	0	2

The noneconomic factors indicate that conveying wastewater to the Fort Knox WWTP may be the best alternative for the Brushy Fork Creek Watershed.
NORTHERN SERVICE AREAS- MILL CREEK BRANCH NONMONETARY FACTORS

	Alternative		
Factor	Pump to E-Town WWTP	Pump to Otter Creek WWTP	Pump to Radcliff WWTP
Ability to Construct	1	-1	0
Ability to Expand	0	0	0
Ability to Upgrade for Future Flow	0	0	0
Operation and Maintenance	0	-1	-1
Anticipated Public Acceptance	1	0	1
Regional Solution	1	0	1
Reliability	0	-1	-1
Odor Potential	0	-1	-1
Impact to Land	0	-1	-1
Impact on Future Development	0	1	1
Impact to KPDES permit	-1	0	1
Impact to Receiving stream	0	0	-1
Easement Acquisition	-1	-1	0
Total	1	-5	-1

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Mill Creek Branch Watershed.

NORTHERN SERVICE AREAS- MILL CREEK NONMONETARY FACTORS

			Alternative		
Factor	Pump to Vine Grove WWTP	Pump to Fort Knox WWTP	Pump to Otter Creek WWTP	Pump to Radcliff WWTP	Pump to E-Town WWTP
Ability to Construct	0	0	0	0	0
Ability to Expand	0	0	0	0	0
Ability to Upgrade for Future Flow	-1	1	0	1	0
Operation and Maintenance	-1	-1	-1	-1	-1
Anticipated Public Acceptance	1	1	0	1	1
Regional Solution	1	1	0	1	1
Reliability	-1	-1	-1	-1	1
Odor Potential	-1	-1	-1	-1	0
Impact to Land	-1	0	-1	-1	-1
Impact on Future Development	0	-1	0	0	0
Impact to KPDES permit	-1	1	0	0	-1
Impact to Receiving stream	0	-1	0	-1	0
Easement Acquisition	0	0	0	0	1
Total	-4	-1	-4	-2	1

The noneconomic factors indicate that conveying wastewater to the Fort Knox WWTP or the Elizabethtown WWTP may be the best alternative for the Mill Creek Watershed.

NORTHERN SERVICE AREAS- FLIPPIN CREEK NONMONETARY FACTORS

	Alternative		
Factor	Pump to Vine Grove WWTP	Pump to Otter Creek WWTP	Pump to Radcliff WWTP
Ability to Construct	1	1	0
Ability to Expand	0	0	-1
Ability to Upgrade for Future Flow	-1	0	1
Operation and Maintenance	0	1	-1
Anticipated Public Acceptance	1	0	0
Regional Solution	1	0	1
Reliability	1	1	-1
Odor Potential	0	0	-1
Impact to Land	0	0	-1
Impact on Future Development	0	0	0
Impact to KPDES permit	-1	0	1
Impact to Receiving stream	0	0	0
Easement Acquisition	1	1	0
Total	3	4	-2

The noneconomic factors indicate that conveying wastewater to the Otter Creek WWTP may be the best alternative for the Flippin Creek Watershed.

NORTHERN SERVICE AREAS-UPPER FREEMAN CREEK NONMONETARY FACTORS

	Alternative	
Factor	Pump to E-Town WWTP	Pump to Otter Creek WWTP
Ability to Construct	1	-1
Ability to Expand	1	0
Ability to Upgrade for Future Flow	0	0
Operation and Maintenance	1	-1
Anticipated Public Acceptance	1	0
Regional Solution	1	0
Reliability	1	-1
Odor Potential	1	-1
Impact to Land	0	-1
Impact on Future Development	0	1
Impact to KPDES permit	-1	0
Impact to Receiving stream	0	0
Easement Acquisition	0	-1
Total	6	-5

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Upper Freeman Creek Watershed.

SOUTHERN SERVICE AREAS- MIDDLE CREEK BRANCH NONMONETARY FACTORS

	Alternative		
Factor	Pump to E-Town WWTP	Pump to Nolin River WWTP	
Ability to Construct	1	0	
Ability to Expand	0	0	
Ability to Upgrade for Future Flow	0	0	
Operation and Maintenance	-1	-1	
Anticipated Public Acceptance	1	0	
Regional Solution	1	0	
Reliability	0	0	
Odor Potential	-1	-1	
Impact to Land	0	-1	
Impact on Future Development	0	1	
Impact to KPDES permit	-1	0	
Impact to Receiving stream	0	1	
Easement Acquisition	-1	-1	
Total	-1	-2	

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Middle Creek Branch Watershed.

SOUTHERN SERVICE AREAS-ROSE RUN AND LOWER VALLEY CREEK NONMONETARY FACTORS

	Alternative	
Factor	Pump to E-Town WWTP	Pump to Nolin River WWTP
Ability to Construct	0	0
Ability to Expand	0	0
Ability to Upgrade for Future Flow	0	0
Operation and Maintenance	0	0
Anticipated Public Acceptance	1	0
Regional Solution	1	0
Reliability	1	1
Odor Potential	1	-1
Impact to Land	0	0
Impact on Future Development	0	1
Impact to KPDES permit	-1	0
Impact to Receiving stream	0	1
Easement Acquisition	0	0
Total	3	2

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Rose Run and Lower Valley Creek Watersheds.

SOUTHERN SERVICE AREAS-NOLIN RIVER, COX RUN, AND JACKSON BRANCH NONMONETARY FACTORS

	Alternative	
Factor	Pump to E-Town WWTP	Gravity Collection to Nolin River WWTP
Ability to Construct	1	0
Ability to Expand	0	1
Ability to Upgrade for Future Flow	0	0
Operation and Maintenance	0	1
Anticipated Public Acceptance	1	-1
Regional Solution	1	0
Reliability	0	0
Odor Potential	0	0
Impact to Land	1	0
Impact on Future Development	0	1
Impact to KPDES permit	-1	0
Impact to Receiving stream	0	0
Easement Acquisition	0	0
Total	3	2

The noneconomic factors indicate that conveying wastewater to the Nolin River WWTP may be the best alternative for the Nolin River, Upper Nolin River, North Upper Nolin River, Cox Run, and Jackson Branch Watersheds.

SOUTHERN SERVICE AREAS-BILLY CREEK NONMONETARY FACTORS

	Alternative	
Factor	Pump to E-Town WWTP	Pump to Nolin River WWTP
Ability to Construct	1	0
Ability to Expand	0	0
Ability to Upgrade for Future Flow	1	0
Operation and Maintenance	1	-1
Anticipated Public Acceptance	1	0
Regional Solution	1	0
Reliability	1	0
Odor Potential	0	-1
Impact to Land	1	0
Impact on Future Development	0	1
Impact to KPDES permit	-1	0
Impact to Receiving stream	0	0
Easement Acquisition	-1	-1
Total	5	-2

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Billy Creek Watershed

EASTERN SERVICE AREAS-BUFFALO CREEK NONMONETARY FACTORS

	Alternative
Factor	Pump to E-Town WWTP
Ability to Construct	1
Ability to Expand	0
Ability to Upgrade for Future Flow	0
Operation and Maintenance	1
Anticipated Public Acceptance	1
Regional Solution	1
Reliability	1
Odor Potential	0
Impact to Land	1
Impact on Future Development	0
Impact to KPDES permit	-1
Impact to Receiving stream	0
Easement Acquisition	0
Total	5

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Buffalo Creek Watershed.

EASTERN SERVICE AREAS-UPPER YOUNGER CREEK NONMONETARY FACTORS

	Alternative	
Factor	Pump to E-Town WWTP	
Ability to Construct	0	
Ability to Expand	0	
Ability to Upgrade for Future Flow	0	
Operation and Maintenance	0	
Anticipated Public Acceptance	1	
Regional Solution	1	
Reliability	0	
Odor Potential	-1	
Impact to Land	-1	
Impact on Future Development	0	
Impact to KPDES permit	-1	
Impact to Receiving stream	0	
Easement Acquisition	0	
Total	-1	

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Upper Younger Creek Watershed.

EASTERN SERVICE AREAS-CEDAR CREEK NONMONETARY FACTORS

	Alternative	
Factor	Pump to E-Town WWTP	Pump to Fort Knox WWTP
Ability to Construct	0	1
Ability to Expand	0	0
Ability to Upgrade for Future Flow	0	0
Operation and Maintenance	0	-1
Anticipated Public Acceptance	1	1
Regional Solution	1	1
Reliability	1	-1
Odor Potential	1	-1
Impact to Land	-1	0
Impact on Future Development	0	0
Impact to KPDES permit	-1	1
Impact to Receiving stream	0	-1
Easement Acquisition	-1	-1
Total	1	-1

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Cedar Creek Watershed.

EASTERN SERVICE AREAS-CLEAR CREEK NONMONETARY FACTORS

	Alternative	
Factor	Pump to E-Town WWTP	
Ability to Construct	1	
Ability to Expand	0	
Ability to Upgrade for Future Flow	0	
Operation and Maintenance	1	
Anticipated Public Acceptance	1	
Regional Solution	1	
Reliability	1	
Odor Potential	-1	
Impact to Land	-1	
Impact on Future Development	0	
Impact to KPDES permit	-1	
Impact to Receiving stream	0	
Easement Acquisition	-1	
Total	1	

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Clear Creek Watershed.

EASTERN SERVICE AREAS-UPPER BUFFALO CREEK NONMONETARY FACTORS

	Alternative
Factor	Pump to E-Town WWTP
Ability to Construct	1
Ability to Expand	0
Ability to Upgrade for Future Flow	0
Operation and Maintenance	0
Anticipated Public Acceptance	1
Regional Solution	1
Reliability	1
Odor Potential	0
Impact to Land	0
Impact on Future Development	0
Impact to KPDES permit	-1
Impact to Receiving stream	0
Easement Acquisition	-1
Total	2

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Upper Buffalo Creek Watershed.

EASTERN SERVICE AREAS-UPPER VALLEY CREEK NONMONETARY FACTORS

	Alternative	
Factor	Pump to E-Town WWTP	
Ability to Construct	0	
Ability to Expand	0	
Ability to Upgrade for Future Flow	0	
Operation and Maintenance	0	
Anticipated Public Acceptance	1	
Regional Solution	1	
Reliability	0	
Odor Potential	0	
Impact to Land	0	
Impact on Future Development	0	
Impact to KPDES permit	-1	
Impact to Receiving stream	0	
Easement Acquisition	0	
Total	1	

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Upper Valley Creek Watershed.

VALLEY CREEK SERVICE AREA-NONMONETARY FACTORS

	Alternative		
Factor	Pump to E-Town WWTP		
Ability to Construct	1		
Ability to Expand	0		
Ability to Upgrade for Future Flow	0		
Operation and Maintenance	1		
Anticipated Public Acceptance	1		
Regional Solution	1		
Reliability	1		
Odor Potential	0		
Impact to Land	1		
Impact on Future Development	0		
Impact to KPDES permit	-1		
Impact to Receiving stream	0		
Easement Acquisition	0		
Total	5		

The noneconomic factors indicate that conveying wastewater to the Elizabethtown WWTP may be the best alternative for the Valley Creek Watershed.

UPTON AND SONORA SERVICE AREA-SANDY CREEK AND DORSEY RUN NONMONETARY FACTORS

	Alternative			
Factor	Pump to E-Town WWTP	Pump to Nolin River WWTP	Pump to Caveland IPS	
Ability to Construct	0	0	0	
Ability to Expand	0	0	0	
Ability to Upgrade for Future Flow	0	0	0	
Operation and Maintenance	0	0	-1	
Anticipated Public Acceptance	1	0	1	
Regional Solution	1	0	1	
Reliability	-1	-1	-1	
Odor Potential	-1	-1	-1	
Impact to Land	-1	-1	0	
Impact on Future Development	1	1	0	
Impact to KPDES permit	-1	0	0	
Impact to Receiving stream	0	1	0	
Easement Acquisition	-1	-1	0	
Total	-2	-2	-1	

The noneconomic factors indicate that conveying wastewater to the Caveland Intermediate Pump Station may be the best alternative for the Sandy Creek and Dorsey Run Watersheds.

APPENDIX I NEWS ARTICLES OF PLAN



ABBY B4 NEIGHBORS 84 CALENDAR B2 PUZZLES B10 DEATHS B2 MONEY B8 HOROSCOPE . BII | MOVIES BIO

Study names top rural sewer needs Wastewater facilities plan lists three options for new rural lines

By JOHN FRIEDLEIN jfriedlein@thenewsenterprise.com

HARDIN COUNTY -The project manager of a rural sewer study announced last week which areas of the District No. 2 Regional county are considered high priority and gave examples of where their wastewater might flow.

Areas most in need of sewers are in the central and southern parts of the county, from Rineyville to just outside Elizabethtown to Upton.

Elizabethtown, Radcliff, Vine Grove and Fort Knox

already have sewers and And third, new facilities in ruwastewater treatment plants. ral areas could process the solution," said Sneve, who is Eleven smaller plants operate in the county - at schools and truck stops, for instance.

The Hardin County Water lists three options for new rural lines. First, they could flow to existing treatment plants in the county's three cities and at Fort Knox. Second, waste from Upton and Sonora most immediate need of sewmight travel to a Hart County plant, which has expressed interest in the project, said project manager Mark Sneve. cilities.

sewage.

station could handle may depend on its current load. The Elizabethtown treatment cen-Wastewater Facilities Plan ter, for instance, already is at 86 percent of its capacity, according to the study. Vine Grove, on the other hand, is at 41 percent.

> ers could have their lines flow to more than one of the existing or proposed treatment fa-

"It's not a one-size-fits-all with Strand Associates of The amount a particular Louisville. He addressed a group of county planners during a public forum about development issues.

The study, which will develop wastewater options for the next 20 years, is the first of its kind for the county as far as Judge-Executive Harry Almost all of the areas in Berry knows. A planned approach like this improves chances of receiving competitive grants, he said in a previ-

Turn to SEWER, B2

TOP PRIORITY

High-priority areas for rural sewer service in the next 10 years include: Boone Road LaVista Estates area Burns-Deckard School roads Heartland Mobile Home Park **Airview Estates** Thoroughbred Estates/Thousand Oaks Oxmoor Village Gilead Church-Glendale roads Glendale Industrial Site North Glendale Road area New Glendale Road area Valley Creek industrial area Sonora Upton Smithersville

SEWER: Second phase will determine costs, funding

Continued from B1

ous interview.

Sometime in the next few months, wastewater planners will listen to public comments during a forum.

The next step of the study will be to determine how cost and explore avenues for cern with planners as they government grants. Natural Resources and Conservation Service paid

for the \$200,000 study.

The need for sewers increases with housing development, most of which is occurring in rural areas of the county.

While these lines may spur even more development, they could help preserve the rural landscape. For example, builders could put homes on smaller lots, thereby saving room for greenspace. Issues such as rural much these projects might preservation are a major confunding, which could include consider changes to the The county's plan.

Increasing lot sizes to

make room for septic systems is an option under consideration.

Overloaded septic systems flood lateral fields and back up sewage into homes when heavy water use overloads the system. On a halfacre lot, it doesn't take long to develop a "big odor," said magistrate Doug Goodman, a former certified septic tank installer.

"Any time you get under an acre, you're just asking for trouble with septic systems," he said.

Goodman said there is a comprehensive "big need" for rural sewers. John Friedlein can be

reached at 769-1200, Ext. 237.

THE NEWS-ENTERPRISE

TUESDAY, OCTOBER 30, 2007

By SARAH BERKSHIRE sberkshire@thenewsenterprise.com

ELIZABETHTOWN - Hardin County Water District No. 2 recently completed a major study of wastewater needs in the county and a regional wastewater plan.

The study set out to determine the best way to bring sewer service to residents outside municipal service areas and to reduce the number of lateral Jeffries said.

Although building county wastewater treatment plants was considered, the study determined it would be best to collect and transport wastewater to existing treatment plants, he said.

served by Elizabethtown, Radcliff or Vine Grove in the second 10-year period, the release said. systems, which the study said are operating at 86, How the recommended plan would be imple-59 and 41 percent capacity respectively.

An agreement between local entities establishes that existing treatment plants are open to accepting county wastewater, though not commit-'ted, Jeffries said.

The study considered future demand on a Sonora and Glendale need the service to maintain county wastewater system. The population is exgrowth. pected to grow by 6,200 people in unincorporat-The \$200,000 study was funded by a grant lines, water district General Manager James ed areas of Hardin County in the next 10 years from the Natural Resource and Conservation and another 6,800 in the following 10 years, ac-Service. cording to a news release from Strand Associates, A copy of the plan is available for review at the an engineering firm that led the study. Hardin County Water District No. 2 office at 360 Infrastructure needed to collect and transport sewage from new developments would cost near-Ring Road in Elizabethtown. The idea applies to new developments not ly \$50 million in the first 10 years and \$30 million Sarah Berkshire can be reached at 769-1200, Ext. 428.

Report news of local interest. Call (270) 769-1200, Ext. 290, or e-mail ne@thenewsenterprise.com

eartland CITY, COUNTY, STATE AND REGION

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mented and other details, such as how the plan could be applied to already-developed areas, is still under review, Jeffries said.

"We would like to have county sewer," he said, noting that communities such as Rineyville,

APPENDIX J CLEARINGHOUSE LETTERS



Waterfront Plaza Suite 710 325 West Main Street Louisville, KY 40202 Phone: 502-583-7020 Fax: 502-583-7026

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www.strand.com

November 9, 2007

Mr. David L. Morgan Executive Director and State Historic Preservation Officer Kentucky Heritage Council 300 Washington Street Frankfort, Kentucky 40601

Re: Hardin County Water District No. 2 Regional Wastewater Facilities Plan

Dear Mr. Davis:

Strand Associates, Inc. is preparing a Regional Wastewater Facilities Plan for Hardin County Water District No. 2 (HCWD 2). The plan calls for the installation of wastewater collection systems, trunk sewers, pump stations, and force mains to convey wastewater to existing wastewater treatment plants at multiple locations in Hardin County. The attached figures show the <u>approximate</u> location of the trunk sewers, pump stations, and force mains for the projects expected to occur within the first 10 years of the 20 year plan. Gravity collector sewers would be located in developed or developing neighborhoods and connected to the trunk sewers.

Please review the proposed projects and reply with any concerns over local historical or archeological resources potentially affected by these projects. Should you have any questions concerning this matter, please do not hesitate contact me at (502) 583 7020.

Sincerely,

STRAND ASSOCIATES, INC.

Mark Sneve

Mark A. Sneve, P.E.

cc: James Jefferies, General Manager of HCWD 2

Enclosures:

Figure No.N-1 – Pawley Creek and Upper Otter Creek Watersheds Figure No.N-2 – Brushy Fork Creek Watershed Figure No.N-3 – Mill Creek Branch Watershed Figure No.S-1 – North Upper Nolin River and Rose Run Watersheds Figure No.E-1 – Upper Younger Creek Watershed Figure No.US-1 – Dorsey Run and Sandy Creek Watersheds

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www.strand.com

November 9, 2007

Mr. Wayne L. Davis Kentucky Fish and Wildlife Service #1 Sportsman's Lane Frankfort, Kentucky 40601

Re: Hardin County Water District No. 2 Regional Wastewater Facilities Plan

Dear Mr. Davis:

Strand Associates, Inc. is preparing a Regional Wastewater Facilities Plan for Hardin County Water District No. 2 (HCWD 2). The plan calls for the installation of wastewater collection systems, trunk sewers, pump stations, and force mains to convey wastewater to existing wastewater treatment plants at multiple locations in Hardin County. The attached figures show the <u>approximate</u> location of the trunk sewers, pump stations, and force mains for the projects expected to occur within the first 10 years of the 20 year plan. Gravity collector sewers would be located in developed or developing neighborhoods and connected to the trunk sewers.

The construction of these projects will have a positive affect on water quality and public health. Construction activity will attempt to minimize impacts to wetlands, disturbances to forest lands, and attempt to minimize stream crossings.

Please review the proposed projects and reply with any concerns over local fish and wildlife resources affected by these projects. Should you have any questions concerning this matter, please do not hesitate contact me at (502) 583 7020.

Sincerely,

STRAND ASSOCIATES, INC.

Mark Sneve

Mark A. Sneve, P.E.

cc: James Jefferies, General Manager of HCWD 2

Enclosures:

Figure No.N-1 – Pawley Creek and Upper Otter Creek Watersheds Figure No.N-2 – Brushy Fork Creek Watershed Figure No.N-3 – Mill Creek Branch Watershed Figure No.S-1 – North Upper Nolin River and Rose Run Watersheds Figure No.E-1 – Upper Younger Creek Watershed Figure No.US-1 – Dorsey Run and Sandy Creek Watersheds

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www.strand.com

November 9, 2007

Ms. Mindi Lawson U.S. Fish and Wildlife Service 3761 Georgetown Road Frankfort, Kentucky 40601

Re: Hardin County Water District No. 2 Regional Wastewater Facilities Plan

Dear Ms. Lawson:

Strand Associates, Inc. is preparing a Regional Wastewater Facilities Plan for Hardin County Water District No. 2 (HCWD 2). The plan calls for the installation of wastewater collection systems, trunk sewers, pump stations, and force mains to convey wastewater to existing wastewater treatment plants at multiple locations in Hardin County. The attached figures show the <u>approximate</u> location of the trunk sewers, pump stations, and force mains for the projects expected to occur within the first 10 years of the 20 year plan. Gravity collector sewers would be located in developed or developing neighborhoods and connected to the trunk sewers.

The construction of these projects will have a positive affect on water quality and public health. Construction activity will attempt to minimize impacts to wetlands, disturbances to forest lands, and attempt to avoid stream crossings.

Please review the proposed projects and reply with any concerns over local fish and wildlife resources affected by these projects. Should you have any questions concerning this matter, please do not hesitate contact me at (502) 583 7020.

Sincerely,

STRAND ASSOCIATES, INC.

Mark Sneve

Mark A. Sneve, P.E.

cc: James Jefferies, General Manager of HCWD 2

Enclosures:

Figure No.N-1 – Pawley Creek and Upper Otter Creek Watersheds Figure No.N-2 – Brushy Fork Creek Watershed Figure No.N-3 – Mill Creek Branch Watershed Figure No.S-1 – North Upper Nolin River and Rose Run Watersheds Figure No.E-1 – Upper Younger Creek Watershed Figure No.US-1 – Dorsey Run and Sandy Creek Watersheds

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